PALMDALE WATER DISTRICT
WATER SYSTEM MASTER PLAN

Draft Program EIR
State Clearinghouse No. 2017021042

Prepared for
Palmdale Water District

July 2018

ESA

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EXECUTIVE SUMMARY

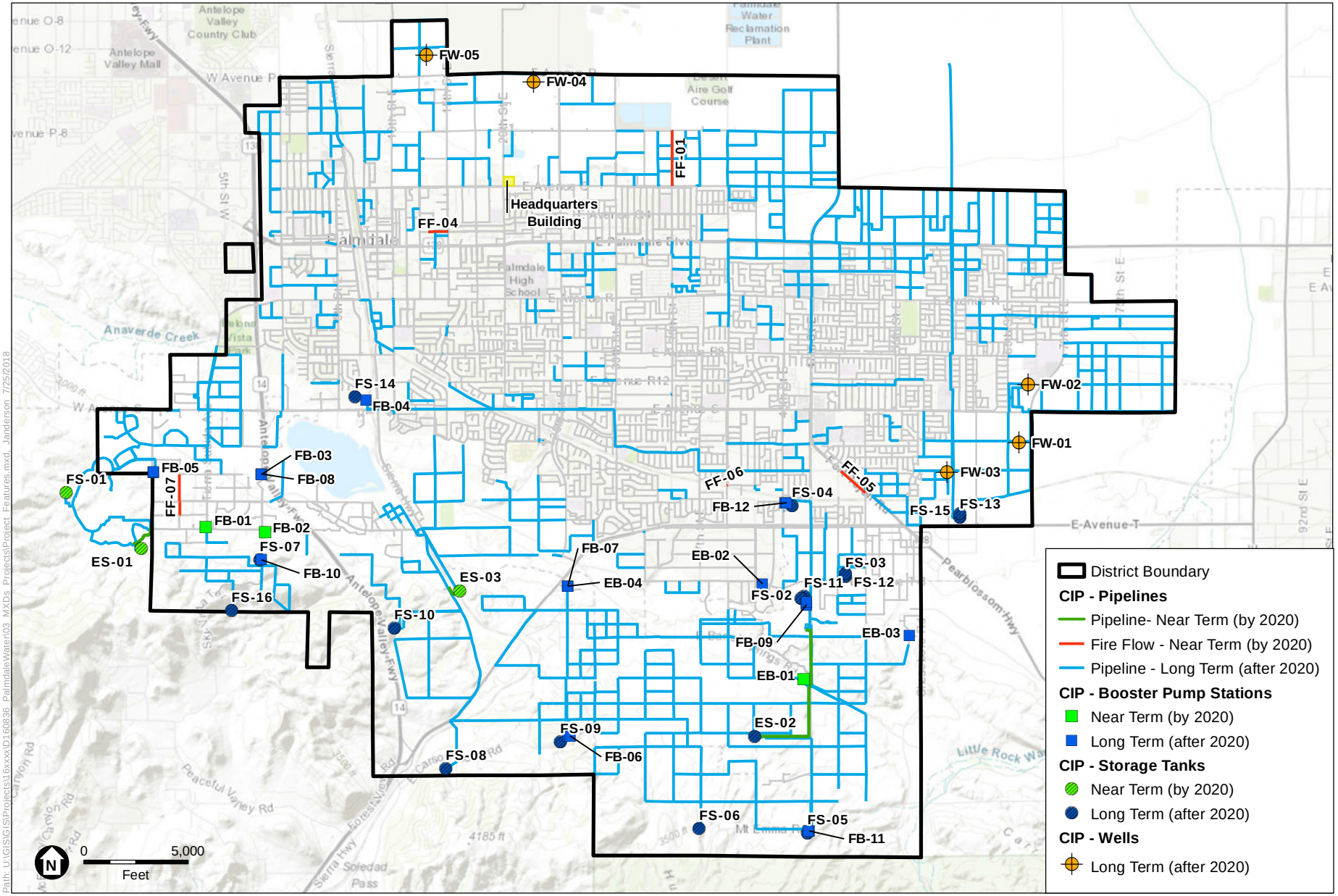
ES.1 Introduction and Background

The Palmdale Water District (PWD), as the lead agency pursuant to the California Environmental Quality Act (CEQA), is proposing to implement the 2016 Water System Master Plan (WSMP or proposed project) that outlines a programmatic plan for developing PWD's potable water system over the next 25 years. The WSMP was prepared to establish cost-effective water services that meet water quantity, water quality, system pressure and reliability requirements of its customers both immediately and into 2040 and beyond. The WSMP addresses both existing system deficiencies such as aging infrastructure as well as the need for facilities to accommodate for future growth. This includes facilities to be implemented by 2020 (near-term) as well as future projects to be implemented from 2021 through 2040 (long-term).

This Draft Program Environmental Impact Report (PEIR) has been prepared in compliance with the CEQA of 1970 (as amended), codified at California Public Resources Code (PRC) Sections 21000 et. seq., and the State *CEQA Guidelines* in the Code of Regulations, Title 14, Division 6, Chapter 3. The proposed project components are described further in Chapter 2 and shown in **Figure ES-1**.

PWD was founded in 1918 as an irrigation district that quickly grew into its current role as a predominately municipal and industrial services water supplier with the growth of Palmdale. PWD currently uses three sources of water supply, imported water from the State Water Project, local groundwater, and local surface runoff collected at the Littlerock Reservoir to provide water for approximately 120,000 people (PWD 2016).

The 2016 WSMP was prepared as an update to PWD's previous Water System Master Plan as a response to anticipated area population growth, which is expected to double over the next 25 years. The State of California set strict water conservation goals in lieu of the five-year drought, and in 2015 PWD served the least amount of water over the last 30 years. In 2010 PWD began to address these upcoming demands and identified a number of water resource options available to meet anticipated needs through a Strategic Water Resources Plan (PWD 2016).



SOURCE: Palmdale Water 2017

Palmdale Water District

Figure ES-01
2016 Water System Master Plan
Project Components

ESA

ES.2 Objectives

The primary objectives of the proposed WSMP are to:

- Provide cost-effective and fiscally responsible water services that meet the water quantity, water quality, system pressure, and reliability requirements of PWD customers;
- Improve or replace existing PWD water system infrastructure;
- Provide future water system infrastructure necessary to meet projected growth of PWD service area; and
- Ensure a potable water supply capable of meeting overall annual water demand that is projected to double over the next 25 years.

ES.3 Project Description

The proposed project would implement the Capital Improvement Plan (CIP) included in the WSMP. The recommended projects in the CIP would allow PWD to address existing hydraulic system deficiencies, replace aging infrastructure, and provide the facilities necessary to meet future growth. Implementation of actions under this WSMP would require the construction of various aboveground facilities and support infrastructure including storage tanks, pump stations, pipelines and wells. These projects are both near-term (by 2020) and long-term (after 2020). The near-term projects would include construction and operation of three storage tanks, three booster pump stations, and segments of transmission pipelines. The long-term project components would include the construction and operation of six storage tanks, seven new pumps at five existing pump stations, six new pump stations, five production wells, and over 700,000 feet of transmission pipelines. Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). Near-term projects in the CIP are evaluated at a project level, while long-term projects are considered at the programmatic level in this Draft PEIR.

ES.4 Project Alternatives

An EIR must describe a range of reasonable alternatives to the project or alternative project locations that could feasibly attain most of the basic project objectives and would avoid or substantially lessen any of the significant environmental impacts of the proposed project. The alternatives analysis must include the "No Project Alternative" as a point of comparison. The No Project Alternative includes existing conditions and reasonably foreseeable future conditions that would exist if the proposed project were not approved (*CEQA Guidelines* §15126.6). The following alternatives are discussed further in Chapter 6, Alternatives Analysis.

No Project Alternative: Under the No Project Alternative, PWD would not implement their CIP, and continue to use existing water infrastructure throughout its service area. Aging infrastructure and facilities required to meet fire flow requirements or address system deficiencies would be constructed or modified individually on an ad hoc basis. This would hinder PWD's ability to holistically address existing hydraulic system deficiencies, replace aging infrastructure, or provide the facilities necessary to meet future growth. Addressing these needs individually as opposed to holistically would impede the expediency at which these needs are met, potentially

interfering with PWD's ability to provide potable water to its customers given anticipated future population growth. Under the No Project Alternative, potable water would continue to be conveyed through existing PWD infrastructure, and the identified impacts associated with constructing and operating the proposed project would be avoided for all resource areas.

Reduced Project Alternative: Under the Reduced Project Alternative, PWD would only implement the WSMP near-term project components which address existing water system deficiencies that critically affect the ability of PWD to provide a reliable water supply to its customers. These components are the highest priority for PWD and are planned to be constructed prior to 2020. The Reduced Project Alternative involves constructing fewer components, only the most immediately vital to PWD's current needs. This would reduce construction time to only two years from 2019-2020. The Reduced Project Alternative would create less facilities and in turn result in fewer overall emissions, truck trips, and energy consumption and consequently fewer construction and operational-related cumulative impacts than that of the proposed project.

ES.5 Areas of Controversy

During the Notice of Preparation (NOP) public review period, concerns were raised regarding potential adverse impacts to the following: air quality, traffic and transportation, biological resources, water quality and hydrology, and hazards and hazardous materials. These concerns have been addressed in Chapter 3 of this Draft PEIR.

ES.6 Summary of Impacts

Table ES-1, at the end of this chapter, presents a summary of the impacts and mitigation measures identified for the proposed project. The complete impact statements and mitigation measures are presented in Chapter 3 of this Draft PEIR. The level of significance for each impact was determined using significance criteria (thresholds) developed for each category of impacts; these criteria are presented in the appropriate sections of Chapter 3. Significant impacts are those adverse environmental impacts that meet or exceed the significance thresholds; less than significant impacts would not exceed the thresholds. Table ES-1 indicates the measures that will be implemented to avoid, minimize, or otherwise reduce significant impacts to a less than significant level.

The *CEQA Guidelines* require that an EIR discuss the significant environmental effects of the proposed project (Section 15126.2(a)), which is summarized in Table ES-1 and provided in Chapters 3 and 4 of the Draft PEIR. The *CEQA Guidelines* also require that an EIR discuss the significant environmental effects which cannot be avoided (Section 15126.2(b)), and significant irreversible environmental changes which would be caused by the proposed project should it be implemented (Section 15126.2(c)). These are discussed below.

Significant Unavoidable Environmental Effects: As required by *CEQA Guidelines* Section 15126.2(b), an EIR must describe any significant impacts that cannot be avoided, including those impacts that can be mitigated but not reduced to a less than significant level. Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons the project is being proposed, notwithstanding their effect, should be described.

Chapter 3 of this Draft PEIR describes the potential environmental impacts of the proposed project and recommends mitigation measures to reduce impacts, where feasible. The only resource area that remains at a potentially significant and unavoidable level even after implementation of mitigation measures is noise during construction of the proposed project.

Significant Irreversible Environmental Changes: Section 15126.2(c) of the *CEQA Guidelines* require that an EIR analyze the extent to which a project's primary and secondary effects would affect the environment and commit nonrenewable resources to uses that future generations would not be able to reverse. "Significant irreversible environmental changes" include the use of nonrenewable natural resources during the initial and continued phases of the project, should this use result in the unavailability of these resources in the future. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of these resources are required to be evaluated in an EIR to ensure that such consumption is justified.

Construction and operation activities for the proposed project would require the commitment of renewable and non-renewable sources. Project implementation would necessitate the consumption of resources including, but not limited to: building materials, fuel and operational materials/resources, energy resources, and transportation of persons and goods to and from the proposed project sites. Construction activities would specifically require the use of concrete and asphalt, and would require the consumption of fossil fuels, including gasoline and oil, in order to provide power to construction vehicles and equipment. The majority of facilities constructed as part of the proposed project would involve reuse of excavated and stockpiled materials and would not result in an irretrievable commitment of resources. The use of nonrenewable resources for the implementation of the proposed project is justified and would not result in the unavailability of such resources.

ES.7 Organization of the Draft PEIR

This Draft PEIR is organized into the following chapters and appendices:

Executive Summary. This chapter summarizes the contents of the Draft PEIR.

Chapter 1, Introduction. This chapter discusses the CEQA process and the purpose of the Draft PEIR.

Chapter 2, Project Description. This chapter provides an overview of the proposed project, describes the need for and objectives of the proposed project, and provides detail on the characteristics of the proposed project.

Chapter 3, Environmental Setting, Impacts and Mitigation Measures. This chapter describes the environmental setting and identifies impacts of the proposed project for each of the following environmental resource areas: Aesthetics; Agriculture and Forestry Resources; Air Quality and Greenhouse Gas Emissions; Biological Resources; Cultural Resources; Geology, Soils and Mineral Resources; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use, Planning and Recreation; Noise; Public Services, Traffic and Transportation; Tribal Cultural Resources; and Utilities, Service Systems, and Energy.

Measures to mitigate the impacts of the proposed project are presented for each resource area, as applicable.

Chapter 4, Cumulative Analysis. This chapter provides a list of past, present and reasonably foreseeable projects in the project area and analyzes the cumulative impacts associated with the proposed project in each of the environmental impact areas described in Chapter 3.

Chapter 5, Growth. This chapter describes the potential for the proposed project to induce economic, population or housing growth in the surrounding environment.

Chapter 6, Alternatives. This chapter presents an overview of the alternatives development process and describes the alternatives to the proposed project that were considered.

Chapter 7, List of Preparers. This chapter identifies the key staff and the authors involved in preparing this Draft PEIR.

ES.8 References

PWD 2016. 2016 Water System Master Plan. Final Report. Prepared September 2016.

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impacts	Mitigation Measures	Significance after Mitigation
Aesthetics		
3.1-1: The proposed project could have a substantial adverse effect on a scenic vista.	**AES-1:** During project design, a landscape plan shall be prepared for proposed storage tanks that affect scenic resources. The landscape plan shall include measures to restore disturbed areas by replanting trees and/or reseeding with a native seed mix typical of the surrounding area. Vegetation screening shall also be included in order to assist in shielding the proposed aboveground facilities from public vantage points. **AES-2:** Aboveground buildings/structures shall be designed to have color palettes and vegetation screening as necessary to blend with the surrounding character of the site and to minimize contrasting features in the visual landscape.	Less than Significant with Mitigation
3.1-2: The proposed project would not substantially damage scenic resources related to a scenic highway.	None required.	No Impact
3.1-3: The proposed project could substantially degrade the existing visual character or quality of the site and its surroundings.	**AES-3:** Aboveground buildings/structures shall be designed to have similar aesthetic qualities to existing structures in the vicinity to minimize contrasting features in the visual landscape.	Less than Significant with Mitigation
3.1-4: The proposed project could create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	**AES-4:** All new permanent exterior lighting associated with proposed WSMP components shall be shielded and directed downward to avoid light spill onto neighboring parcels and visibility from surrounding public vantage points. **AES-5:** The proposed WSMP aboveground facilities shall be designed to include non-glare exterior materials and coatings to minimize glare or reflection. **AES-6:** Lighting used during nighttime construction, including any associated 24-hour well drilling, shall be shielded and pointed away from surrounding light-sensitive land uses.	Less than Significant with Mitigation
Agriculture and Forestry Resources		
3.2-1: The proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.	None required.	No Impact
3.2-2: The proposed project would not conflict with existing zoning for agricultural use, or a Williamson Act Contract.	None required.	No Impact

Impacts	Mitigation Measures	Significance after Mitigation
3.2-3: The proposed project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production.	None required.	No Impact
3.2-4: The proposed project would not involve other changes to the existing environment that could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.	None required.	No Impact
3.2-5: The proposed project would not result in the loss of forest land or conversion of forest land to non-forest use.	None required.	No Impact
Air Quality and Greenhouse Gas Emissions		
3.3-1: The proposed project could conflict with or obstruct implementation of the applicable air quality plan.	None required.	Less than Significant
3.3-2: The proposed project could violate an air quality standard or contribute substantially to an existing or projected air quality violation.	**AQ-1**: The following mitigation measures shall be incorporated to minimize emissions of NOx associated with construction activities for the proposed project: • Construction activities shall require the use of 2010 and newer diesel haul trucks (e.g., material delivery trucks and soil import/export) to the extent feasible. • Off-road diesel-powered construction equipment greater than 50 horsepower shall meet Tier 3 emissions standards, including Level 3 CARB-Certified diesel particulate filters at a minimum and Tier 4 for equipment makes and models that are commercially available within the Mojave Desert Air Basin. **AQ-2:** For each individual project, PWD shall require by contract specifications that: • Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for a period of five minutes or more to avoid excessive idling. • Construction activities shall minimize use of diesel-powered generators and rely on the electricity infrastructure where appropriate power requirements are available without the need to construct additional infrastructure. • Construction trucks shall be routed along haul routes minimize travel adjacent to sensitive receptor areas where feasible.	Less than Significant with Mitigation
3.3-3: The proposed project could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative threshold for ozone precursors).	Implement Mitigation Measures AQ-1 and AQ-2.	Less than Significant with Mitigation

Impacts	Mitigation Measures	Significance after Mitigation
3.3-4: The proposed project could expose sensitive receptors to substantial pollutant concentrations.	Implement Mitigation Measures AQ-1 and AQ-2.	Less than Significant with Mitigation
3.3-5: The proposed project could create objectionable odors affecting a substantial number of people.	None required.	Less than Significant
3.3-6: The proposed project could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	None required.	Less than Significant
3.3-7: The proposed project could conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.	None required.	Less than Significant
Biological Resources		
3.4-1: The proposed project could have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.	**BIO-1: Pre-Construction Focused Surveys for Rare Plants.** The following measures are recommended to avoid and/or reduce potential impacts to special-status plants as a result of proposed project activities for near-term project components and long-term projects in undeveloped portions of the project area with suitable habitat: • A floristic survey focusing on the four special-status species (slender mariposa lily, Robbins' nemacladus, short-joint beavertail, and Mason's neststraw) with some potential to occur should be conducted by a qualified biologist for the aforementioned near-term project components and the long-term project components that are located in the San Andreas Rift Zone and the hilly topography south of it. The surveys should take place from April to May to cover the blooming period of the four species. The results of the survey should be documented in a report that will be submitted to CDFW. • If the floristic survey is positive for any of the four species (slender mariposa lily, Robbins' nemacladus, short-joint beavertail, and Mason's neststraw), or any other sensitive plant species, and the avoidance of the special-status plant species is not feasible, coordination with CDFW would be required to determine suitable mitigation. The mitigation strategy may include avoidance, on-site or off-site restoration, translocation, and/or seed collection. If restoration and/or translocation are needed, a restoration/revegetation plan must be prepared and approved by CDFW. At a minimum, the plan should include a description of the existing conditions, site selection criteria, site preparation and planting methods, maintenance and monitoring schedule, performance standards, adaptive management strategies, and identification of responsible parties.	Less than Significant with Mitigation

Impacts	Mitigation Measures	Significance after Mitigation
	BIO-2: Pre-Construction Focused Surveys for Special-status Reptiles. The following measures are recommended to avoid and/or reduce potential impacts to special-status reptiles (coast horned lizard and silvery legless lizard) as a result of proposed project activities on the aforementioned near-term project components and in portions of the project area with suitable habitat for the species: • A qualified biologist should conduct a preconstruction clearance survey throughout proposed impact areas for silvery legless lizard and coast horned lizard. If individuals are observed within or near the project work areas during preconstruction clearance surveys or construction monitoring, a qualified biologist should relocate the individuals to suitable habitat outside of the proposed impact areas so that construction-related impacts are avoided. • A qualified biologist should monitor the removal of vegetation to confirm special-status species are not impacted. • Prior to the commencement of construction activities, construction personnel should check under stationary equipment to confirm no wildlife species are present. • All trash should be collected daily and taken offsite for proper disposal. **BIO-3: Nesting Bird Surveys.** If project activities occur within the bird nesting season (generally defined as February 1st through August 31st), a qualified biologist should conduct a nesting bird survey within two weeks of the anticipated start date to identify any active nests within 300 feet of impact areas for most bird species, but 500 feet for raptors. If an active nest is found, the nest should not be impacted and project activities should be conducted as recommended by the biologist to avoid the nest, such as implementation of suitable buffer zones or postponing construction until the young have fledged and are no longer associated with the nest. A common nest buffer for most bird species is 300 feet, whereas raptors may require a buffer up to 500 feet; however, avoidance buffers may be reduced within urban areas, where appropriate, at the discretion of the biologist. **BIO-4: Protocol Burrowing Owl Surveys.** There is marginal breeding/wintering habitat for the species at the following near-term project components: ES-01, FS-01, ES-03, Pipeline FF-05, FF-06, the Pipeline along 47th Street East, and the Pipeline west of Lakeview Drive. A burrowing owl habitat assessment using CDFW protocols (CDFW 2012) should be conducted by a qualified biologist for these near-term project components and any long-term project component that is located within areas that are determined to have potential to support the species. For the near-term and long-term project components in areas that are assessed as having potential habitat to	

Impacts	Mitigation Measures	Significance after Mitigation
	support burrowing owl, presence/absence surveys will be conducted per CDFW protocol (CDFW 2012), as follows: • Four site visits are necessary to complete the protocol. For breeding season surveys, at least one site visit will be conducted between February 15 and April 15, and a minimum of three survey visits, at least three weeks apart, between April 15 and July 15, with at least one visit after 15 June. The initial survey will consist of the project site and a buffer of 150 meters, where access is available, that will be covered by qualified biologists using transects spaced seven to 20 meters apart, adjusting for vegetation height and density. All potential burrows used by burrowing owl as determined by the presence of one or more burrowing owls, pellets, prey remains, whitewash, or decoration will be mapped using a GPS device. Follow up surveys will then check any burrows that have been mapped. If conducting non-breeding season surveys, the same methods for breeding season surveys, but the three follow up visits will be spread evenly throughout the nonbreeding season. • If the surveys are positive for the presence of burrowing owl, CDFW will be consulted on how to proceed to avoid and minimize potential project-related impacts to this species. Mitigation and avoidance measures may include no-work buffers and/or seasonal limitations for burrows that cannot be avoided. Burrowing owl artificial burrow and exclusion plans are a potential option for burrows that would be directly impacted by project activities.	
3.4-2: The proposed project could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.	**BIO-5: Jurisdictional Waters Delineation and State Permitting.** Near-term pipelines (e.g., the pipeline along 47th Street East and Pipeline FF-01) cross waters that may be jurisdictional and could thus discharge into Waters of the State or alter of the bed and banks of streams regulated under Fish and Game Code. A jurisdictional delineation for these near term pipelines shall be conducted to determine the limits of potential jurisdictional waters. The results of the formal jurisdictional waters delineation will be used during project design to determine if jurisdictional waters can be avoided. If jurisdictional water can be avoided, then no further mitigation is necessary. If jurisdictional water features will be potentially impacted by the proposed project, then a Report of Water Discharge will be submitted to the Lahontan RWQCB and, if deemed necessary, Waste Discharge Requirements will be obtained from the agency. Concurrently, a Notification of Lake or Streambed Alteration will be submitted to the CDFW and, if deemed necessary, a Lake or Streambed Alteration Agreement will be obtained. Conditions for the certification and agreement may require additional surveys for plants and wildlife, as well as best management practices to minimize impacts.	Less than Significant with Mitigation

Impacts	Mitigation Measures	Significance after Mitigation
	For long-term storage tanks, pumps, pipelines, and wells, it is first recommended that project components be sited to avoid impacts to areas that appear to convey or pond water and any associated riparian habitat. If these areas cannot be avoided, a jurisdictional delineation for these facilities (as described above for near term pipelines) shall be conducted and associated permits obtained from RWQCB and CDFW.	
3.4-3: The proposed project could have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	**BIO-6: Native Desert Vegetation Removal Permit.** If project components, near-term or long-term, within the boundaries of the City of Palmdale cannot be sited to avoid impacts to native desert vegetation species including sensitive natural communities as defined by CDFW, then a native desert vegetation removal permit will be necessary. This specifically applies to removal of Joshua trees and/or California junipers on project sites with a density equal to or greater than two individuals per acre (per the Joshua Tree and Native Desert Vegetation Preservation Ordinance. The PWD shall comply with all terms and conditions of the permit, including preparation and implementation of a desert vegetation preservation plan. Associated conditions and measures could include but are not limited to: • A desert vegetation preservation plan prepared by a qualified biologist (i.e., desert native plant specialist) consisting of a written report and site plan depicting the location of each Joshua tree and/or California juniper and, if determined necessary by the City of Palmdale, a long-term maintenance program for any Joshua trees and/or California junipers left onsite. • Joshua trees and/or California junipers to be left onsite shall 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 and/or California junipers per acre cannot be preserved onsite (the minimum standard of preservation), the trees shall be transplanted to an ecologically appropriate offsite location by the Palmdale Water District as approved by the City of Palmdale. • In lieu of transplantation of Joshua trees and/or California junipers from areas to be developed by the project, the Palmdale Water District may satisfy the requirements of the City code through payment of a fee to the City. Joshua trees and/or California junipers preserved onsite, in landscape easements, or landscape assessment districts are to be maintained in a healthy condition for a minimum of two (2) 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.	Less than Significant with Mitigation
3.4-4: The proposed project could interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	None required.	Less than Significant

Impacts	Mitigation Measures	Significance after Mitigation
3.4-5: The proposed project could conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Implement Mitigation Measure BIO-6.	Less than Significant with Mitigation
3.4-6: The proposed project could conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.	None required.	Less than Significant
Cultural Resources		
3.5-1: The Project could cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.	**CUL-1: Future Study – Historic Resources.** Prior to development of long-term WSMP components that could potentially affect historic resources, PWD shall retain a Qualified Architectural Historian, defined as meeting the Secretary of the Interior's Professional Qualification Standards for architectural history (codified in 36 CFR Part 61; 48 FR 44738-44739), to conduct a historic resources assessment including: a records search at the South Central Coastal Information Center; a review of pertinent archives and sources; a pedestrian field survey; recordation of all identified historic resources on California Department of Parks and Recreation 523 forms; and preparation of a technical report documenting the methods and results of the assessment. All identified historic resources shall be assessed for the project's potential to result in direct and/or indirect effects to those resources and any historic resource that may be affected shall be evaluated for its potential significance prior to PWD's approval of project plans and publication of subsequent CEQA documents. The Qualified Architectural Historian shall provide recommendations regarding additional work or treatment for significant resources that will be affected by the project prior to their demolition or alteration.	Less than Significant with Mitigation.
3.5-2: The Project could cause a substantial adverse change in the significance of an archaeological resource, including those determined to be a historical resource defined in Section 15064.5 or a unique archaeological resource defined in PRC 21083.2.	**CUL-2: Retention of a Qualified Archaeologist.** Prior to start of any ground-disturbing activities for all near-term and long-term projects (i.e., demolition, pavement removal, pot-holing or auguring, boring, drilling, grubbing, vegetation removal, brush clearance, weed abatement, grading, excavation, trenching, or any other activity that has potential to disturb soil), PWD shall retain a Qualified Archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (codified in 36 CFR Part 61; 48 FR 44738-44739) to oversee and ensure that all mitigation measures related to archaeological resources are carried out. **CUL-3: Construction Worker Cultural Resource Sensitivity Training:** Prior to the start of any ground-disturbing activity for all near-term and long-term projects, the Qualified Archaeologist shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of archaeological resources that may be encountered, and of the proper procedures to be enacted in the event of an inadvertent discovery of archaeological	Less than Significant with Mitigation.

Impacts	Mitigation Measures	Significance after Mitigation
	resources or human remains. PWD shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance. **CUL-4: Archaeological Monitoring.** Archaeological resources monitoring shall be conducted as follows: • During ground disturbance related to construction of near-term pipelines FF-01, FF-04, FF-05, FF-06, and FF-07 and the pipeline leading to pump station EB-01 to a depth of 3 feet (depth at which archaeological sensitivity decreases and paleontological sensitivity increases) • During ground disturbance related to construction of near-term storage tank FS-01 to the terminal depth of excavation or until bedrock is reached • During ground disturbance related to construction of any and all long-term project components that the Qualified Archaeologist determines to have a moderate-to-high archaeological sensitivity (to depths to be determined by the Qualified Archaeologist) (see Mitigation Measure CUL-6) **CUL-5: Inadvertent Archaeological Discoveries. For all near-term and long-term projects, in the event of the** unanticipated discovery of archaeological materials, regardless of location, PWD shall immediately cease all work activities in the area (within approximately 100 feet) of the discovery until it can be evaluated by the Qualified Archaeologist. Construction shall not resume until the Qualified Archaeologist has conferred with PWD on the significance of the resource. If it is determined that the discovered archaeological resource constitutes a historical resource or unique archaeological resource pursuant to CEQA, avoidance and preservation in place shall be the preferred manner of mitigation. Preservation in place maintains the important relationship between artifacts and their archaeological context and also serves to avoid conflict with traditional and religious values of groups who may ascribe meaning to the resource. Preservation in place may be accomplished by, but is not limited to, avoidance, incorporating the resource into open space, capping, or deeding the site into a permanent conservation easement. In the event that preservation in place is determined to be infeasible and data recovery through excavation is the only feasible mitigation available, an Archaeological Resources Research Design and Treatment Plan shall be prepared and implemented by the Qualified Archaeologist in consultation with PWD that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource. PWD shall consult with interested tribal groups in determining treatment for prehistoric or Native American resources to ensure cultural values	

Impacts	Mitigation Measures	Significance after Mitigation
	ascribed to the resource, beyond those that are scientifically important, are considered. The Qualified Archaeologist shall also determine the level of archaeological monitoring that is warranted during future ground disturbance in the area, and if work may proceed in other parts of the project area while treatment for archaeological resources is being carried out. **CUL-6: Future Study – Archaeological Resources:** Prior to development of all long-term WSMP components that involve ground disturbance, PWD shall retain a Qualified Archaeologist, defined as meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (codified in 36 CFR Part 61; 48 FR 44738-44739), to conduct an archaeological resources assessment including: a records search update at the South Central Coastal Information Center; a Sacred Lands File search at the Native American Heritage Commission; a pedestrian field survey, where deemed appropriate by the Qualified Archaeologist; recordation of all identified archaeological resources on California Department of Parks and Recreation 523 forms; and preparation of a technical report documenting the methods and results of the study, and providing an assessment of the project area's archaeological sensitivity and the potential to encounter subsurface archaeological resources and human remains. All identified archaeological resources shall be assessed for the project's potential to result in direct and/or indirect effects to those resources and any archaeological resource that cannot be avoided shall be evaluated for its potential significance prior to PWD's approval of project plans and publication of subsequent CEQA documents. The Qualified Archaeologist shall provide recommendations regarding archaeological monitoring to be conducted in accordance with Mitigation Measure CUL-4, protection of avoided resources and/or recommendations for additional work or treatment of significant resources that will be affected by the project.	
3.5-3: The Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	**CUL-7: Retention of a Qualified Paleontologist.** Prior to start of any ground-disturbing activities for all near-term and long-term projects (i.e., demolition, pavement removal, pot-holing or auguring, boring, drilling, grubbing, vegetation removal, brush clearance, weed abatement, grading, excavation, trenching, or any other activity that has potential to disturb soil), PWD shall retain a Qualified Paleontologist meeting the Society of Vertebrate Paleontology standards (SVP, 2010). The Qualified Paleontologist shall conduct construction worker paleontological resources sensitivity training for all construction personnel. The training session shall focus on the recognition of the types of paleontological resources that could be encountered within the project area and the procedures to be followed if they are found. PWD shall retain documentation demonstrating that construction personnel attended the training.	Less than Significant with Mitigation.

Impacts	Mitigation Measures	Significance after Mitigation
	CUL-8: Paleontological Monitoring. Full-time paleontological resources monitoring for near-term and long-term projects shall be performed by a qualified paleontological monitor under the direction of the Qualified Paleontologist (SVP, 2010). Monitors shall have the authority to temporarily halt or divert work away from exposed fossils, in a radius of at least 50 feet, in order to recover the fossil specimens. Any significant fossils collected during project-related excavations shall be prepared to the point of identification and curated into an accredited repository with retrievable storage. Monitors shall prepare daily logs detailing the types of activities and soils observed, and any discoveries. The Qualified Paleontologist shall prepare a final monitoring and mitigation report to be submitted to PWD. Paleontological resources monitoring shall be conducted as follows: a) In sediments mapped as low-to-high paleontological sensitivity [i.e., Holocene alluvium (Qa)] all ground-disturbing activities that exceed 3 feet in depth (depth at which paleontological sensitivity increases) and occur in areas that have not been previously disturbed shall receive full-time paleontological monitoring. This depth is an estimate based on the recovery of fossils from the vicinity of the project area. The Qualified Paleontologist may reevaluate monitoring levels as construction progresses if the paleontological sensitivity of the area proves to be lower than anticipated. b) In sediments mapped as high paleontological sensitivity [i.e., Pleistocene alluvium (Qoa, Qos), shale and sandstone of the Anaverde Formation (Tac, Tas), and the shale and sandstone of the Punchbowl Formation (Tpc, Tps)], all ground-disturbing activities that occur in areas that have not been previously disturbed shall be receive full-time paleontological monitoring, at all excavation depths. The Qualified Paleontologist may reevaluate monitoring levels as construction progresses if the paleontological sensitivity of the area proves to be lower than anticipated. **CUL-9: Inadvertent Paleontological Discoveries.** For all near-term and long-term projects, if construction or other project personnel discover any potential fossils during construction, regardless of the depth of work or location, work at the discovery location shall cease in a 50-foot radius of the discovery until the Qualified Paleontologist has assessed the discovery and made recommendations as to the appropriate treatment. If the find is deemed significant, it shall be salvaged following the standards of the SVP (2010) and curated with a certified repository. Following a discovery, the Qualified Paleontologist shall also provide PWD with recommendations regarding future paleontological monitoring, if deemed warranted.	

Impacts	Mitigation Measures	Significance after Mitigation
3.5-4: The Project could disturb any human remains, including those interred outside of formal cemeteries.	**CUL-10: Inadvertent Discovery of Human Remains:** If human remains are encountered, then PWD shall halt work in the vicinity (within 100 feet) of the discovery and contact the County Coroner in accordance with Public Resources Code section 5097.98 and Health and Safety Code section 7050.5. If the County Coroner determines the remains are Native American, then the Coroner shall notify the California Native American Heritage Commission in accordance with Health and Safety Code subdivision 7050.5(c), and Public Resources Code section 5097.98. The California Native American Heritage Commission shall designate a Most Likely Descendant for the remains per Public Resources Code section 5097.98. Until the landowner has conferred with the Most Likely Descendant, the contractor shall ensure the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials.	Less than Significant Impact with Mitigation.
Geology, Soils, Seismicity and Mineral Resources		
3.6-1: The proposed project could expose people or structures to adverse geologic effects, including the risk of loss, injury or death involving rupture of a known earthquake fault.	None required.	Less than Significant
3.6-2: The proposed project could result in substantial soil erosion or the loss of topsoil.	**GEO-1: Topsoil Preservation.** All topsoil stripped from the ground surface during construction shall be used, to the extent feasible, for construction of other project elements and not hauled offsite. Any temporary stockpiles shall be managed through the use of best management practices, which shall include but not be limited to wetting and/or covering stockpiles to prevent wind erosion. Implement **Mitigation Measures HYD-1.**	Less than Significant with Mitigation
3.6-3: The proposed project could be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed project and potentially result in on-or off-site landslide, subsidence, liquefaction or collapse.	**GEO-2:** A geotechnical report shall be prepared by a certified engineer for all facilities involving substantial ground disturbance or excavation. The report shall assess subsidence, liquefaction, landslide, expansive soil potential and collapsible soil potential of each facility site. Structural mitigation recommendations provided in the geotechnical report shall be incorporated into the design of the facility prior to construction. **The contents of the geotechnical report shall vary depending on the jurisdiction and risks associated with each facility's location.**	Less than Significant with Mitigation
3.6-4: The proposed project could be located on expansive soils as defined in 24 CCR 1803.5.3 of the California Building Code (2016), creating substantial risks to life or property.	Implement **Mitigation Measure GEO-2.**	Less than Significant with Mitigation
3.6-5: The proposed project would not be located on soils incapable of adequately supporting the use of septic tanks or alternative reclaimed water disposal systems where sewers are not available for the disposal of reclaimed water.	None required.	No Impact

Impacts	Mitigation Measures	Significance after Mitigation
3.6-6: The proposed project could result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.	None required.	Less than Significant
Hazards and Hazardous Materials		
3.7-1: The proposed project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.	None required.	Less than Significant
3.7-2: The proposed project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	None required.	Less than Significant
3.7-3: The proposed project could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.	None required.	Less than Significant
3.7-4: The proposed project could be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, could create significant and cumulatively considerable hazard impacts to the public or the environment.	None required.	Less than Significant
3.7-5: The proposed project could be located within an airport land use plan or within two miles of a public airport, public use airport, or private airstrip, which could result in significant safety hazards for people residing or working in the project area.	Implement **Mitigation Measures LU-1**, **LU-2**, and **LU-3**.	Less than Significant with Mitigation
3.7-6: The proposed project could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	**HAZ-1:** In conjunction with **Mitigation Measure TR-1,** prior to initiating construction of pipelines within roadway rights-of-way, PWD shall prepare and implement a Traffic Control Plan that contains comprehensive strategies for maintaining emergency access. Strategies shall include, but are not limited to, maintaining steel trench plates at the construction sites to restore access across open trenches and identification of alternate routing around construction zones. In addition, police, fire, and other emergency service providers shall be notified of the timing, location, and duration of the construction activities and the location of detours and lane closures. The PWD shall ensure that the Traffic Control Plan and other construction activities are consistent with the Los Angeles County Operational Area Emergency Response Plan.	Less than Significant with Mitigation
3.7-7: The proposed project could expose people or structures to significant risk of loss, injury, or death involving wildland fire.	**HAZ-2: Implement Fire Hazard Reduction Measures.** During construction of facilities located in areas designated as moderate, high, or very high fire hazard severity zone by CAL FIRE, PWD shall require that all staging areas, welding areas, or areas slated for development	Less than Significant with Mitigation

Impacts	Mitigation Measures	Significance after Mitigation
	using spark-producing equipment shall be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. During the construction of the WSMP facilities, contractors shall require all vehicles and crews to have access to functional fire extinguishers at all times. In addition, construction crews shall have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks.	
Hydrology and Water Quality		
3.8-1: The proposed project could violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality (including groundwater quality).	**HYD-1: Post-Construction Stabilization**. Following implementation of project facilities, areas of disturbance shall be restored to pre-construction conditions with regard to vegetation cover. Existing vegetation shall be preserved to the maximum extent practicable during construction activities. If no vegetation was present prior to construction, the site shall be compacted to achieve soil stabilization. **HYD-2: Source Control BMPs**. PWD shall implement source control BMPs for all activities at project sites, including but not limited to accidental spills and leaks, outdoor equipment operations, and building and grounds maintenance. Source control BMPs shall be designed to prevent chemicals associated with these activities from coming into contact with stormwater. PWD shall refer to the latest version of the California Stormwater Quality Association's Construction BMP Online Handbook.	Less than Significant with Mitigation
3.8-2: The proposed project could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.	**HYD-3:** Future Coordination with Antelope Valley Watermaster Engineer. For all future long-term wells to be implemented under the WSMP, PWD shall coordinate with the Watermaster to conduct a material harm review of the proposed groundwater wells as well as the available groundwater rights. PWD shall work with the Watermaster to ensure that well operation would not interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level such that the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted.	Less than Significant with Mitigation
3.8-3: The proposed project could alter the existing drainage pattern of a site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation, or flooding on-or off-site.	Implement **Mitigation Measure HYD-1.**	Less than Significant with Mitigation
3.8-4: The proposed project could create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	None required.	Less than Significant

Impacts	Mitigation Measures	Significance after Mitigation
3.8-5: The proposed project would not place within a 100-year flood hazard area structures that would impede or redirect flood flows.	None required.	No Impact
3.8-6: The proposed project could expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	None required.	Less than Significant
3.8-7: The proposed project could expose people or structures to a significant risk of loss, injury or death involving inundation by tsunami, seiche, or mudflow.	Implement **Mitigation Measure HYD-1.**	Less than Significant with Mitigation
Land Use, Planning and Recreation		
3.9-1: The proposed project would not physically divide an established community.	None required.	No Impact
3.9-2: The proposed project could conflict with an applicable land use plan, policy, or regulation adopted for the purposed of avoiding or mitigating an environmental effect.	**LU-1**: For project facilities occurring within the AIA, PWD shall submit their proposed project plans to the Los Angeles County ALUC for review and comment prior to final design. **LU-2:** Prior to conducting construction activities within an AIA, PWD shall prepare an airport construction safety plan that would identify best management practices. The plan may include construction timeframes and hours, lighting and flagging requirements, air traffic control communication requirements, access and egress restrictions, equipment staging area requirements, personal safety equipment requirements for construction workers, and appropriate notification to aviators. The plan would be reviewed and approved by airport staff. **LU-3:** Prior to final design of the project components within an AIA, PWD shall identify the ground elevation associated with construction equipment associated with each project component constructed within the AIA and submit their project plans to airport staff for review and comment. Working with airport staff, PWD shall submit their design plans for airspace analysis (FAA Part 7460 review) to determine whether any of the construction equipment would protrude into protected airspace. If such objects are identified, the implementing agencies, airport staff, and FAA will identify appropriate steps to adjust project plans or include appropriate markings to identify hazards to aviators pursuant to FAA Part 7460.	Less than Significant with Mitigation
3.9-3: The proposed project could conflict with an applicable habitat conservation plan or natural community conservation plan.	None required.	Less than Significant
3.9-4: The proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facility would occur or be accelerated.	None required.	No Impact

Impacts	Mitigation Measures	Significance after Mitigation
3.9-5: The proposed project could include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical impact on the environment.	**REC-1:** For projects that would construct new facilities on public lands designated as open spaces, PWD shall coordinate with the City of Palmdale, Recreation and Culture Department identify ways to minimize impacts of project construction and operation on recreational activities. Measures may include but are not limited to: Project Construction • Posting of signage indicating dates during which use of recreational areas would be restricted due to construction • Placement of fencing to isolate construction areas and allow continued use of other areas of recreational parks and facilities • Timing of construction activities to avoid peak recreational seasons Project Operation • Use of vegetation to screen proposed facilities from view of adjacent recreational land uses • Security fencing to enclose new PWD facilities, as necessary **REC-2:** For projects that would construct pipelines or other new facilities within designated bikeways, PWD shall coordinate with the applicable jurisdiction to determine whether circulation and detour plans are required to minimize impacts to access to local bikeways. Circulation and detour plans may include the use of signage and flagging of cyclists through and/or around the construction zone.	Less than Significant with Mitigation
Noise		
3.10-1: The proposed project could expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	**NOISE-1:** PWD shall require the construction contractors to implement the following measures, as applicable, during construction of the proposed facilities: • Construction activities shall meet municipal or County code requirements related to noise. Construction activities shall be limited to between 7:00 a.m. and 7:00 p.m. Monday through Saturday to avoid noise-sensitive hours of the day. Construction activities shall be prohibited on Sundays and holidays. • Prior to nighttime construction activities that would generate noise in excess of noise standards, the construction contractor shall secure a noise waiver from the relevant jurisdiction (City or County) and comply with any terms and conditions of the waiver. • Sensitive receptors (residences, residential areas, schools, and hospitals) within 800 feet (in the City) and 4,500 feet (in the County) of project construction activities shall be identified and mapped. • Construction equipment noise shall be minimized by muffling and shielding intakes and exhaust on construction equipment (per the	Less than Significant with Mitigation

Impacts	Mitigation Measures	Significance after Mitigation
	manufacturer's specifications) and by shrouding or shielding impact tools. • Construction contractors shall locate fixed construction equipment (such as compressors and generators) and construction staging areas as far as possible from nearby sensitive receptors including residences, schools, and hospitals. • Where feasible, construct barriers between noise sources and noise-sensitive land uses to block sound transmission. Enclose construction equipment where practicable. • If construction were to occur near a school, the construction contractor shall coordinate the most noise producing construction activities with school administration in order to limit disturbance to the campus. **NOISE-2:** PWD shall require the construction contractor to notify in writing all landowners and occupants of properties within 500 feet of the construction area of the construction schedule at least two weeks prior to groundbreaking. The construction contractor shall designate a Noise Complaint Coordinator who will be responsible for responding to complaints regarding construction noise. The Coordinator shall ensure that reasonable measures are implemented to correct any problems. A contact telephone number for the Coordinator shall be conspicuously posted at the construction site and included in the written notification of the construction schedule sent to surrounding properties.	
3.10-2: The proposed project could impact people and structures to ground-borne vibration or ground-borne noise levels.	**NOISE-3:** PWD shall require the construction contractor to implement the following measures, as applicable, during construction of proposed facilities: • Sensitive receptors (residences, residential areas, schools, and hospitals) within 50 feet of project construction activities shall be identified and mapped. • Limit jack and bore drilling to at least 43 feet from sensitive receptors and 15 feet from any structures. • If jack and bore drilling must occur within 15 feet of any structure, the construction contractor shall conduct crack surveys before drilling to prevent potential architectural damage to nearby structures. The surveys shall be done by photographs, video tape, or visual inventory, and shall include inside as well as outside locations. All existing cracks in walls, floors, and driveways shall be documented with sufficient detail for comparison after construction to determine whether actual vibration damage occurred. A post-construction survey shall be conducted to document the condition of the surrounding buildings after the construction is complete.	Less than Significant with Mitigation

Impacts	Mitigation Measures	Significance after Mitigation
3.10-3: The proposed project could result in a permanent increase in ambient noise levels in the project vicinity above levels existing without the project.	**NOISE-4:** PWD shall conduct post-construction noise measurements to ensure that operation of new equipment is in compliance with local noise ordinances at the property boundary. If operational noise exceeds local thresholds, then PWD shall implement further noise-reducing measures, such as enclosing noise generating-equipment, until facilities are in compliance with local ordinances.	Less than Significant with Mitigation
3.10-4: The proposed project could result in temporary or periodic increases in ambient noise levels in the project vicinity above existing levels existing without the project.	Implement **Mitigation Measure NOISE-1.**	Potentially Significant and Unavoidable with Mitigation
3.10-5: The proposed project could result in noise level impacts on people residing or working within two miles of a public airport, public use airport, or private airstrip.	None required.	Less than Significant
Public Services		
3.11-1: The proposed project would not result in the provision of, or the need for, new or physically altered police or fire protection facilities, the construction of which could cause environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire and police services.	None required.	No Impact
3.11-2: The proposed project would not result in the provision of, or the need for, new school facilities, the construction of which could cause environmental impacts, in order to maintain acceptable performance objectives for the school district.	None required.	No Impact
3.11-3: The proposed project would not result in the provision of, or the need for, new or physically altered parks and recreation facilities, the construction of which could cause environmental impacts, in order to maintain acceptable performance objectives for parks and recreation.	None required.	No Impact
Traffic and Transportation		
3.12-1: The proposed project could conflict with an applicable plan, ordinance or policy establishing measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.	**TR-1:** PWD shall require the construction contractor to prepare and implement a Traffic Control/Traffic Management Plan subject to approval by the City of Palmdale and/or the County of Los Angeles prior to construction. The plan shall include traffic counts on intersections near the proposed project facilities to determine existing traffic conditions. Based on these traffic counts, the Plan shall recommend mitigation to avoid impacts to existing traffic conditions. These mitigation measures shall include but shall not be limited to: • Identification of hours of construction and hours for deliveries, potentially avoiding the A.M. and P.M. peak hours to minimize disturbance on traffic flow;	Less than Significant with Mitigation

Impacts	Mitigation Measures	Significance after Mitigation
	• Specification of both construction-related vehicle and oversize haul routes; alternative routes shall be proposed to avoid traffic disruption; • Identification of limits on the length of open trench, work area delineation, traffic control, flagging, and signage requirements; • Identification of all access and parking restrictions; • Maintenance of access and minimize disruption to residence and business driveways at all times to the extent feasible; • Layout of a plan for notifications and a process for communication with affected residents and businesses prior to the start of construction. Advance public notification shall include posting of notices and appropriate signage of construction activities. The written notification shall include the construction schedule, the exact location and duration of activities within each street (i.e., which lanes and access point/driveways would be blocked on which days and for how long), and a toll-free telephone number for receiving questions or complaints; • For construction activities within one-quarter mile of a school facility, inclusion of a plan to coordinate all construction activities with the Antelope Valley Union High School District and Palmdale School District, at least two months in advance. The Antelope Valley Union High School District and the Palmdale School District shall be notified of the timing, location, and duration of construction activities. The implementing agencies shall require its contractor to maintain vehicle, pedestrian, and school bus service during construction through inclusion of such provisions in the construction contract; • Specification of street restoration requirements pursuant to agreements with the local jurisdictions; • Development of circulation and detour plans to minimize impact to local street circulation, including bikeways. This may include the use of signing and flagging to guide vehicles and cyclists through and/or around the construction zone; and • Parking at staging areas to limit lane closures in the public right-of-way.	
3.12-2: The proposed project could conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards and travel demand measures, or other standards established by the county congestion management agency for designated road or highways.	None required.	Less than Significant

Impacts	Mitigation Measures	Significance after Mitigation
3.12-3: The proposed project could result in change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risk.	None required.	Less than Significant
3.12-4: The proposed project could substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	None required.	Less than Significant
3.12-5: The proposed project could result in inadequate emergency access.	**TR-2:** PWD shall require the construction contractor to coordinate all construction activities with emergency service providers in the area at least one month in advance. Emergency service providers shall be notified of the timing, location, and duration of construction activities. All roads shall remain passable to emergency service vehicles at all times.	Less than Significant with Mitigation
3.12-6: The proposed project could conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance of safety of such facilities.	**TR-3:** PWD shall require the construction contractor to consult and coordinate with Metrolink and the Antelope Valley Transit Authority at least one month prior to construction of pipelines within roadways or rights-of way that coincide with bus or train routes, to determine whether construction of the proposed project would affect bus stop locations or otherwise disrupt public transit routes. A plan shall be developed to relocate bus stops or reroute buses to avoid disruption of transit service. **TR-4:** PWD shall require the construction contractor to consult with the City and/or County if bicycle or pedestrian facilities would be directly affected by construction activities. This consultation shall inform the circulation and detour plans included in the Traffic Control/Traffic Management Plan designed to minimize impact to local street circulation, including bikeways.	Less than Significant with Mitigation
Tribal Cultural Resources		
3.13-1: The Project could result in a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074.	**TCR-1:** Future AB 52 Consultation: Prior to development of all long-term WSMP components, PWD shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice. Formal notification shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the PWD contact information, and a notification that the California Native American tribe has 30 days from receipt of the letter to request consultation. PWD shall begin the consultation process within 30 days of receiving a California Native American tribe's request for consultation. The purpose of the consultation shall be to identify sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that meet the definition of tribal cultural resources provided in CEQA Sections 21074(a)(1) or 21074(a)(2) that could be affected by subsequent phases of the project. In addition, the	Less than Significant with Mitigation

Impacts	Mitigation Measures	Significance after Mitigation
	California Native American tribe may request consultation regarding the type of environmental review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and, if necessary, project alternatives or the appropriate measures for preservation or mitigation. In the event that tribal cultural resources are identified, PWD shall develop mitigation measures, including, but not limited to, those recommended in Section 21084.3, capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource, in consultation with the California Native American tribe. Consultation shall be considered complete when the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource, or when a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.	
Utilities, Service Systems, and Energy		
3.14-1: The proposed project could exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.	None required.	Less than Significant
3.14-2: The proposed project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	None required.	No Impact
3.14-3: The proposed project could require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.	None required.	Less than Significant
3.14-4: The proposed project could require new or expanded water supply resources or entitlements.	None required.	Less than Significant
3.14-5: The proposed project could result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the projects projected demand in addition to the provider's existing commitments.	None required.	Less than Significant
3.14-6: The proposed project would not be served by a landfill with insufficient permitted capacity to accommodate the project solid waste disposal needs.	None required.	No Impact
3.14-7: The proposed project would comply with federal, state, and local statutes and regulations related to solid waste.	None required.	Less than Significant
3.14-8: The proposed project could require additional energy use that could result in wasteful consumption or affect local and regional energy supplies.	None required.	Less than Significant

Impacts	Mitigation Measures	Significance after Mitigation
3.14-9: The proposed project could conflict with applicable energy efficiency policies or standards.	None required.	Less than Significant
Cumulative Impacts		
Impact 4-1: Concurrent construction of the proposed project and related projects in the geographic scope could result in cumulative long-term impacts to aesthetics.	Implement **Mitigation Measures AES-1 through AES-6**.	Less than Significant with Mitigation
Impact 4-2: Concurrent construction of the proposed project and related projects in the geographic scope would not result in cumulative long-term impacts to agriculture and forestry resources.	None required.	No Impact
Impact 4-3: Concurrent construction of the proposed project and related projects in the geographic scope could result in cumulative short-term impacts to air quality.	Implement **Mitigation Measures AQ-1 and AQ-2**.	Less than Significant with Mitigation
Impact 4-4: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative short- and long-term impacts to biological resources.	Implement **Mitigation Measures BIO-1 through BIO-6**.	Less than Significant with Mitigation
Impact 4-5: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative long-term impacts to cultural resources.	Implement **Mitigation Measures CUL-1 through CUL-10**.	Less than Significant with Mitigation
Impact 4-6: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative short-term and long-term impacts to geology, soils, seismicity, and mineral resources.	Implement **Mitigation Measure GEO-1, GEO-2, and HYD-1** for geology, soils and seismicity. None required for mineral resources.	Less than Significant with Mitigation for geology, soils and seismicity. Less than Significant for mineral resources
Impact 4-7: Concurrent construction of the proposed project and related projects in the geographic scope could result in cumulative short-term impacts to hazards and hazardous materials.	Implement **Mitigation Measures LU-1, LU-2, LU-3, HAZ-1 and HAZ-2**.	Less than Significant with Mitigation
Impact 4-8: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative short-term and long-term impacts to hydrology and water quality.	Implement **Mitigation Measure HYD-1 through HYD-3**.	Less than Significant with Mitigation
Impact 4-9: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative short-term and long-term impacts to land use, planning, and recreation.	Implement **Mitigation Measures LU-1, LU-2, and LU-3**. Implement **Mitigation Measures REC-1 and REC-2**.	Less than Significant with Mitigation

Impacts	Mitigation Measures	Significance after Mitigation
Impact 4-10: Concurrent construction of the proposed project and related projects in the geographic scope could result in cumulative short-term impacts to noise.	Implement **Mitigation Measures NOISE-1, NOISE-2, NOISE-3**. **CUM-1**: PWD shall communicate and coordinate project construction activities with other municipalities (e.g., City of Palmdale, County of Los Angeles) and agencies (e.g., Caltrans, LA County DPW) in the Antelope Valley. Phasing of project construction shall be coordinated to minimize cumulative impacts to noise and vibration and traffic and transportation.	Potentially Significant and Unavoidable with Mitigation
Impact 4-11: Concurrent construction and operation of the proposed project and related projects in the geographic scope would not result in cumulative short-term and long-term impacts to public services.	None required.	No Impact
Impact 4-12: Concurrent construction of the proposed project and related projects in the geographic scope could result in cumulative short-term impacts to traffic and transportation.	Implement **Mitigation Measure TR-1, TR-2, TR-3, and TR-4**. Implement **Mitigation Measure CUM-1**.	Less than Significant with Mitigation
Impact 4-13: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative short-term and long-term impacts to tribal cultural resources.	Implement **Mitigation Measure TCR-1**.	Less than Significant with Mitigation
Impact 4-14: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative short-term and long-term impacts to utilities, service systems, and energy.	None required.	Less than Significant

CHAPTER 1
Introduction

To comply with the California Environmental Quality Act (CEQA), the Palmdale Water District (PWD) has developed a Program Environmental Impact Report (PEIR) for the 2016 Water System Master Plan (WSMP or proposed project). The WSMP evaluates the existing water system deficiencies and future facility requirements and serves as a guideline for the planning of the build-out of PWD's potable water system to 2040 and beyond. PWD, as the Lead Agency, has prepared this PEIR to provide the public and trustee agencies with information about the potential effects on the local and regional environment associated with implementation of the proposed project. This Draft PEIR has been prepared in compliance with the CEQA of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. Seq. and the *CEQA Guidelines* in the Code of Regulations, Title 14, Division 6, Chapter 3.

1.1 Purpose of the Environmental Impact Report

This PEIR has been prepared to address the potential environmental impacts associated with implementing the WSMP, which consists of numerous water system facilities to be developed and implemented over a long time period. The *CEQA Guidelines*, Section 15168, state that a PEIR may be used to evaluate a plan or program that has multiple components (projects and actions) or addresses a series of actions that are related:

- Geographically,
- As logical parts in the chain of contemplated actions,
- In connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or
- As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental affects that can be mitigated in similar ways.

A PEIR can provide the following additional advantages:

- Provide for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action;
- Ensure consideration of cumulative impacts that might not be evident in a case-by-case or project-by-project analysis;
- Avoid duplicative consideration of basic policy issues;
- Allow the lead agency to consider broad policy alternatives and program-wide mitigation measures early in the process when the agency has greater flexibility to deal with basic problems or cumulative impacts;
- Facilitate a reduction in paperwork.

A PEIR may be prepared for a long-term program before the details of each phase or project have been developed. For the WSMP, facilities to be implemented by 2020 are considered near-term components and will be evaluated at a project level in the PEIR, while facilities to be implemented after 2020 are considered long-term components and will be evaluated at a program level in the PEIR. The long-term components do not currently have specific construction and operational details provided. This PEIR serves as a first-tier environmental document that focuses on the overall effects of implementing the WSMP, as a plan to provide reliable water supply for future demand.

1.2 CEQA Environmental Review Process

1.2.1 CEQA Process Overview

The basic purposes of CEQA are to (1) inform the public and governmental decision makers about potential significant environmental effects of proposed activities, (2) identify ways in which potential environmental effects can be avoided or significantly reduced, (3) prevent significant, avoidable environmental effects 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.

An EIR should use a multidisciplinary approach applying social and natural sciences to provide a qualitative and quantitative analysis of all the foreseeable environmental impacts that a proposed project would exert on the surrounding area. As stated in *CEQA Guidelines* Section 15151:

> *"An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which intelligently takes an account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonable feasible."*

This PEIR was prepared to comply with the *CEQA Guidelines* and is 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 would minimize or avoid the potential environmental effects. The PWD Board of Directors will consider the information presented in this PEIR, along with other factors, prior to approving the proposed project for implementation.

1.2.2 Notice of Preparation

A Notice of Preparation (NOP) for this PEIR was published by PWD on February 13, 2017. The NOP was circulated to federal, state, and local agencies, as well as other interested parties, for a period of 30 days. The NOP discussed the WSMP project description, identified the project area, and provided a brief and preliminary list of environmental resources that could be affected. A public scoping meeting was held on March 13, 2017 to receive comments on the NOP.

The NOP was made available in print and electronic form, and PWD accepted comments on the NOP for a 30-day period, closing on March 15, 2017. **Appendix NOP** includes a copy of the NOP and as well as all written comments received on the NOP.

1.2.3 Draft Program Environmental Impact Report

As described above, a PEIR can be prepared on a series of related actions characterized as one large project or program (*CEQA Guidelines* Section 15168(a)). Prior to implementation, each action in the program must be evaluated to determine if additional environmental documentation is required (*CEQA Guidelines* Section 15168(c)). If the environmental effects resulting from an action are fully covered by the analysis in the PEIR and no new mitigation measures are required, then the action is within the scope of the PEIR and no additional environmental documentation is necessary (*CEQA Guidelines* Section 15168(c)(2)). If an action would result in environmental effects not included in the PEIR then additional environmental documentation, such as a Negative Declaration or EIR, would be required (*CEQA Guidelines* Section 15168(c)(1)). The mitigation measures developed in a PEIR may be incorporated into subsequent environmental documents (*CEQA Guidelines* Section 15168(c)(3)).

This PEIR describes the proposed project and the existing environmental setting, identifies near-term, long-term, and cumulative environmental impacts, identifies mitigation measures for impacts found to be significant, and provides an analysis of alternatives to the proposed project. Significance criteria have been developed for each environmental resource analyzed in this PEIR. The significance criteria are defined at the beginning of each impact analysis section. Impacts are categorized as follows:

Significant and Unavoidable: mitigation might be recommended but impacts are still significant;

Potentially Significant: mitigation might be recommended but impacts are potentially significant at the programmatic level;

Less than Significant with Mitigation: potentially significant impact but mitigated to a less-than-significant level;

Less than Significant: mitigation is not required under CEQA but may be recommended; or

No Impact.

1.2.4 Public Review

In accordance with Section 15105 of the *CEQA Guidelines*, the Draft PEIR is available for public review and comment for a 45-day review period. This Draft PEIR has been circulated to federal, state, and local agencies and interested parties for their review and comment. All comments should be sent to:

James Riley
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550

Comments may also be submitted via email to James Riley at the following email address: jriley@palmdalewater.org.

During the 45-day public review period, PWD will conduct one public meeting open to the general public to answer questions and receive oral comments on the Draft PEIR. The meeting will be held at the following location:

Date:	**August 29, 2018**
Time:	**6:00 P.M.**
Location:	Palmdale Water District – Board Room 2029 East Avenue Q Palmdale, CA 93550

PWD will respond to all oral and written comments received on the Draft PEIR; the responses to comments will be included in the Final PEIR. Comments on the Draft PEIR must be received by 5:00 p.m. on the last day of the 45-day review period.

1.2.5 Final PEIR Publication and Certification

Written and oral comments received on the Draft PEIR will be addressed in a Response to Comments document which, together with the Draft PEIR and changes and corrections to the Draft PEIR, will constitute the Final PEIR. Following the release of the Final PEIR, PWD will decide whether to certify the Final PEIR. If the Final PEIR identifies environmental impacts that are considered significant and unavoidable, PWD must state in writing the reasons for certifying the Final PEIR in a Statement of Overriding Considerations, which will be included in the record of the project approval, and mentioned in the Notice of Determination (*CEQA Guidelines* Section 15093[c]). Upon certification of the Final PEIR, implementation of the WSMP can begin and near-term components can commence construction.

1.2.6 Mitigation Monitoring and Reporting Program

CEQA Guidelines Section 21081.6(a) requires lead agencies to "adopt a reporting and mitigation monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment." Throughout the EIR, mitigation measures are clearly identified and presented in language that will facilitate establishment of a monitoring and reporting program. Any mitigation measures adopted by PWD will be included in a Mitigation Monitoring and Reporting Program (MMRP) to verify compliance. The MMRP will be included in the Final PEIR.

1.3 Program EIR Organization

This Draft PEIR is organized into the following chapters and appendices:

Executive Summary. This chapter summarizes the contents of the Draft PEIR.

Chapter 1, Introduction. This chapter discusses the CEQA process and the purpose of the Draft PEIR.

Chapter 2, Project Description. This chapter provides an overview of the proposed project, describes the need for and objectives of the proposed project, and provides detail on the characteristics of the proposed project.

Chapter 3, Environmental Setting, Impacts and Mitigation Measures. This chapter describes the environmental setting and identifies impacts of the proposed project for each of the following environmental resource areas: Aesthetics; Agriculture and Forestry Resources; Air Quality and Greenhouse Gas Emissions; Biological Resources; Cultural Resources; Geology, Soils, Seismicity and Mineral Resources; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use, Planning and Recreation; Noise; Public Services, Traffic and Transportation; Tribal Cultural Resources; and Utilities, Service Systems, and Energy. Measures to mitigate the impacts of the proposed project are presented for each resource area, as applicable.

Chapter 4, Cumulative Analysis. This chapter provides a list of past, present and reasonably foreseeable projects in the project area and analyzes the cumulative impacts associated with the proposed project in each of the environmental impact areas described in Chapter 3.

Chapter 5, Growth. This chapter describes the potential for the proposed project to induce economic, population or housing growth in the surrounding environment.

Chapter 6, Alternatives. This chapter presents an overview of the alternatives development process and describes the alternatives to the proposed project that were considered.

Chapter 7, List of Preparers. This chapter identifies the key staff and the authors involved in preparing this Draft PEIR.

Chapter 8, Acronyms. This chapter includes a list of all acronyms included within the Draft PEIR.

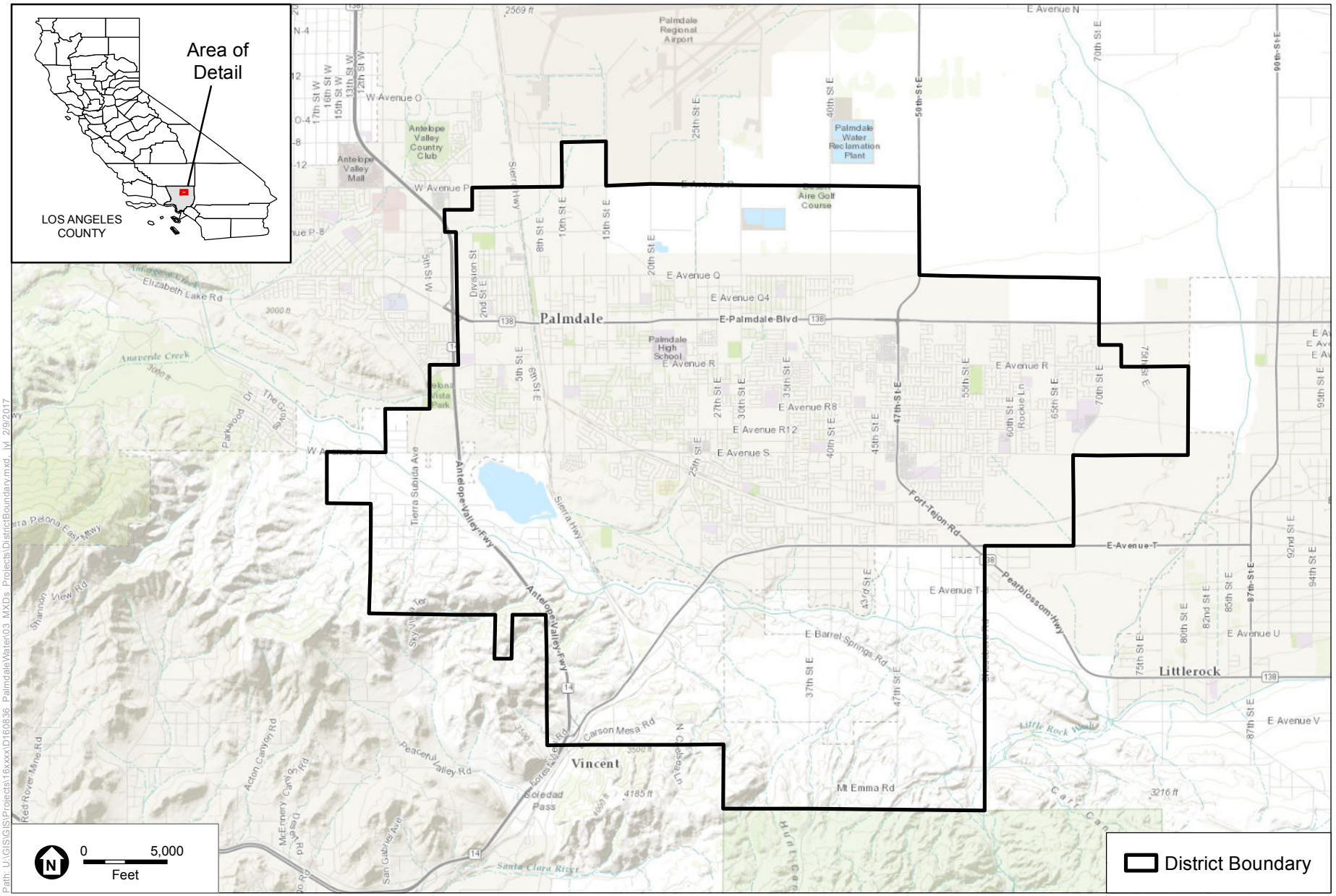
CHAPTER 2
Project Description

2.1 Introduction

Palmdale Water District (PWD), as the lead agency pursuant to the California Environmental Quality Act (CEQA), is proposing to implement the 2016 Water System Master Plan (WSMP or proposed project) that outlines a programmatic plan for developing PWD's potable water system over the next 25 years. PWD prepared the 2016 WSMP in order to provide cost-effective and fiscally responsible water services that meet the water quantity, water quality, system pressure, and reliability requirements of its customers. The WSMP evaluates the existing water system deficiencies and future facility requirements and serves as a guideline for the planning of the build-out of PWD's potable water system to 2040 and beyond. The WSMP provides details for its proposed Capital Improvement Plan (CIP) consisting of recommended projects that will allow PWD to address existing system deficiencies, replace aging infrastructure, and provide the facilities necessary to meet future growth. The proposed project would involve construction of water system improvements throughout the PWD service area in order to meet potable water system needs. The WSMP identifies existing system deficiencies that need to be corrected as well as future facilities to be implemented in the near term (by 2020) or long term (2021 to 2040). In addition, the proposed project includes expansion of PWD headquarters to house existing and future staff required to serve the system in the long term.

2.2 Project Location

The PWD service area is located in southern California, approximately 60 miles northeast of the City of Los Angeles, within the Antelope Valley, as shown in **Figure 2-1**. The District's primary service area includes the majority of the City of Palmdale and portions of unincorporated Los Angeles County. The District is bordered to the south and west by the San Gabriel Mountain Range, the north by the City of Lancaster, and the east by the unincorporated community of Littlerock. The District encompasses 47 square miles of mainly developed areas of the City of Palmdale and surrounding sphere of influence, with agricultural uses around its perimeter. The proposed project includes facilities that would be located outside of PWD boundaries in either the City of Palmdale or unincorporated Los Angeles County.



SOURCE: ESRI

Palmdale Water District

Figure 2-1
District Boundary

ESA

2.3 Project Background

PWD was founded in 1918 as an irrigation district that supplied water mainly to farms for agricultural use. As a result of the City of Palmdale's rapid population growth during the early 1950s, PWD shifted to providing predominantly municipal and industrial services. PWD currently provides potable water to municipal, industrial and agricultural customers. PWD currently serves a population of approximately 120,000 people and over 27,000 active customer accounts through three sources of water supply: imported water from the State Water Project, local groundwater, and local surface runoff collected at the Littlerock Reservoir and conveyed to Lake Palmdale through Palmdale Ditch (PWD 2016).

The 2016 WSMP was prepared as an update to PWD's previous Water System Master Plan completed in 2007. Following the recession in the late 2000's, building development activity slowly started resuming in 2012 and California entered into a five-year drought with strict water conservation goals established by the State. In 2015, PWD served the least amount of water over the last 30 years. PWD's service area population is expected to more than double over the next 25 years, which will cause water demands to more than double. A Strategic Water Resources Plan was developed in 2010 by PWD to address these demands and identifies a number of water resource options available to meet these needs (PWD 2016).

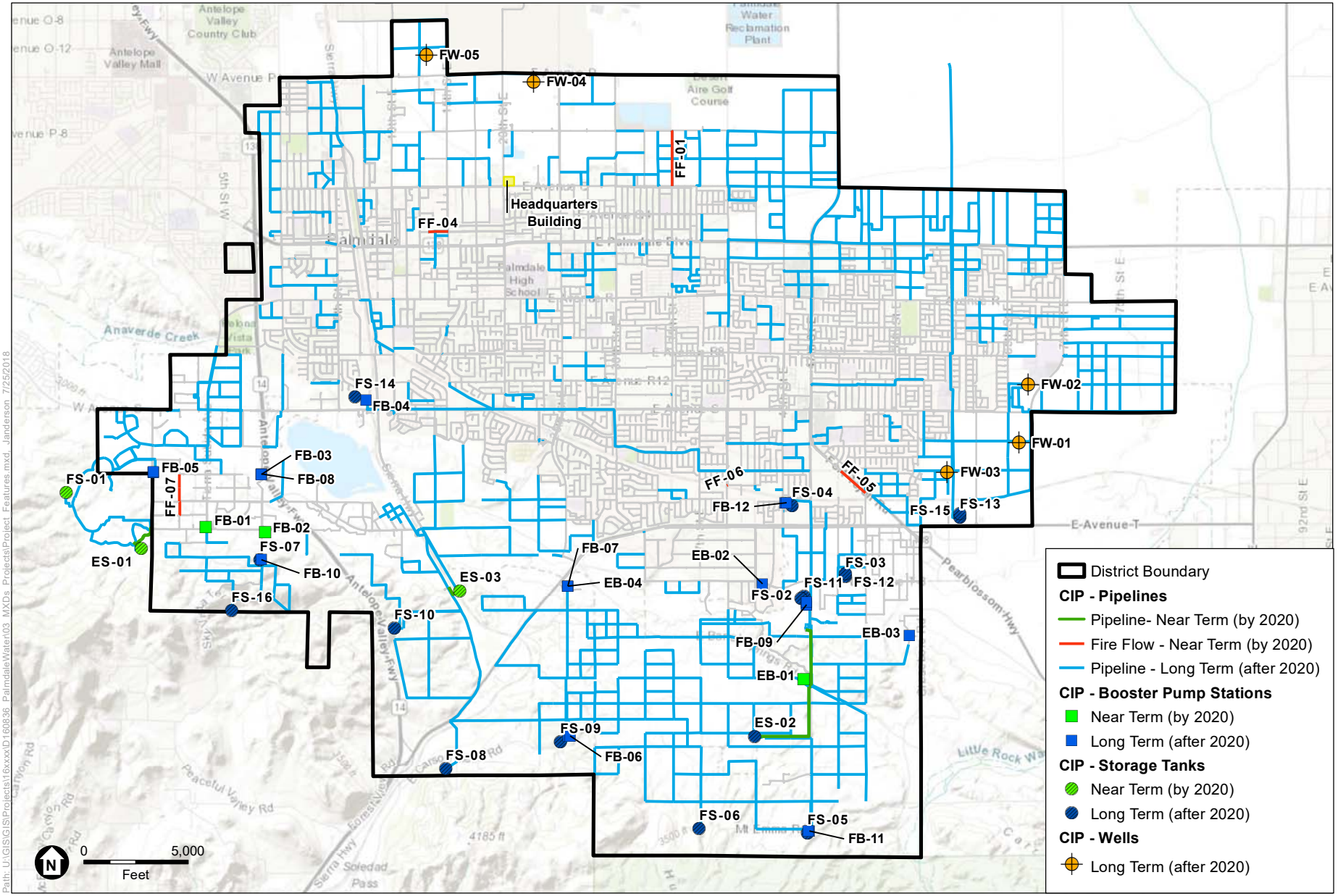
2.4 Project Objectives

The primary objectives of the proposed WSMP are to:

- Provide cost-effective and fiscally responsible water services that meet the water quantity, water quality, system pressure, and reliability requirements of PWD customers;
- Improve or replace existing PWD water system infrastructure;
- Provide future water system infrastructure necessary to meet projected growth of PWD service area; and
- Ensure a potable water supply capable of meeting overall annual water demand that is projected to double over the next 25 years.

2.5 Project Description

The proposed project would implement the CIP included in the WSMP. The recommended projects in the CIP would allow PWD to address existing hydraulic system deficiencies, replace aging infrastructure, and provide the facilities necessary to meet future growth. The major categories of facilities in the proposed project consist of distribution pipelines, storage tanks, and pump stations, as shown in **Figure 2-2**. Additionally, PWD is proposing a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street. Projects are categorized into two planning stages: by 2020 and after 2020. Projects addressed by 2020 are considered near-term project components and will be evaluated at a project level in the PEIR, while projects addressed after 2020 are considered long-term project components and will be evaluated at a programmatic level in the PEIR.



SOURCE: Palmdale Water 2017

Palmdale Water District

Figure 2-2
2016 Water System Master Plan
Project Components

ESA

Near-Term Project Components

Improvements to address existing water system deficiencies that critically affect the ability of PWD to provide a reliable water supply to its customers are assigned highest priority and are scheduled to be constructed prior to 2020. These near-term projects involve either the construction of new facilities to compensate for future growth or the improvement of existing facilities that require replacement or upgrades due to system deficiencies. These project components include three storage tanks, three booster pump stations, and segments of transmission pipelines.

Storage Tanks

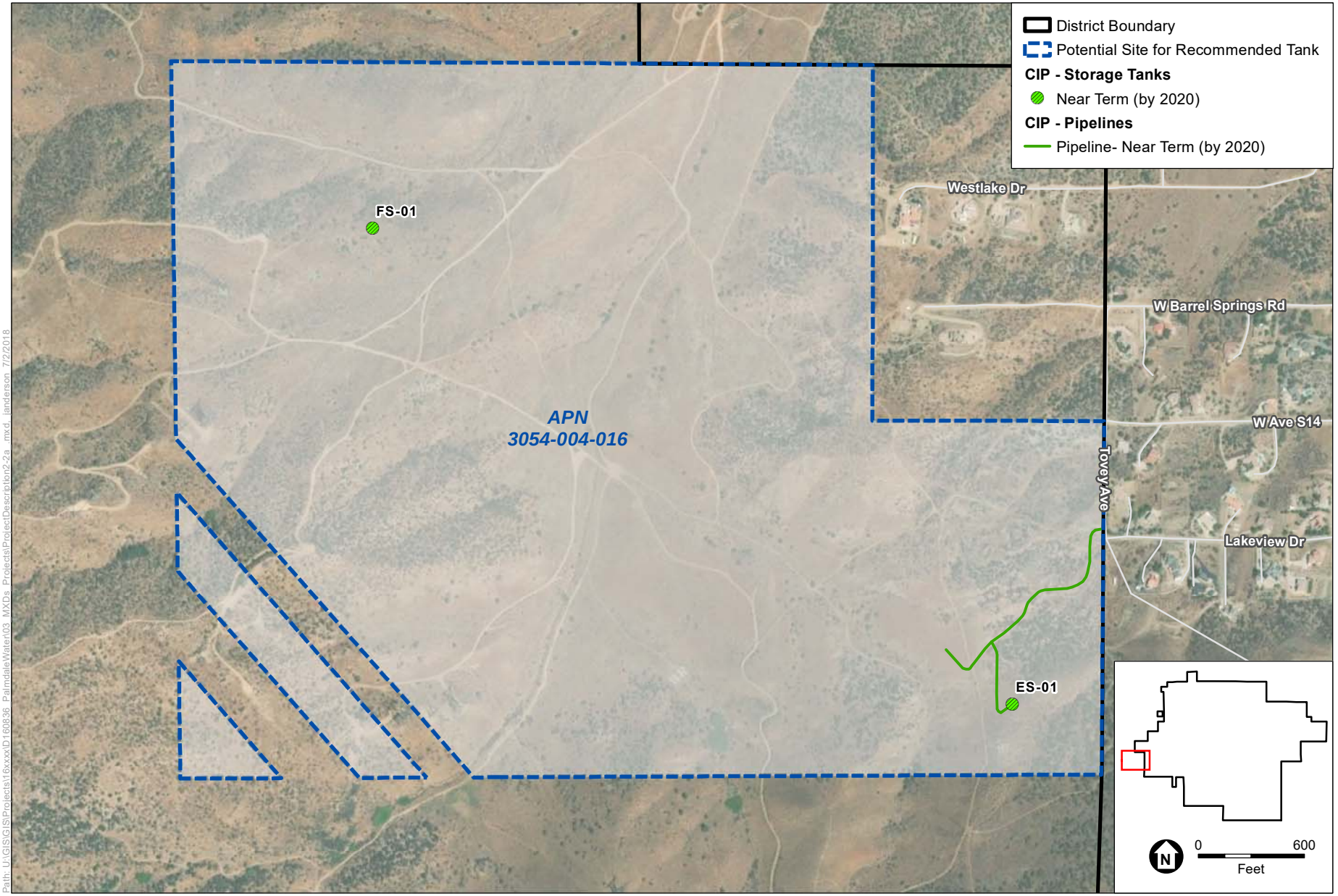
Three new storage tanks would be constructed to meet existing storage deficiencies within each tank's respective pressure zone, as described in **Table 2-1** below.

- Storage tank ES-01 would be constructed approximately 500 feet west of PWD's western service boundary within the new Quail Valley development, located approximately 1 mile southwest of Lake Palmdale in an unincorporated portion of Los Angeles County. Storage tank ES-01 would have a diameter of 76 feet and a height of 30 feet. Storage Tank ES-01 would have a footprint of 4,536 square feet (SF) and a capacity of 1.0 million gallons (MG) to serve the 3600W pressure zone. See **Figure 2-2a** for the potential location of storage tank ES-01.
- Storage tank FS-01 would be constructed approximately 1,700 feet west of PWD's western service boundary within the new Quail Valley development in an unincorporated portion of Los Angeles County. Storage tank FS-01 would have a diameter of 66 feet and a height of 30 feet. Storage Tank FS-01 would have a footprint of 3,421 SF and a capacity of 0.75 MG to serve the 3400W pressure zone. See Figure 2-2a for the potential location of storage tank FS-01.
- Storage tank ES-03 would be constructed near the intersection of Sierra Highway and Rae Street and within the PWD's service area. Storage tank ES-03 would have a diameter of 154 feet and a height of 30 feet. Storage tank ES-03 would have a footprint of 18,627 SF and a capacity of 4.2 MG to serve the 2950 pressure zone. See **Figure 2-2b** for the potential location of storage tank ES-03.

TABLE 2-1 NEAR-TERM PROJECT STORAGE TANKS

Storage Tank	Tank Capacity (gallon)	Tank Diameter (feet)	Tank Height (feet)	Size of Footprint (square feet)
ES-01	1,000,000	76	30	4,536
FS-01	750,000	66	30	3,421
ES-03	4,200,000	154	30	18,627

SOURCE: PWD 2016.



SOURCE: ESRI; Los Angeles County; Palmdale Water 2017

Palmdale Water District

Figure 2-2a
Storage Tanks ES-01 and FS-01

ESA

SOURCE: ESRI; Los Angeles County; Palmdale Water 2017

Palmdale Water District

Figure 2-2b
Storage Tank ES-03

ESA

Pump Stations

Three new pumps would be installed at existing pump stations to meet fire flow requirements and improve upon hydraulic deficiencies, as described in **Table 2-2**. One new pump would be installed at the existing V-5 Booster Station (EB-01), near the northwest corner of 47th Street East and Barrel Springs Road, to meet fire flow requirements for the 3400E pressure zone (see **Figure 2-2c**). The improvements would expand total capacity by 3,500 gallons per minute (gpm). New pumps also would be installed at the existing 3600 Ft Booster Pump Station (FB-01), near the intersection of Tierra Subida Avenue and Lakeview Drive, and the existing El Camino Underground Pump Station (FB-02), near the intersection of El Camino Drive and Lakeview Drive, to serve the 3400W pressure zone and the new Quail Valley development. **Figure 2-2d** shows the locations of FB-01 and FB-02. Total capacity would be improved by 300 gpm and 650 gpm, respectively.

TABLE 2-2
NEAR-TERM PUMP STATIONS

Pump Station	Pump Capacity Increase (gpm)	Total Dynamic Head Increase (feet)	Horsepower Increase (hp)	Size of Footprint (square feet)
EB-01	3,500	350	350	21
FB-01	300	200	25	8
FB-02	650	282	75	8

SOURCE: PWD 2016.

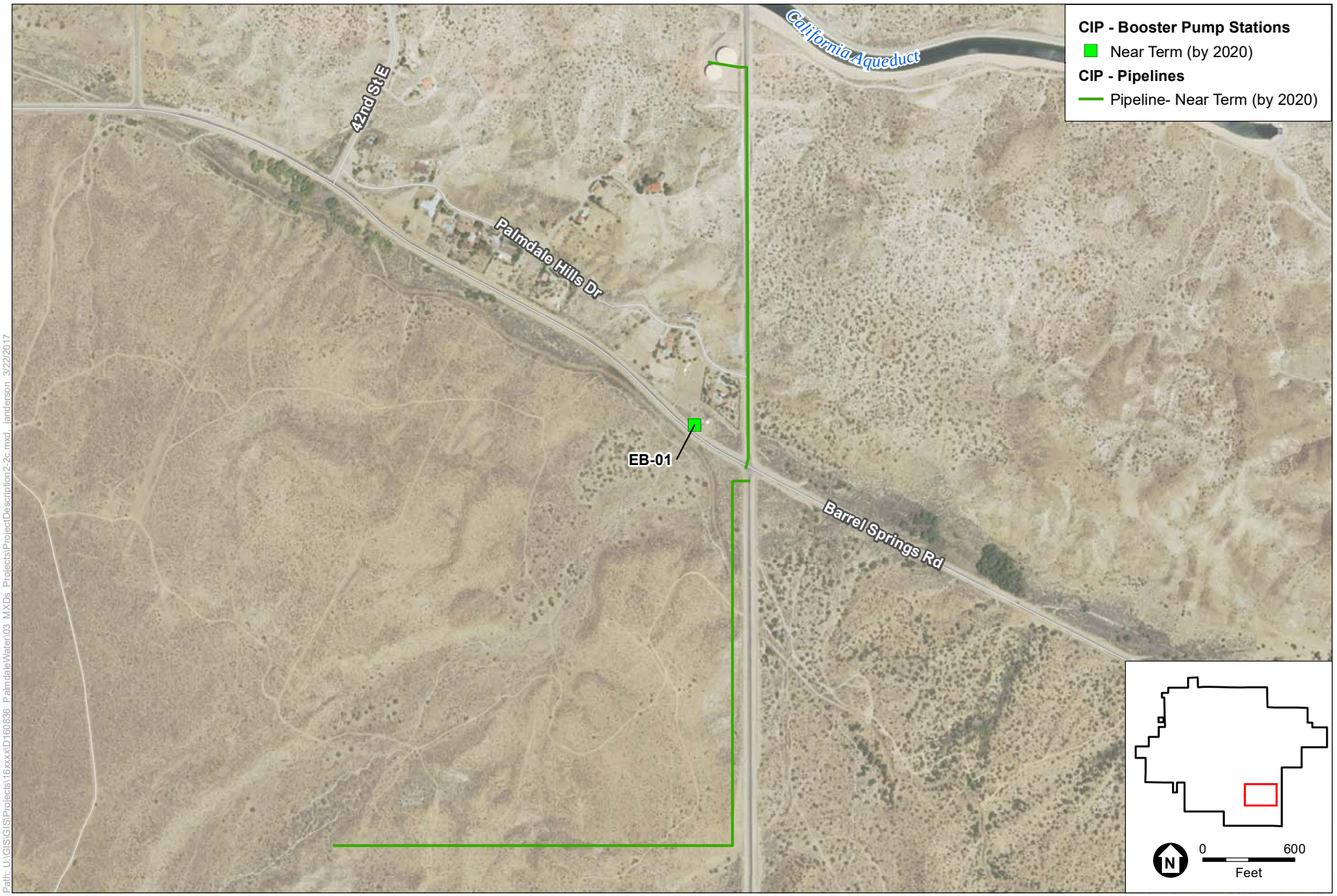
Pipelines

Multiple segments of transmission pipelines would be constructed throughout the PWD service area as part of its 2015-2020 planning horizon for CIP implementation. Pipelines to be constructed include fire flow projects, age-based pipeline improvements, and pipeline expansion projects. Segments of pipeline construction include the following estimates:

Fire Flow Projects

All pipelines to be constructed for fire flow projects are shown on **Figure 2-2e** and **Figure 2-2f**.

- Approximately 2,675 feet of 12-inch diameter pipeline replacement along 35th Street East, connecting between East Avenue Q and the Palmdale Water Reclamation Plant (FF-01);
- Approximately 965 feet of 12-inch diameter pipeline along Avenue Q-6 between 12th Street East and 15th Street East (FF-04);
- Approximately 1,570 feet of 16-inch diameter pipeline along Fort Tejon Road and 52nd Street East (FF-05);
- Approximately 48 feet of 8-inch diameter pipeline on Avenue S-10 between 40th Street East and 42nd Street East (FF-06); and
- Approximately 1,400 feet of 8-inch diameter pipeline north of Barrel Springs Drive and Camares Drive, within the Quail Valley development area (FF-07).



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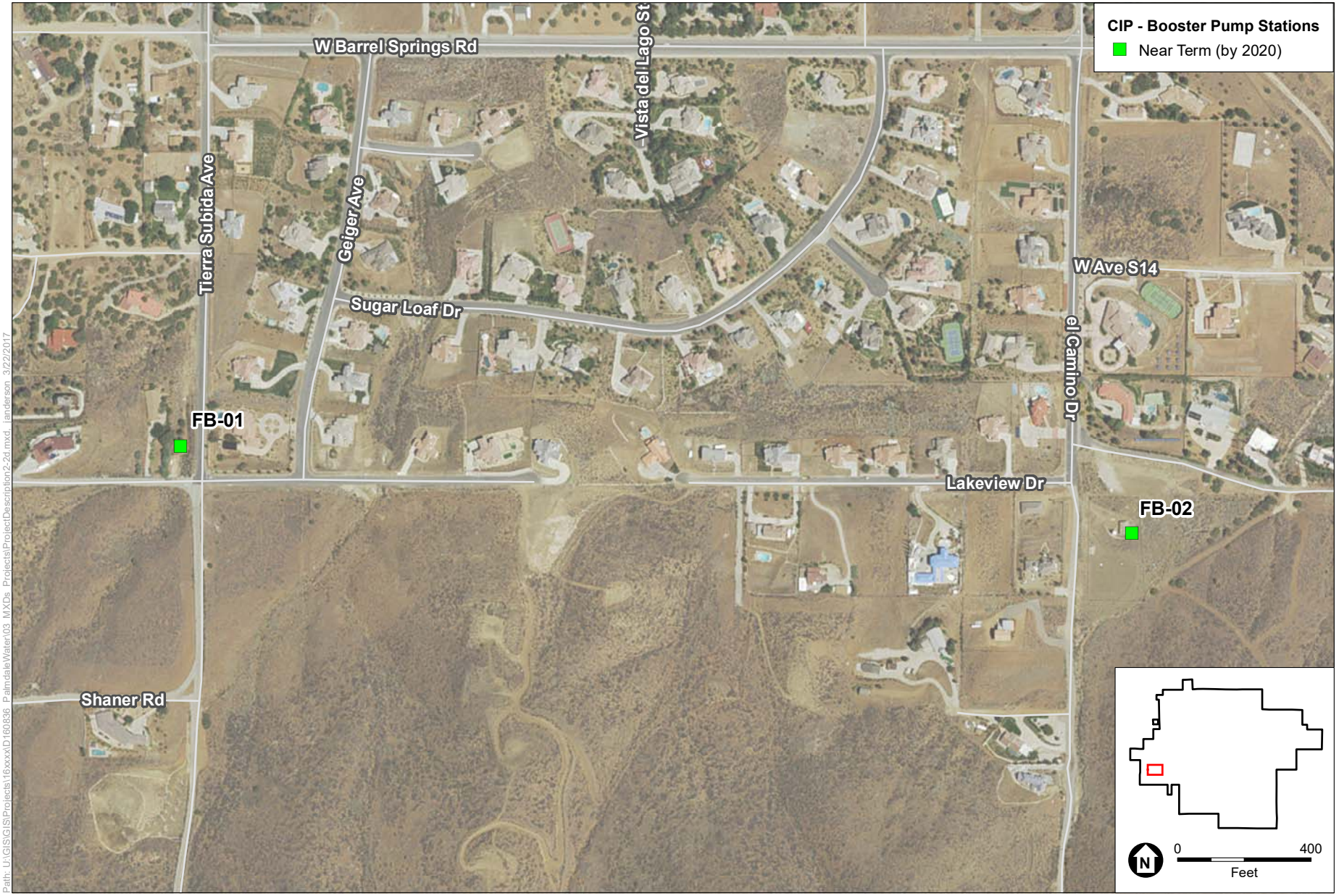
SOURCE: ESRI; Los Angeles County; Palmdale Water 2017

Palmdale Water District

Figure 2-2c
Pump Station EB-01

ESA

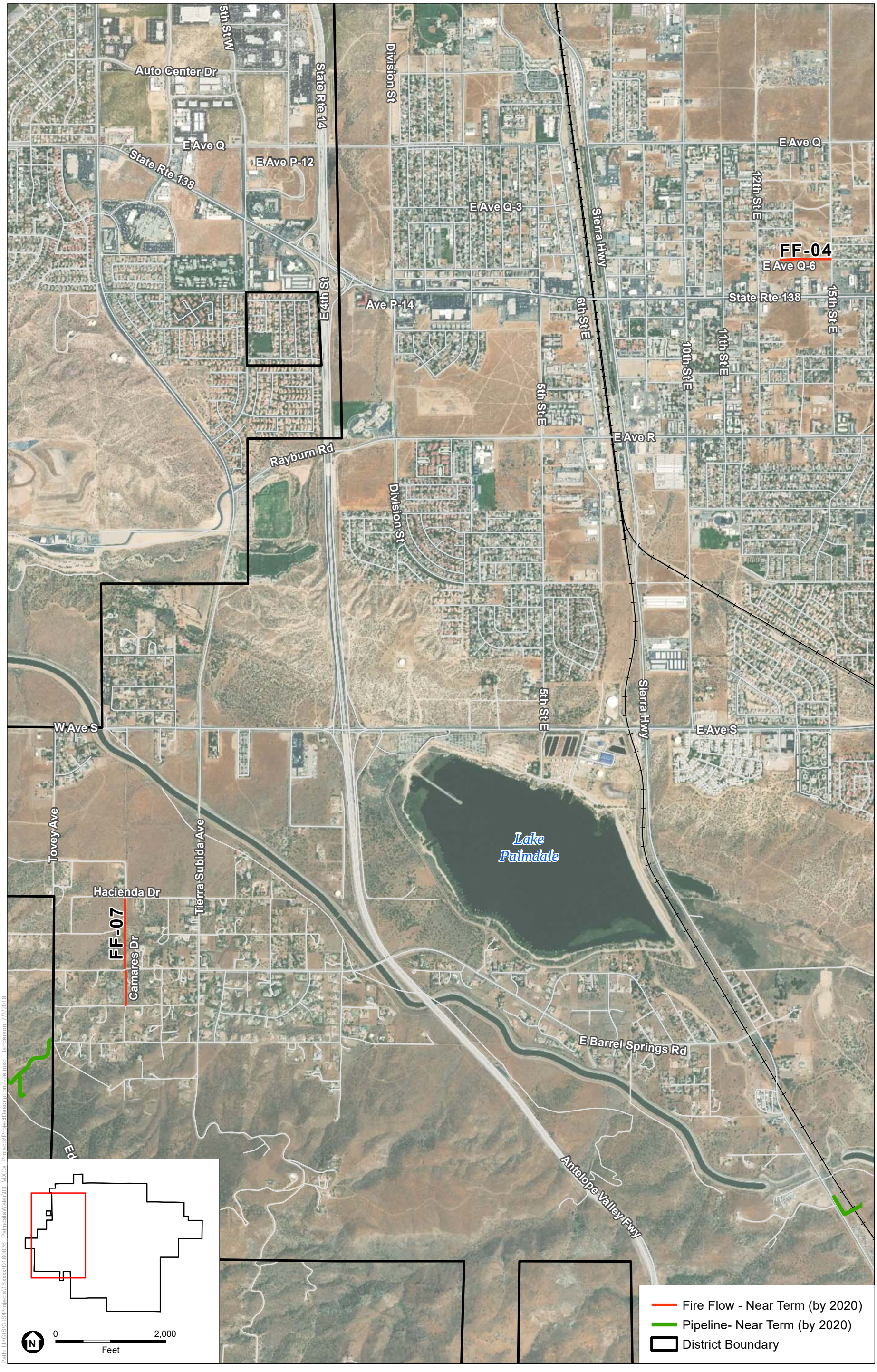


SOURCE: ESRI; Los Angeles County; Palmdale Water 2017

Palmdale Water District

Figure 2-2d
Pump Stations FB-01 and FB-02

ESA



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SOURCE: ESRI; Palmdale Water 2017

Palmdale Water District

Figure 2-2e
Near Term Pipelines – West

ESA

SOURCE: ESRI; Palmdale Water 2017

Palmdale Water District

Figure 2-2f
Near Term Pipelines – East

ESA

Pipeline Improvements and Expansion

- Pipeline along 47th Street East, connecting the proposed improvements at pump station EB-01 south and then extending the pipeline west through undeveloped land to an existing deficiency recommended tank (see Figure 2-2c);
- Pipeline within the ROW of Sierra Highway, connecting an existing storage tank and pump station southeast to the deficiency recommended tank ES-03 (see Figure 2-2b); and
- Pipeline west of Lakeview Drive through undeveloped land connecting to the proposed storage tank ES-01 (see Figure 2-2a).

Long-Term Project Components

Storage Tanks, Pump Stations, Pipelines, and Wells

Improvements that address existing system deficiencies that are not considered immediately critical or high priority to PWD are proposed as long-term project components. The construction of these projects would start in 2021 and continue through 2040. The phasing of the long-term project improvements are based upon many factors, such as the actual rate of growth and the timing of developments expected in the PWD service area, the reasons for which are presented in **Table 2-3** and **Table 2-4**. The long-term project components would include the construction of new facilities or improvements to existing facilities, and would consist of 16 storage tanks, 7 new pumps at five existing pump stations, 6 new pump stations, 5 production wells, and over 700,000 feet of transmission pipelines ranging from 6-to 24-inches in diameter shown on Figure 2-2. Since the long-term buildout of these project components is based on the projected demands for each pressure zone and is subject to the availability of funds, the phasing of the long-term projects is presented as a planning guideline for their future implementation (see Table 2-3 and 2-4). The actual timing of future facilities will be dependent upon the actual rate of growth and the timing of new developments expected in the service area.

Headquarters Expansion

The PWD headquarters expansion is anticipated to occur from 2021 through 2030 and is therefore considered a long-term project. The headquarters expansion would house existing and future staff required to serve the water system in the long term. The headquarter expansion would consist of demolition of existing buildings at the corner of E. Avenue Q and 20th Street in Palmdale and construction of a 21,000 square foot building. The building to be constructed would be one story in height and would be constructed on land currently owned by PWD.

TABLE 2-3
LONG-TERM STORAGE TANKS

ID	Description and Purpose of Improvement	Indicator	Zone	Size (MG)
Phase 2021-2025				
ES-02	New tank location near 47th St and East Avenue V4 (South of E Barrel Springs Road)	Construct as soon as possible	3250	3.1
FS-05	New tank location on Mt. Emma Rd. and 47th Street E	Construct with new developments in 3400E zone, 1 MG for every 2,000 EDUs	3400E	2
Phase 2026-2030				
FS-02	New tank location on 47th Street E, South of E Avenue T-8	Construct as soon as possible after ES-03	2950	5.7
FS-03	New tank at existing 50th Street tank location	Construct after 4,040 EDUs in the 2850 zone	2850	2
FS-04	New tank at existing 45th Street tank location	Construct after 9,160 EDUs in the 2800 zone	2800	4
Build-out (2040)				
FS-06	New tank location on Mt. Emma Rd	Construct with new developments in the 3600E zone. 1 MG for every 2,000 EDUs	3600E	2
FS-07	Additional tank located at Upper El Camino	Construct after 1,400 EDUs in 3400W zone	3400W	1
FS-08	New tank location at E Carson Mesa Rd and N. Rough Rd	Construct after FS-01, 1 MG for every 2,000 EDUs	3400E	1.8
FS-09	New tank location at E Carson Mesa Rd and N Chelsea Ln	Construct after ES-02 and 5,900 EDUs in 3250 zone.	3250	3.5
FS-10	New tank location north of Rae St and close to the CA-14 N	Construct after 2,680 EDUs in the 3200 zone.	3200	1.1
FS-11	New tank at 47St and E Avenue T-8	Construct after 11,160 EDUs in the 2950 zone.	2950	7.3
FS-12	New tank at existing 50th St tank location	Construct after 8,040 EDUs in the 2850 zone	2850	2.1
FS-13	New tank location on E Avenue T and 60th Street.	Construct after 17,040 EDUs in the 2800 zone	2800	5.5
FS-14	6 MG tank near existing 6 MG Clearwell	Construct after 28,040 EDUs in the 2800 zone	2800	6
FS-15	New tank at E Avenue T and 60th Street	Construct after 40,040 EDUs in the 2800 zone	2800	2.4
FS-16	New tank location at Desert Spring Road and Tierra Subida Ave	Construct with new developments in the 4000 zone.	4000	1.2

1) ES = Existing Storage Tanks, FS = Future Storage Tanks
2) One equivalent dwelling unit (EDU) = 500 gallons per day

SOURCE: PWD 2016

TABLE 2-4
LONG-TERM PUMP STATIONS

ID	Description and Purpose of Improvement	Indicator	TDH (feet)	Total Capacity (gpm)
Phase 2021-2025				
EB-02	Fire pumps at existing T-8 Pump Station. Required to meet fire flow requirements	Construct as soon as possible. Pump required to meet fire flow requirements in 3250 zone	105	3,500
EB-03	Fire pumps at existing Hilltop Pump Station. Required to meet fire flow requirements	Construct as soon as possible. Pump required to meet fire flow requirements in 3250C zone	146	1,000
EB-04	Fire pumps at existing 5 MG Booster Pump Station. Required to meet fire flow requirements	Construct as soon as possible. Pump required to meet fire flow requirements in 3250A zone	270	500
Phase 2026-2030				
FB-03	New pump at Lower El Camino Pump Station	New pump after 2,592 EDUs[3] in the 3200, 3400W, or 3600W zone.	290	1,000
FB-04	New pump at existing Clearwell 2950 booster PS at WTP to supply additional capacity to the 2950 zone.	Construct with first 2,490 EDUs in 2950, 3200, 3400W, and 3600W zone	181	2,000
Build-out (2040)				
FB-05[1]	New booster pump station at Ana Verde Tovey Tank	New pump station constructed with addition of 1,909 EDUs in the 3400W or 3600W zone.	230	900
FB-06[1]	New pump station on Steven Ambers Way and E Carson Mesa Rd	Pump station constructed with addition of 5,400 EDUs in the 3400E or 3600E zone.	160	900
FB-07	New pump at existing 5 MG Pump Station	New pump after 7,753 EDUs in the 3250, 3400E, or 3600E zone.	270	700
FB-08	New pump at Lower El Camino Pump Station	New pump after 5,472 EDUs in the 3200, 3400W, or 3600W zone	290	1,000
FB-09[1]	New booster pump station at E Avenue T-8 and 47 Street.	New pump station after 9,524 EDUs in the 3000, 3250, 3400E, or 3600E zone, and a new pumps after subsequent 3,744 EDUs.	60	3,800
FB-10[1]	New booster PS at Upper El Camino tank to 4000 Zone	When developments are constructed in the 4000 zone	630	600
FB-11[1]	New pump Station on Mt. Emma Rd and 47th Street.	When development are constructed in the 3600E zone	220	1,100
FB-12[1]	New pump station at 45th St existing pump station site (2 pumps)	Pump station constructed with addition of 5,760 EDUs after FB-01 is constructed in 2950, 3200, 3400W, and 3600W zone, and the subsequent pump after another 5,760 EDUs	200	6,800

1) New pump station
2) EB Existing Booster Pump Improvement, FB = Future Booster Pump Improvement
3) On equivalent dwelling unit (EDU) = 500 gallons per day.

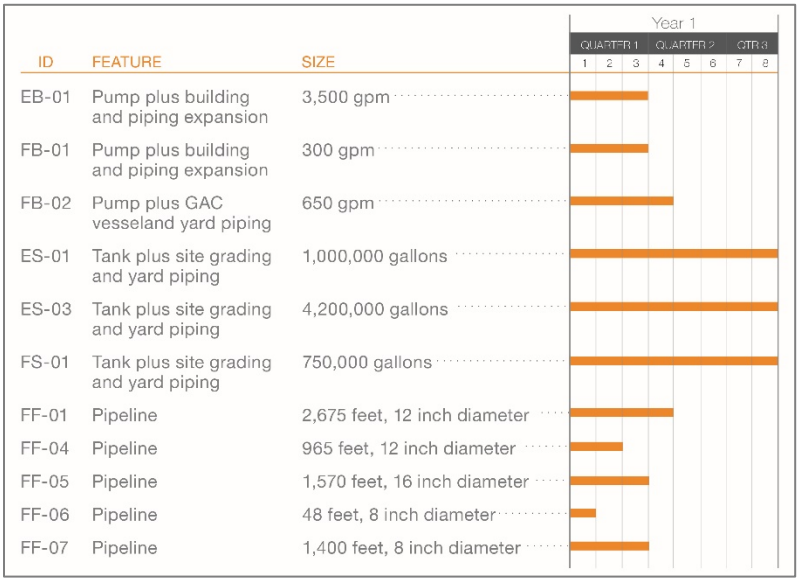
SOURCE: PWD 2016.

2.6 Project Implementation

2.6.1 Construction Activities

Construction activities would be required for the installation of new facilities and upgrades to existing facilities throughout the PWD service area and surrounding areas. As shown in Figure 2-2, new storage tanks, pump stations, pipelines and wells would be installed throughout the project area as needed. Construction activities would involve trenching for new pipelines, installation of infrastructure, and drilling for new wells. Construction timelines for each individual near-term project component vary, but all components would begin construction in January 2019 and would be completed in September 2019. Construction of project components would overlap. An estimate construction schedule for near-term projects is shown in **Figure 2-3**.

Construction of long-term project components would be constructed from 2021-2040. Specific construction equipment lists, material lists, construction methods, and workforce details would be developed in the future as the long-term project components are planned and designed. The following provides a general overview of construction equipment, materials, and methods associated with installation of pipelines, storage tanks, pump stations and groundwater wells.



SOURCE: PWD 2016.

Figure 2-3
Near-term Construction Schedule

Pipelines

Construction of proposed potable water pipelines would involve trenching using a conventional cut and cover technique, jack-and-bore or directional drilling techniques where necessary to avoid sensitive land features or roadway intersections. Dewatering may be required depending on location. Pipelines would be installed primarily within existing roadway right-of-ways to the extent feasible. The trenching technique would include saw cutting of the pavement where

applicable, trench excavation, pipe installation, backfill operations, and re-surfacing to the original condition.

Trench width and depth would generally depend on the size of the pipe to be installed, which would range from six to 36 inches. All fire flow pipelines would be installed at a depth of 5 feet. The trench widths for FF-01 and FF-04 would be 2.5 feet, FF-06 and FF-07 would be 2 feet, and FF-05 would be 3 feet. The construction corridor would be wide enough to accommodate the trench and to allow for staging areas and vehicle access. Offsite construction staging areas would be identified by contractors for pipe lay-down, soil stockpiling, and equipment storage. The length of an open trench would not exceed 100 feet at any time, and on average 50 to 100 feet of pipeline would be installed per day.

Trenches would be backfilled at the end of each work day or temporarily closed by covering with steel trench plates. The construction equipment needed for pipeline installations generally includes: backhoes, excavators, dump trucks, cranes, shoring equipment, steam roller, and plate compactor. Approximately three to six workers would be required during various phases of pipeline installation. Excavated soils would be reused as backfill and otherwise disposed offsite. Once pipelines are installed, the disturbed area would be restored to pre-construction conditions.

Traffic control would be necessary during pipeline construction within city and county roadways. Typically five to 10 workers would be required for traffic control during pipeline installation. Equipment necessary for traffic control includes changeable message signs, delineators, arrow boards, and K-Rails. The traffic control plan for each pipeline project would be coordinated with the applicable jurisdictions, including the City of Palmdale and County of Los Angeles.

Storage Tanks

Construction of storage tanks would require site preparation and clearing, excavation, grading, tank erection and painting, and site restoration. Tanks typically would be constructed of prefabricated steel rings, stacked and welded to the desired height. Once erected, each tank would be sandblasted, primed, painted and treated. Architectural and color elements of the storage tanks would be designed to blend in with the surrounding landscape and fit in with the visual character of the area.

The construction equipment needed for tank installation generally includes: backhoes, excavators, bulldozers, compactors, dump trucks, girth welder, iron worker, truck crane, boom lift truck, and scaffolding. Approximately four to seven workers would be required at a time during various phases of tank construction. Excavated soils would be reused onsite to the extent feasible and otherwise disposed offsite. Concrete would be required for construction of tank foundations and pads.

Pump Stations

Pump stations would be housed in single-story buildings that may include pump rooms, an electric control room, and a room for disinfection facilities. Pump station exteriors typically would be built in accordance with standard construction methods for roofed masonry buildings, and would be designed to blend in with the surrounding landscape. Construction of pump stations

would involve installation of piping and electrical equipment, excavation and structural foundation installation, pump house construction, pump and motor installation, and final site restoration. Pump stations would be equipped with portable emergency generator connections and manual transfer switches. Power to the pump station would be provided through underground service to minimize possibility of damage during fires.

The construction equipment needed for pump station installation generally includes: auger truck, backhoe, boom lift truck, excavator, plate compactor, and scaffolding. Approximately three to seven workers would be required during various phases of pump station construction. Excavated soils would be reused onsite to the extent feasible and otherwise disposed offsite. Concrete would be required for construction of pump station foundations and pads.

Groundwater Wells

Construction of production wells would include site preparation, mobilization of equipment to the well site, well drilling, water quality testing, installation of the well casing, gravel packing and finishing with a cement seal. Water discharged during well drilling could be recycled back into the well borehole during drilling or discharged to a nearby storm drain after drilling is complete under a permit from the Regional Water Quality Control Board. Construction equipment typically would include an auger rig, drill rig, small crane, welder, all-wheel drive forklift, pipe trailer, generator, Baker tanks, circulation pits and a backhoe. The duration of the well drilling/testing operation is estimated at approximately three months.

For approximately one month, daily 24-hour drilling would be required. To drill the well, the drill rig must run 24 hours-a-day otherwise the walls of the borehole can collapse. Temporary overhead nighttime lighting would be installed during the well drilling period. All lighting would be directed downward to avoid light and glare impacts associated with construction.

PWD Headquarters Expansion

The headquarters expansion would consist of demolition of existing buildings at the corner of E. Avenue Q and 20th Street in Palmdale and construction of a 21,000 square foot building. The building to be constructed would be one story in height and would be constructed on land currently owned by PWD.

The construction equipment needed for demolition and construction of the headquarters includes: backhoes, excavators, bulldozers, compactors, dump trucks, girth welder, iron worker, truck crane, boom lift truck, and scaffolding. Approximately five to nine workers would be required at a time during various phases of construction. Excavated soils would be reused onsite to the extent feasible and otherwise disposed offsite. Concrete would be required for construction of building foundations.

2.6.2 Operation and Maintenance

Operation of most proposed facilities, such as storage tanks, pump stations, pipelines, and groundwater wells, would not require daily staffing but rather require only periodic maintenance. The headquarters expansion may involve a minimal increase in staff to accommodate future

facilities to be constructed as part of the WSMP. The number of staff would be minimal compared with baseline staff numbers and would not present a substantial increase in workers to the site. Maintenance activities of the facilities may include, but are not limited to, periodic removal of accumulated sediment and debris, replacement of non-operational machinery, and inspection and maintenance of all structures. Proposed facilities in the PWD service area would be supplied with electrical power from Southern California Edison. PWD's electricity usage to operate groundwater wells and pump stations was 10,773,830 kilowatt hours (kWh) in 2017. The proposed project would use between 853,000 to 1,615,000 kWh annually to operate the project facilities, which would represent approximately 1/10 of the current usage.

2.7 Permits and Approvals

Potential regulatory agencies that may have approval requirements are identified in **Table 2-5**, and this list may be expanded for individual activities.

TABLE 2-5
REGULATORY REQUIREMENTS AND AUTHORIZATIONS

Agency	Type of Approval
Antelope Valley Air Quality Management District	Permit to Construct and Operate
California Department of Fish and Wildlife	Section 1602 Streambed Alteration Agreement
California Department of Transportation	Encroachment Permit
City of Palmdale	Encroachment Permit
County of Los Angeles	Encroachment Permit
Regional Water Quality Control Board	Clean Water Act Section 401 Certification; Discharge requirements during construction
State Water Resources Control Board	Construction General Permit/SWPPP approval
California Department of Water Resources	Encroachment Permit for facilities that cross the California Aqueduct
U.S. Army Corps of Engineers	Clean Water Act Section 404 Permit

2.8 References

PWD 2016. *2016 Water System Master Plan.* Final Report. Prepared September 2016.

CHAPTER 3
Environmental Setting, Impacts, and Mitigation Measures

In compliance with *CEQA Guidelines* Sections 15125 and 15126, Chapter 3 of this Draft PEIR provides an analysis of the environmental effects of the proposed project with respect to existing baseline conditions. The baseline environmental conditions for the analysis included within this Draft PEIR are generally from February 2017 when the NOP was published. The following environmental issue areas are assessed in this chapter in accordance with Appendices F and G of the *CEQA Guidelines*:

- Aesthetics
- Agriculture and Forestry Resources
- Air Quality and Greenhouse Gas Emissions
- Biological Resources
- Cultural Resources
- Geology, Soils, Seismicity, and Mineral Resources
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use, Planning and Recreation
- Noise
- Public Services
- Transportation and Traffic
- Tribal Cultural Resources
- Utilities, Service Systems and Energy

The following environmental issues are not further analyzed in the Draft PEIR as no impacts would occur as a result of proposed project implementation.

Population and Housing: The proposed project involves the construction and operation storage tanks, pump stations, transmission pipelines, wells, and a headquarters building expansion. The proposed project would not displace existing housing or substantial numbers of people and would not require construction of replacement housing. The proposed project would not directly induce population growth by constructing new homes or businesses. Therefore, no impact would occur. The potential for the proposed project to indirectly induce population growth is evaluated in Chapter 5, Growth Inducement.

3.1 Aesthetics

This section addresses the aesthetic and visual impacts associated with implementation of the proposed 2016 Water System Master Plan (WSMP or proposed project), which would include the construction and operation of new facilities and upgrades to existing facilities throughout the Palmdale Water District (PWD) service area and vicinity. These facilities include pipelines, storage tanks, pump stations and groundwater wells to be constructed in the near-term (before 2020) and long-term (after 2020). Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). This section includes a description of existing visual resources and aesthetic conditions in the project area and an evaluation of potential effects on visual resources, including scenic vistas and views, and on the visual character of project sites and surrounding areas that would support aboveground facilities, and describes mitigation measures that would reduce impacts to a less than significant level.

3.1.1 Environmental Setting

Regional Setting

Visual resources consist of natural landscapes and scenic views, including landforms, vegetation, and water features, as well as unique elements of the built environment. The proposed project would be located in the Antelope Valley in northern Los Angeles County. The topography of the Antelope Valley provides scenic views from various public vantage points. Key regional visual resources include the San Gabriel Mountains to the southwest, Tehachapi Mountains to the northwest, the extensive flatlands of the Mojave Desert, and the hills and buttes of San Bernardino County (County of Los Angeles 2014). The general aesthetic and visual character of the project area consist of an expansive desert horizon and sparsely inhabited landscape with views of the surrounding Tehachapi and San Gabriel Mountain ranges. The urbanized aesthetic and visual character of the project area is defined by development within the City of Palmdale, the City of Lancaster, and smaller communities in unincorporated Los Angeles County such as Littlerock and Alpine. The built environment is dominated by low-lying residential, industrial and commercial buildings with local views of the surrounding buttes and panoramas of the San Gabriel Mountains and desert expanses.

Local Setting

The project area is characterized primarily by residential land uses interspersed among open space and distant mountain vistas. Specifically, the Palmdale area is characterized by three distinct landscape types: mountainous areas, open space landforms of the desert slope and rift zone of the San Andreas Fault, and high desert plain, buttes, and alkali sinks (City of Palmdale 1993). Vegetation is typical of the western Mojave Desert that includes creosote and desert shrubs with some portions of the valley containing large stands of Joshua Trees. The perimeter of the valley includes low brush covered hills that transition into the Tehachapi Mountains and San Gabriel Mountains to the west and south. The project area has views of the Tehachapi Mountains to the northwest and the San Gabriel Mountains to the south from various public vantage points and roadways. In the City of Palmdale, the Lamon Odett Vista Point, just off the Antelope Valley

Freeway, provides a view of Lake Palmdale and the City (City of Palmdale 1993). Views from the mountains capture the project area's natural and built-up landscape characterized by residential land uses and open space. Residential lots are a mix of planned communities with uniform architectural characteristics and typical ranch-style homes. This is a unique feature of the desert communities that can be viewed regionally and locally within the project area from the surrounding mountains.

The WSMP includes pipelines, storage tanks, pumps stations, and groundwater wells in locations throughout the program area. **Figures 3.1-1** through **Figure 3.1-4** show examples of these facilities. The preliminary locations of long-term project facilities to be constructed are shown on Figure 2-2 (see Chapter 2). The locations of near-term program components are shown in Figures 2-2a through 2-2f (see Chapter 2). Additionally, PWD is proposing a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to be constructed as part of the long-term facilities (see Figure 2-2). The visual character of areas surrounding the long-term and near-term project components is described below.

Storage Tanks

The WSMP calls for construction of up to 19 storage tanks, with three tanks to be constructed by 2020, and 16 tanks to be constructed after 2020. Although locations are preliminary in nature, the tanks to be constructed after 2020 may be located within undeveloped land in between residential areas and on hillsides along the southern boundary of the PWD service area. Some of these tanks would be located adjacent to existing PWD facilities such as pump stations, other storage tanks, and pipelines (Figure 2-2). An example of an existing PWD storage tank is depicted in Figure 3.1-1. The tanks to be constructed by 2020 are as follows:

- Storage tank ES-01 would be constructed approximately 500 feet west of PWD's western service boundary within open, vacant land. The nearest residence is approximately 900 feet east.
- Storage tank FS-01 would be constructed approximately 1,700 feet west of PWD's western service boundary within open, undeveloped land. The nearest residence would be over 3,000 feet to the east.
- Storage tank ES-03 would be constructed near the intersection of Sierra Highway and Rae Street within the PWD's service area. The storage tank would be constructed within open, undeveloped land approximately 1,950 feet southeast of the nearest residence.

Pump Stations

The WSMP calls for the construction of seven new pumps at five existing pump stations and six new pump stations. Three pumps at existing pump stations are to be constructed by 2020, while the remaining four pumps at existing pump stations and six new pump stations would be constructed after 2020. Although locations are preliminary in nature, the new pump stations to be constructed after 2020 may be located in undeveloped land close to residential uses. Most of the pump stations would be located adjacent to other long-term PWD facilities such as pipelines and storage tanks (Figure 2-2). The long-term pumps would be located within existing pump stations. An example of an existing PWD pump station is depicted in Figure 3.1-2. The pumps to be constructed by 2020 are as follows:

D160836.00 - Palmdale Water District Potable Water Supply Master Plan\05 Graphics-GIS-Modeling\Illustrator

Palmdale Water District, 2017

Palmdale Water District

Figure 3.1-1
Existing PWD Storage Tank Facilities

ESA

D160836.00 - Palmdale Water District Potable Water Supply Master Plan\05 Graphics-GIS-Modeling\Illustrator

Palmdale Water District, 2017

Palmdale Water District

Figure 3.1-2
Existing FB-02 Pump Station

ESA

Palmdale Water District, 2017

Palmdale Water District

Figure 3.1-3
Replacement of Existing Pipeline within PWD Service Area

ESA

D160836.00 - Palmdale Water District Potable Water Supply Master Plan\05 Graphics-GIS-Modeling\Illustrator

Palmdale Water District, 2017

Palmdale Water District

Figure 3.1-4
Existing PWD Groundwater Well Location

ESA

- The EB-01 pump would be installed within the existing V-5 Booster Station near the northwest corner of 47th Street East and Barrel Springs Road within undeveloped land just south of two residential lots.
- The FB-01 pumps would be installed within the existing 3600 Ft Booster Pump Station near the intersection of Tierra Subida Avenue and Lakeview Drive surrounded by low-density residential lots just northwest and northeast and undeveloped, vacant land to the south.
- The FB-02 pump would be installed within the existing El Camino Underground Pump Station near the intersection of El Camino Drive and Lakeview Drive within disturbed land surrounded by low-density residential lots to the east, north and west.

Pipelines

Multiple segments of transmission pipelines would be constructed throughout the project area. Pipelines to be constructed after 2020 would primarily be located within the right-of-way of existing roadways throughout the project area; while some pipelines would be implemented within undeveloped land or open areas with no existing roadways (Figure 2-2). Pipelines to be constructed by 2020 include fire flow projects, age-based pipeline improvements, and pipeline expansion projects:

Fire Flow Projects

- The FF-01 pipeline replacement is adjacent to vacant, undeveloped land to the north, east and west. To the south is East Avenue Q Frontage Road and a residential development.
- The FF-04 pipeline area is adjacent to vacant, undeveloped land to the north, south and west. 15th Street East separates the project area and a residential development.
- The FF-05 pipeline would run parallel to Fort Tejon Road amongst vacant, undeveloped land.
- The FF-06 pipeline area is surrounded by vacant, undeveloped land to the east, south and west and a residential development just to the north.
- The FF-07 pipeline area is surrounded on all sides by open space and desert vegetation with low-density residential community lots.

Pipeline Improvements and Expansion

- The pipeline along 47th Street East is surrounded by open land containing desert-vegetation. There is one residential lot located just west of this pipeline area.
- The pipeline along Sierra Highway is surrounded by open land containing desert vegetation with one residential lot to the northeast and a trailer park community approximately 350 feet west.
- Pipeline west of Lakeview Drive runs through vacant, undeveloped land. There are two residential lots just east of the pipeline.

Groundwater Wells

The WSMP calls for the construction of five new wells to be located in the northern and eastern portion of the project area. The northern two wells would be located in open space near industrial facilities and the Palmdale Regional Airport. The northeastern three wells would be located in open space just east of developed land containing a high school and residential land uses (Figure 2-2). There are currently no other PWD facilities located in the immediate area. An example of an existing PWD groundwater well is depicted in Figure 3.1-4.

PWD Headquarters Expansion

As part of the proposed project, PWD would conduct an expansion of the existing headquarters at the corner of E. Avenue Q and 20th Street in Palmdale. This would involve demolition of existing buildings and construction of a 21,000 square foot building. The headquarters expansion would be conducted from 2021 through 2030 and is therefore considered a long-term component. The existing PWD headquarters is surrounded by one-to-two story commercial buildings. The proposed headquarters expansion building would be one story in height (similar to the existing building at the corner of E. Avenue Q and 20th Street).

Scenic Highways and Routes

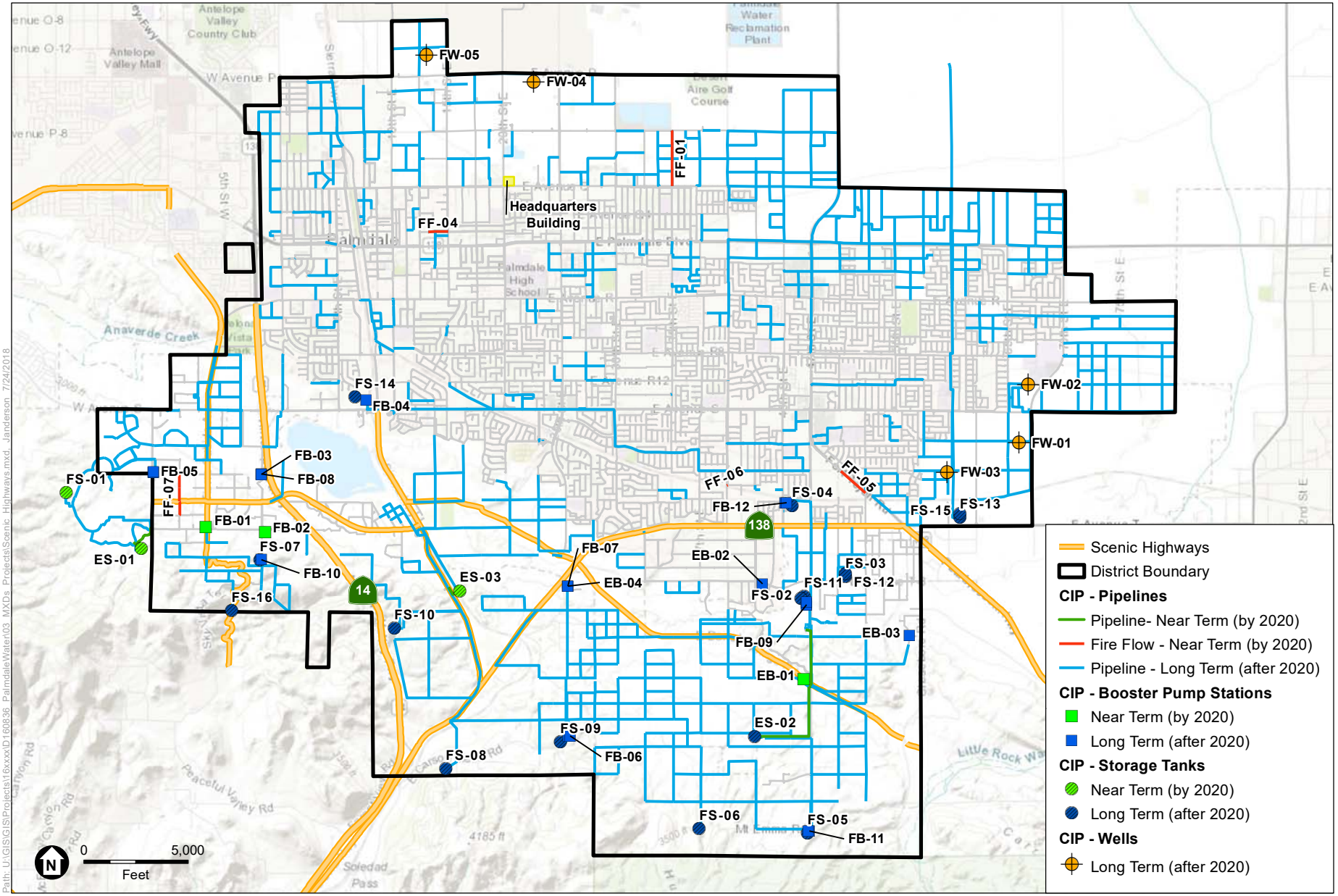
There are no Officially Designated Scenic Highways within the project area (Caltrans 2017). The nearest Scenic Highway is State Route (SR) 2, approximately 12 miles south of the project area. Further, the *County of Los Angeles General Plan* does not designate any scenic routes within the program area (County of Los Angeles 2014). According to the *City of Palmdale General Plan*, Sierra Highway south of Avenue S, Antelope Valley Freeway (SR 14) south of Rayburn Road, and Pearblossom Highway (SR 138) are City-designated Scenic Highways that traverse through the project area (City of Palmdale 1993). **Figure 3.1-5** shows the proposed project facilities in relation to City-designated Scenic Highways.

Visual Resources Concepts and Terminology

Light and Glare

There are two primary anthropogenic sources of light: light emanating from building interiors passing through windows, and light originating from exterior sources (e.g., street lighting, building illumination, security lighting, parking lot lighting, landscape lighting, and signage). Anthropogenic sources of light can be a nuisance to adjacent residential areas, diminish the view of the clear night sky, and if uncontrolled, can cause disturbances for motorists traveling in the area. Land uses such as residences and hotels are considered light sensitive, since occupants have expectations of privacy during evening hours and may be subject to disturbances by bright light sources. Light spill is typically defined as the presence of unwanted light on properties adjacent to the property being illuminated.

Glare is caused by the reflection of sunlight or artificial light by highly polished surfaces such as window glass or reflective materials and, to a lesser degree, from broad expanses of light-colored surfaces or vehicle headlights. Perceived glare is the unwanted and potentially objectionable sensation as observed by a person as they look directly into the light source of a luminaire. Daytime glare generation in urban areas is typically associated with buildings with exterior facades largely or entirely comprised of highly reflective glass. Glare can also be produced during evening and nighttime hours by the reflection of artificial light sources, such as automobile headlights. Glare generation is typically related to either moving vehicles or sun angles, although glare resulting from reflected sunlight can occur regularly at certain times of the year. Glare-sensitive uses include residences, and transportation corridors. Potentially affected viewers in the local viewshed include motorists, residents, and recreational visitors.



SOURCE: Palmdale Water 2017

Palmdale Water District

Figure 3.1-5
City-Designated Scenic Highways

3.1.2 Regulatory Framework

Federal

National Scenic Byways Program: The National Scenic Byways Program is part of the U.S. Department of Transportation, Federal Highway Administration. The program was established under the Intermodal Surface Transportation Efficiency Act of 1991, and was reauthorized in 1998 under the Transportation Equity Act for the 21st Century. Under the program, the U.S. Secretary of Transportation recognizes certain roads as National Scenic Byways or All-American Roads based on their archaeological, cultural, historic, natural, recreational, and scenic qualities. The only National Scenic Byway located within southern California is the Arroyo Seco Historic Parkway – Route 110 in Los Angeles County (Federal Highway Administration 2017). The National Scenic Byway is not located near the project area.

State

State Scenic Highway Program: In 1963, the California legislature created the Scenic Highway Program to protect scenic highway corridors from changes that could diminish the aesthetic value of lands adjacent to the highways. The state regulations and guidelines governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. A highway is designated under this program when a local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a Scenic Highway. When a city or county nominates an eligible scenic highway for official designation, it defines the scenic corridor, which is land generally adjacent to and visible to a motorist on the highway.

Local

County of Los Angeles General Plan: The following policy within the Conservation and Natural Resources Element of the County of Los Angeles General Plan is related to scenic resources (County of Los Angeles 2014):

Goal C/NR 13: Protected visual and scenic resources.

Policy C/NR 13.1: Protect scenic resources through land use regulations that mitigate development impacts.

Policy C/NR 13.2: Protect ridgelines from incompatible development that diminishes their scenic value.

Policy C/NR 13.3: Reduce light trespass, light pollution and other threats to scenic resources.

Policy C/NR 13.4: Encourage developments to be designed to create a consistent visual relationship with the natural terrain and vegetation.

Policy C/NR 13.5: Encourage required grading to be compatible with the existing terrain.

County of Los Angeles Lighting Ordinance: Part 9 of Chapter 22.44, the Rural Outdoor Lighting District is established as a supplemental district for the rural areas of the County to promote and maintain dark skies for the health and enjoyment of individuals. This ordinance includes general development standards such as lighting allowances, no lighting trespasses, shielding and maximum heights of lighting for different land uses (County of Los Angeles 2012).

City of Palmdale Hillside Management Zoning Ordinance: The Palmdale Hillside Management Zoning Ordinance was designed to help maintain the visual, open space, and recreational amenities provided by hillside areas bordering the city. The ordinance protects against insensitive development and contains standards which apply to areas with a natural slope of ten percent or more. The standards were designed to preserve open space, natural grades, scenic views, and visually prominent landforms (City of Palmdale 2016).

> **Section 100.18D:** Development is sited in a manner that substantially retains the visual qualities and natural elevations of the significant ridgelines and prominent landforms forming the City's skyline backdrop, as defined in this Article, and preserves those portions of the ridgelines visible from the Antelope Valley floor, or adjacent valleys, as a scenic skyline backdrop to the City.

City of Palmdale General Plan: The Environmental Resources section of the City of Palmdale General Plan (City of Palmdale 1993) governs the aesthetic resources of the City. The City of Palmdale General Plan policy that is related to scenic resources is as follows:

> **Goal ER1:** Preserve significant natural and man-made open space areas that give Palmdale its distinct form and identity.
>
> **Objective ER1.2:** Protect scenic viewsheds both to and from the City of Palmdale.
>
> **Policy ER1.2.2:** The following roadways are designated as City scenic highways. Apply special design standards for projects adjacent to these highways (as contained in the implementation section) in order to protect their scenic qualities. (*General Plan Amendment 98-3, adopted by City Council June 10, 1998.*)
>
> - Barrel Springs Road
> - Tierra Subida Highway
> - Sierra Highway, South of Avenue S
> - Elizabeth Lake Road
> - Pearblossom Highway
> - Bouquet Canyon Road
> - Godde Hill Road
> - Antelope Valley Freeway, south of Rayburn Road
>
> **Policy ER1.2.3:** Encourage all new development along scenic highways to maintain sufficient spacing between buildings, perimeter walls and large growing vegetation in order to maintain scenic view corridors of hillsides and open space to the maximum

extent feasible. (*General Plan Amendment 04-01, adopted by City Council April 14, 2004.*)

3.1.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to aesthetics are based on Appendix G of the *CEQA Guidelines*. The proposed project would result in a significant impact to aesthetics if it would:

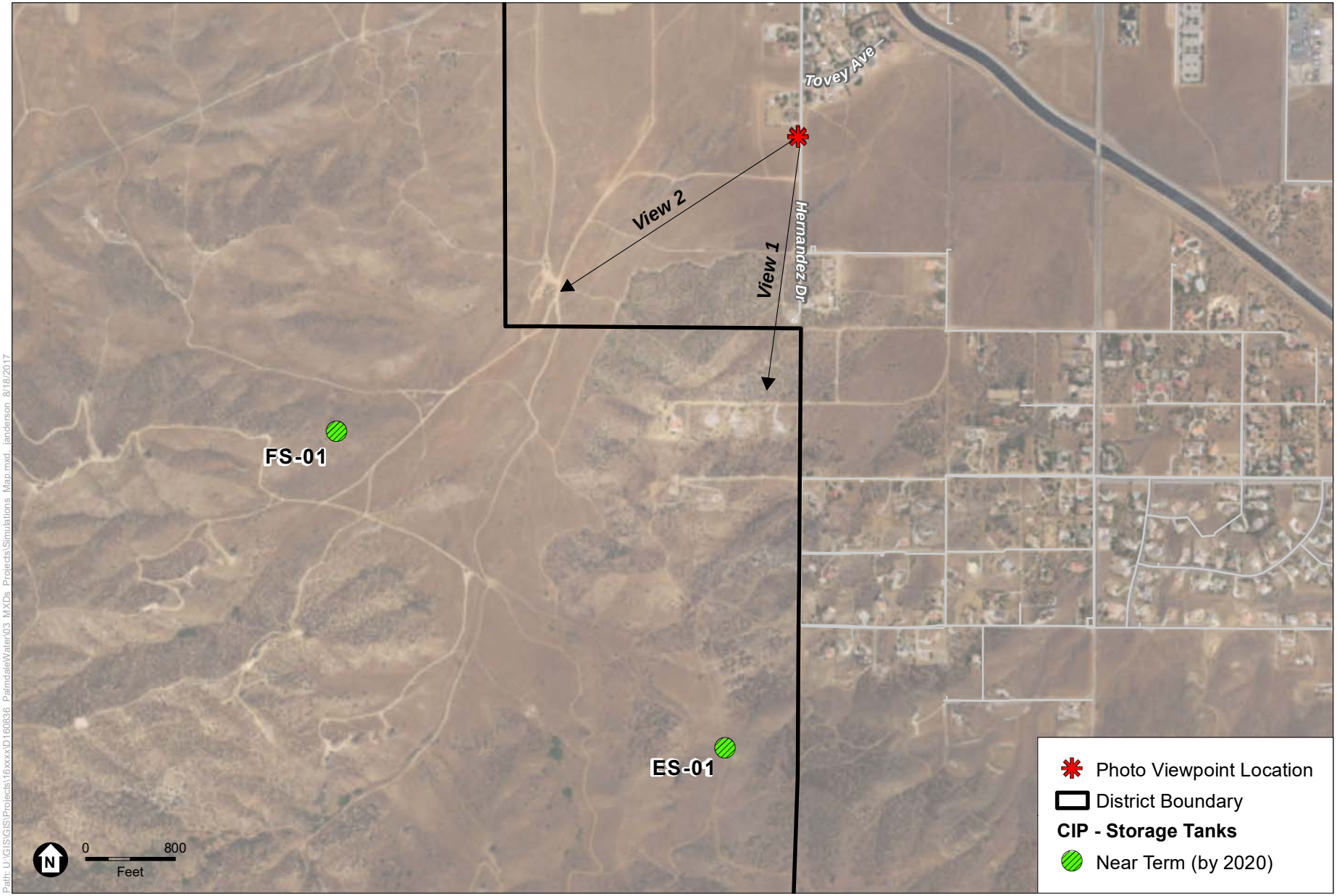
- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

A discussion of the impacts and mitigation measures for the proposed project are presented below.

Methodology

The WSMP would develop PWD's potable water system over the next 25 years in order meet the water quantity, water quality, system pressure, and reliability requirements of customers. Implementation of actions under this Plan would require the construction of various aboveground facilities and support infrastructure including storage tanks, pump stations, pipelines and wells. Additionally, PWD is proposing a headquarters building expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to be constructed as part of the long-term facilities. Projects to be implemented by 2020 are considered near-term project components and are analyzed at site-specific level. Projects addressed after 2020 are considered long-term projects. Preliminary locations for the long-term facilities have been established (see Figure 2-2), although locations are subject to change based on the need of facilities in the future. As such, these long-term facilities are therefore evaluated generally and broadly.

A viewshed analysis was conducted for near-term storage tanks ES-01 and FS-01 to determine potential aesthetic impacts to surrounding communities and open space land uses. The viewshed of each storage tank was created using ArcGIS 10.4.1 along with the Spatial Analyst extension. The viewshed was calculated using a Digital Elevation Model and assumed the storage tanks would be 30 feet in height and 72 feet in diameter, and did not account for existing features (structures, trees, etc.) other than topography. **Figure 3.1-6** shows the photo viewpoint from which existing photos were taken and from which visual simulations were conducted of ES-01 and FS-01. **Figure 3.1-7** shows the existing view and simulation of ES-01; **Figure 3.1-8** shows the existing view and simulation of FS-01.



SOURCE: Palmdale Water 2017

Palmdale Water District

Figure 3.1-6

Simulations Photo Viewpoint Location

ESA

Existing View

Proposed View

SOURCE: ESA

Palmdale Water District

Figure 3.1-7
View 1: ES-01

ESA

Existing View

Proposed View

SOURCE: ESA

Palmdale Water District

Figure 3.1-8
View 2: FS-01

ESA

Impacts Discussion

Scenic Vistas

Impact 3.1-1: The proposed project could have a substantial adverse effect on a scenic vista.

The construction of all proposed near-term and long-term facilities would require temporary ground disturbance within the project area. The presence of construction equipment and materials would be visible from public vantage points such as open space areas, sidewalks, and streets, but would not permanently affect designated scenic views or vistas. Figure 3.1-1 gives an example of short-term construction of pipelines within PWD's service area. Given the short-term and temporary presence of construction equipment and materials, impacts to scenic vistas due to construction of long-term and short-term project components would be less than significant.

Storage Tanks (Near-Term)

The proposed near-term storage tanks (ES-01, FS-01, ES-03) would be implemented within undeveloped areas in the City of Palmdale and within unincorporated portions of Los Angeles County just west and south of the City of Palmdale boundary (see Figures 2-2a and 2-2b). The storage tanks may appear substantially different than the existing open space land uses in the immediate vicinity (see Figure 3.1-2 for an example of storage tanks to be constructed).

Storage tank ES-01 would be constructed approximately 500 feet west of PWD's western service area boundary within open, undeveloped land. Tank ES-01 would have a footprint of 4,536 square feet and would be 30 feet tall. Given the undeveloped nature of the nearby landscape and the elevation respective to the valley floor, a viewshed analysis was conducted for storage tank ES-01. Figure 3.1-6 shows the location and direction of a photo that was taken to demonstrate the existing view and generated simulation of ES-01. As shown in the visual simulation on Figure 3.1-7, storage tank ES-01 would be visible in the background from near the intersection of Tovey Avenue and Hernandez Drive. Although the tank would be visible in the distance along a low-lying hill, ES-01 would not be visible from any City-designated Scenic Highway. Storage tank ES-01 would not obstruct views of the tallest distant mountains; but could adversely affect views of surrounding low-lying hillsides from nearby residences or motorists traveling along public roadways or sidewalks within the project area. It should be noted that the storage tank ES-01 would resemble other existing water storage tanks as seen in the foreground of images shown in Figure 3.1-7.

Storage tank FS-01 would be constructed approximately 1,700 feet west of PWD's western service boundary within open, undeveloped land. The nearest residence would be over 3,000 feet to the east. FS-01 would have a height of 30 feet and a footprint of 3,421 square feet. Given the undeveloped nature of the nearby landscape and the elevation respective to the valley floor, a viewshed analysis was conducted for storage tank FS-01. Figure 3.1-6 shows the location and direction of a photo that was taken to demonstrate the existing view and generated simulation of FS-01. Figure 3.1-8 shows the existing view from the viewpoint location and the simulated view of FS-01. As seen in the simulation, the storage tank FS-01 would be constructed in the distant background nestled within low-lying hillsides. Although FS-01 would not be visible from any City-designated Scenic Highway and would not obstruct views of the scenic distant mountains, it

could adversely affect views of surrounding hillsides from public streets (Tovey Avenue and Hernandez Drive) and residences, or motorists traveling along public roadways or sidewalks within the project area.

Storage tank ES-03 would be constructed near the intersection of Sierra Highway and Rae Street within the PWD's service area. The storage tank would be constructed within open, undeveloped land approximately 1,950 feet southeast of the nearest residence. Tank ES-03 would be the largest near-term tank with a footprint of 18,627 square feet and height of 30 feet. Due to the flat topography of the surrounding area and hillside the tank would be located on, the storage tank may be visible by the residences over 1,950 feet away. Further, storage tank ES-03 would be constructed just east of the City-designated scenic Sierra Highway (Figure 3.1-5) and, therefore, would be subject to special design standards. The storage tank would not obstruct views of the distant mountains but would impact the scenic value of the hillside.

Mitigation Measure AES-1 would require a landscape plan for the storage tanks to screen facilities from public view. Additionally, **Mitigation Measure AES-2** would design the storage tanks to have color palettes that blend in with the surrounding character of the site and would minimize contrasting features in the visual landscape. The design of the storage tanks and implementation of landscape plans required under Mitigation Measures AES-1 and AES-2 would minimize contrasting features within the immediate project areas; therefore, impacts would be considered less than significant.

Storage Tanks (Long-Term)

As mentioned above, storage tanks would be large, visible structures and some could appear substantially different than existing land uses in the areas proposed for long-term structures. Storage tanks are typically between 15 to 30 feet in height and their footprints vary depending on necessary storage capacity. A total of 16 storage tanks could be constructed over the program's long-term planning period. The location of the proposed long-term storage tanks can be seen on Figure 2-2; however, these locations are subject to change in the future. Multiple storage tanks such as FS-06 and FS-08 would be located within undeveloped land and/or on hillsides; therefore, it is possible that the storage tanks could obstruct views of distant mountains or surrounding hillsides.

Further, long-term storage tanks FS-10 and FS-16 would be located along SR-14 and Tierra Subida Avenue, two City-designated scenic highways (Figure 3.1-5). These tanks could obstruct views of scenic vistas. These impacts are similar to those for the storage tanks to be constructed by 2020, as described above. Mitigation Measure AES-1 and AES-2 would require site-specific vegetative screening and would design the storage tanks to have color palettes that blend in with the surrounding character of the site. These measures would minimize contrasting features in the visual landscape. The design of the storage tanks and implementation of landscape plans would minimize contrasting features within the immediate project areas; therefore, impacts would be considered less than significant.

Pumps (Near-Term)

All three proposed near-term pumps would be implemented within existing pump stations, which are predominantly surrounded by light-residential uses. The FB-02 pump would not be implemented within a City-designated scenic route; however, the EB-01 pump would be installed within the existing V-5 Booster Station on Barrel Springs Road, a City-designated scenic route. Additionally, the FB-01 pump would be implemented adjacent to Tierra Subida Avenue, another City-designated scenic route. However, the new pumps would have small footprints of 21 square feet and would be completely contained within existing pump houses. Figure 3.1-3 shows the existing pump house where proposed pump FB-02 would be installed. Therefore, the proposed pumps would not introduce new features into the landscape that would obscure scenic views of distant mountains or surrounding hillsides relative to existing conditions. Impacts would be less than significant and no mitigation measures would be required.

Pumps (Long-Term)

The WSMP includes four new pumps at five existing pump stations, as well as six new pump stations within the project area. As mentioned above, the four new pumps would be low profile (with varying square footage) and contained within existing pump houses. The six new pump stations would include new pump housing units, which are generally single-story buildings, with heights of 10 to 15 feet (see Figure 3.1-3 for an example of an existing pump house). Although locations are preliminary in nature, the new pump stations may be located in undeveloped land near residential uses, such as FB-12 which would be implemented on relatively flat land, just adjacent to residential land uses. Most of the pump stations would be located adjacent to other long-term PWD facilities such as pipelines and storage tanks. None of the preliminary locations for new pump stations would be visible from designated scenic roadways. However, pump stations may be visible momentarily while traveling along other public roadways or sidewalks. Pump station exteriors would be built in accordance with standard construction methods for roofed masonry buildings, and, as indicated in Chapter 2, architectural and color elements of the new pump stations would be designed to blend in with the surrounding landscape and fit in with the visual character of the area. As such, new pump stations would not have significant impacts to scenic vistas. Impacts would be less than significant and no mitigation measures would be required.

Pipelines (Near-Term and Long-Term)

The proposed pipelines would be located underground within or along Public ROWs or within open space connecting to storage tanks and/or pump stations. Construction of conveyance pipelines would require temporary ground-disturbance but would be anticipated to be located underground and not visible once construction is complete. Pipelines would therefore not affect views from publically-accessible vantage points. Impacts to scenic vistas as a result of the construction and operation of pipelines would be less than significant and no mitigation measures would be required.

Wells (Long-Term)

The proposed groundwater wells would be housed within single-story buildings, with heights of 10 to 15 feet (see Figure 3.1-4 for an example of existing aboveground well housing). The proposed wells would be located in the northern and northeastern portion of the PWD service

area, in undeveloped areas near industrial facilities and the Palmdale Regional Airport (north) and just east of developed land containing a high school and residential land uses (east) (Figure 2-2). The proposed wells would not be visible from any City-designated scenic roadways, and while these wells could be visible momentarily from public vantage points when traveling along roadways and sidewalks, the wells would be located in areas that generally are flat, proximate to land already developed, and not expected to obstruct scenic vistas. Therefore, impacts regarding scenic vistas would be less than significant and no mitigation measures are required.

Headquarters Expansion (Long-Term)

The PWD headquarters expansion building would consist of demolition of existing buildings at the corner of E. Avenue Q and 20th Street in Palmdale and construction of a 21,000 square foot addition to the headquarters building. The building to be constructed would be one story in height and would be constructed on land currently owned by PWD. The existing PWD headquarters is surrounded by one- to two-story commercial uses. The proposed headquarters expansion building would replace an existing one-story building at the site and would not be tall enough to obstruct scenic views. Mitigation Measure AES-2 would require design of the headquarters expansion building to have color palettes that blend in with the surrounding character of the site and would minimize contrasting features in the visual landscape. The design of the headquarters expansion building required under Mitigation Measures AES-2 would minimize contrasting features within the immediate project areas; therefore, impacts would be considered less than significant.

Mitigation Measures

AES-1: During project design, a landscape plan shall be prepared for proposed storage tanks that affect scenic resources. The landscape plan shall include measures to restore disturbed areas by replanting trees and/or reseeding with a native seed mix typical of the surrounding area. Vegetation screening shall also be included in order to assist in shielding the proposed aboveground facilities from public vantage points.

AES-2: Aboveground buildings/structures shall be designed to have color palettes and vegetation screening as necessary to blend with the surrounding character of the site and to minimize contrasting features in the visual landscape.

Significance Determination: Less than Significant with Mitigation

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State Scenic Highways

Impact 3.1-2: The proposed project would not substantially damage scenic resources related to a scenic highway.

There are no officially-designated State Scenic Highways or Eligible State Scenic Highways within the PWD service area (Caltrans 2017). Therefore, the project would not impact scenic resources within a State Scenic Highway corridor. No impact would occur.

Mitigation Measures

None required.

Significance Determination: No Impact

Visual Character

Impact 3.1-3: The proposed project could substantially degrade the existing visual character or quality of the site and its surroundings.

Construction activities associated with all near-term and long-term facilities would result in short-term impacts to the visual character of the project area. Construction activities would require the use of construction equipment and storage of materials within the project sites for project components. Excavated areas, stockpiled soils and other materials generated during construction could present negative aesthetic elements to the existing visual landscape. However, these effects would be temporary and would not permanently affect the existing visual character of the surrounding area. All impacts from construction-related activities would be less than significant and no mitigation measures would be required.

Storage Tanks (Near-Term)

The proposed near-term storage tanks would be implemented within undeveloped areas in the City of Palmdale and within unincorporated portions of Los Angeles County just west of the City of Palmdale boundary (see Figures 2-2a and 2-2b; and Figure 3.1-7 and 3.1-8). The storage tanks would introduce features in the landscape that would contrast with the visual character in the immediate areas. However, as described in Chapter 2, architectural and color elements of the storage tanks would be designed to blend in with the surrounding landscape and fit in with the visual character of the area. Further, implementation of Mitigation Measure AES-1 and AES-2 would apply to the storage tanks and would partially screen storage tanks from public view. Implementation of design features together with the landscape plan required by AES-1 would minimize contrasting features in the immediate vicinity of the tank sites. Therefore, impacts related to visual character would be considered less than significant with implementation of mitigation measures.

Storage Tanks (Long-Term)

Any storage tanks located within urban areas would be constructed on or adjacent to existing developed and built-up landscapes. Therefore, impacts to the visual character within these urban areas would be less than significant. However, storage tanks that are implemented within undeveloped areas as shown on Figure 2-2 could introduce features in the landscape that contrast with the visual character of these undeveloped areas and potentially remove desert vegetation that is a notable characteristic of the area. However, as described in Chapter 2, all storage tanks would be designed to blend in with the surrounding landscape and fit in with the visual character of the area. Further, implementation of Mitigation Measure AES-1 and AES-2 would partially screen tanks from public view; therefore, impacts would be reduced to less than significant levels with implementation of mitigation measures.

Pumps (Near-Term)

All three proposed near-term pumps would be implemented at existing pump stations located in undeveloped areas surrounded by low-density residential uses. The pumps would be constructed within or adjacent to existing pump station-housing and would not substantially alter the existing visual character of the project areas. Therefore, the proposed pumps would not degrade the existing visual character of or quality of the project area. Impacts would be less than significant and no mitigation measures would be required.

Pumps (Long-Term)

Four proposed pumps would be implemented at existing pump houses and would not substantially alter the existing visual character of the project area. However, the WSMP proposed six new pump stations that would generally be single-story buildings with heights of 10 to 15 feet. These five new pump stations could potentially contrast with the existing visual character of the project area. Although the locations are preliminary and subject to change, the identified locations include undeveloped land located in areas designated for low-density and single family residential uses. As indicated in Chapter 2, architectural and color elements of the new pump stations would be designed to blend in with the surrounding landscape and fit in with the visual character of the area. Additionally, Mitigation Measure AES-2 would require vegetative screening as necessary to blend that pump housing with the surrounding character of the site. Further, **Mitigation Measure AES-3** requires all aboveground buildings/structures to be designed to have similar aesthetic qualities to existing structures in the vicinity to minimize contrasting features in the visual landscape. As a result, impacts regarding visual character would be reduced to less than significant levels with implementation of mitigation measures.

Pipelines (Near-Term and Long-Term)

Following construction, the proposed near-term and long-term pipelines would be located underground. After the pipelines are buried, each site would be restored to pre-construction conditions; thus, no permanent impacts to the existing visual character or quality of the project sites or surrounding area would occur.

Wells (Long-Term)

The proposed groundwater wells would generally be housed within single-story buildings, with heights of 10 to 15 feet (see Figure 3.1-4 for an example of existing aboveground well housing). The proposed wells would be located in the northern and northeastern portion of the PWD service area, in undeveloped areas near industrial facilities and the Palmdale Regional Airport (north) and just east of developed land containing a high school and residential land uses (east) (Figure 2-2). These wells could be visible momentarily from public vantage points when traveling along roadways and sidewalks. All aboveground well housing units would be designed to minimize contrasting features and blend with the surrounding landscape as described in Chapter 2. Although the wells and the well housing units could be visible from public vantage points, they are not expected to adversely impact the visual character of the area. Nevertheless, implementation of Mitigation Measures AES-2 and AES-3 would screen well housing from public view and require similar aesthetic qualities to existing structures in the general vicinity. Therefore, impacts regarding visual character would be reduced to less than significant levels with implementation of mitigation measures.

Headquarters Expansion (Long-Term)

The PWD headquarters expansion building would be constructed adjacent to the existing headquarters which is located in a built-up commercial area of Palmdale. The one-story headquarters expansion building would be visible from public vantage points along 20th Street and E. Avenue Q. Although the headquarters expansion building would be visible from public vantage points, it is not expected to adversely impact the visual character of the area. Nevertheless, implementation of Mitigation Measure AES-3 would require the building to have similar aesthetic qualities to existing structures in the vicinity. Therefore, impacts regarding visual character would be reduced to less than significant levels with implementation of mitigation measures.

Mitigation Measures

AES-3: Aboveground buildings/structures shall be designed to have similar aesthetic qualities to existing structures in the vicinity to minimize contrasting features in the visual landscape.

Significance Determination: Less than Significant with Mitigation

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Light or Glare

Impact 3.1-4: The proposed project could create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Construction of the proposed storage tanks, pump stations and pipelines would not require lighting for day-time construction activities, therefore construction activities would not introduce new sources of substantial light or glare in the project area. As a result, construction associated with storage tanks, pump stations and pipelines would be less than significant and no mitigation measures would be required.

Storage Tanks (Near-Term and Long-Term)

The proposed near-term and long-term storage tanks would be located within undeveloped land in between residential areas and on hillsides along the southern boundary of the project area. Some of these tanks would be located adjacent to existing PWD facilities such as pump stations, other storage tanks, and pipelines. Near-term storage tanks would be located between 900 to 3,000 feet away from the closest sensitive receptors (residential), while some long-term tanks, such as FS-14 would be located as close as 350 feet away from the closest residence. Storage tank design may require new exterior nighttime lighting for operational and security purposes. The increase in lighting could result in spill over lighting onto neighboring parcels. Due to the topography of the surrounding areas and largely undeveloped land, the storage tanks may include lighting that could be visible by the nearest residences. Implementation of **Mitigation Measure AES-4** would require any permanent lighting on buildings/structures to be shielded and directed downward to avoid light intrusion onto surrounding land uses. Lighting impacts from operation or for security purposes would therefore be reduced to a less than significant level.

The proposed project would also be required to comply with the County of Los Angeles Hillside Management Ordinance and the City of Palmdale Hillside Management Zoning Ordinance, which are outdoor nighttime lighting ordinances to manage and preserve the natural darkness of night skies for residents of the rural areas. Adherence to these ordinances would ensure any future development associated with the proposed program complies with existing and future lighting ordinances.

Once constructed, building materials could create sources of glare during various times of the day. Implementation of **Mitigation Measure AES-5** would ensure the storage tanks are designed to minimize glare or reflection, including non-glare exterior materials or coatings. With implementation of Mitigation Measures AES-4 and AES-5, impacts to storage tanks associated with light or glare would be reduced to a less than significant level.

Pumps (Near-Term)

All three proposed near-term pumps would be constructed within or adjacent to existing pump station-housing. The pumps would not require additional security and/or operational lighting at the existing pump stations. Therefore, impacts associated with light or glare would be less than significant and no mitigation measures would be required.

Pumps (Long-Term)

A total of seven new pumps at five existing pump stations, and six new pump stations would be constructed in the project area. The new pump stations would include new pump housing units, which are generally single-story buildings, with heights of 10 to 15 feet. The new pump station housing units may be designed with outdoor lighting for operational and security purposes. The new lighting could spill over onto neighboring parcels or be visible from surrounding sensitive receptors. Implementation of Mitigation Measure AES-4 would require any permanent lighting on buildings/structures to be shielded and directed downward to avoid light intrusion. Lighting impacts from operation or for security purposes would therefore be reduced to a less than significant level with implementation of mitigation measures.

Implementation of Mitigation Measure AES-5 would ensure the pump station housing units are designed to minimize glare or reflection. As such, impacts to pump houses associated with light or glare would be reduced to a less than significant level with implementation of mitigation measures.

Pipelines (Near-Term and Long-Term)

The proposed pipelines would not require nighttime lighting for operation as pipelines would be placed underground and therefore would not be visible. As a result, there would be no new sources of lighting to the project area. No impacts related to light and glare would occur.

Wells (Long-Term)

Construction of proposed wells would require 24-hour drilling and, as such, nighttime construction lighting. With implementation of **Mitigation Measure AES-6**, nighttime construction lighting would be shielded and pointed away from surrounding light-sensitive land uses. Further, once wells are constructed, implementation of Mitigation Measure AES-5 would

ensure that well housing would be designed to minimize glare or reflection. As a result, impacts associated with light and glare during construction and operation activities would be reduced to a less than significant level with implementation of mitigation measures.

Headquarters Expansion (Long-Term)

The PWD headquarters expansion building would be constructed in a commercial area of Palmdale adjacent to existing buildings and a 4-way public intersection. The building may require new exterior nighttime lighting for operational and security purposes. The increase in lighting could result in spill over lighting onto neighboring parcels. However, there are no residences located nearby. Nevertheless, implementation of Mitigation Measure AES-4 would require any permanent lighting on the headquarters expansion buildings to be shielded and directed downward to avoid light intrusion onto surrounding land uses. Lighting impacts from operation or for security purposes would therefore be reduced to a less than significant level.

Building materials could create sources of glare during various times of the day. Implementation of Mitigation Measure AES-5 would ensure the headquarters expansion building is designed to minimize glare or reflection, including non-glare exterior materials or coatings. With implementation of Mitigation Measures AES-5, impacts to the headquarters building expansion associated with light or glare would be reduced to a less than significant level.

Mitigation Measures

AES-4: All new permanent exterior lighting associated with proposed WSMP components shall be shielded and directed downward to avoid light spill onto neighboring parcels and visibility from surrounding public vantage points.

AES-5: The proposed WSMP aboveground facilities shall be designed to include non-glare exterior materials and coatings to minimize glare or reflection.

AES-6: Lighting used during nighttime construction, including any associated 24-hour well drilling, shall be shielded and pointed away from surrounding light-sensitive land uses.

Significance Determination: Less than Significant with Mitigation

3.1.4 References

Caltrans, 2017. California Scenic Highway Mapping System, Los Angeles County. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/, accessed March 28, 2017.

City of Palmdale, 1993. *City of Palmdale General Plan, Environmental Resources Element.* January 25, 1993.

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County of Los Angeles, 2012. Ordinance No. 2012-0047. Available at: http://planning.lacounty.gov/assets/upl/data/ord_outdoor-lighting.pdf, accessed April 17, 2017.

County of Los Angeles, 2014. *Los Angeles County General Plan, Chapter 9: Conservation and Natural Resources Element*. January 2014.

Federal Highway Administration, 2017. America's Byways, California. Available at: https://www.fhwa.dot.gov/byways/states/CA, accessed March 29, 2017.

3.2 Agriculture and Forestry Resources

This section addresses the agriculture and forestry resource impacts associated with implementation of the proposed 2016 Water System Master Plan (WSMP or proposed project), which would include the construction and operation of new facilities and upgrades to existing facilities throughout the Palmdale Water District (PWD) service area and vicinity. These facilities include pipelines, storage tanks, pump stations and groundwater wells to be constructed in the near-term (before 2020) and long-term (after 2020). Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). This section includes a description of existing agriculture and forestry resources, as well as applicable regulatory framework, and potential impacts associated with implementation of the proposed project.

3.2.1 Environmental Setting

Regional Setting

According to the California Department of Conservation's (DOC) *2015 California Farmland Conversion Report*, which is the most recent report available, Southern California had approximately 2,973,000 acres of non-irrigated and irrigated important farmlands in 2012, but has continued to see a decline in farmlands over the years. Specifically, Los Angeles County converted approximately 6,654 acres of agricultural land to nonagricultural uses between 2010 and 2012. In 2012, Los Angeles County had 35,333 acres of irrigated and non-irrigated important farmland compared to 175,594 acres of urban built-up land (DOC 2015).

Contrary to the limited amounts of designated agricultural land, Los Angeles County contains nearly 650,000 acres of forest land between the unincorporated areas of the Angeles National Forest and a small portion of the Los Padres National Forest. The Angeles National Forest stretches across Los Angeles County in two sections encompassing the San Gabriel Mountain Range, and is 1,018 square miles or 25 percent of the land area of Los Angeles County. The U.S. Forest Service is responsible for managing public forest lands; while nearly 40,000 acres are privately-owned, where the County retains responsibility for land use regulation (County of Los Angeles 2014).

Local Setting

Agriculture

The project area is located within the northern portion of Los Angeles County within an area containing little to no significant agricultural resources. The City of Palmdale General Plan has no land designated for Agriculture within the project area (City of Palmdale, 1993a). Agriculture production in the City of Palmdale primarily occurs just east of the Palmdale Regional Airport site, just outside of the PWD service area, approximately 630 feet northeast of the intersection of East Avenue P and 50th Street E. The City of Palmdale does not prioritize preserving this area for permanent agricultural production (City of Palmdale 1993b).

The California Department of Conservation's (DOC) Farmland Mapping and Monitoring Program (FMMP) maps and ranks important farmland in California. As determined by the DOC, the project area is designated primarily as Urban and Built-Up Land and Other Land. The southern corner of the PWD service area along Sierra Highway and E. Carson Mesa Road is designated as Prime Farmland (DOC 2014). The nearest proposed facility to this portion of designated farmland is the long-term storage tank FS-08, approximately 1,000 feet east.

The Williamson Act is the State of California's primary program for the conservation of private land in agricultural and open space use. According to the Los Angeles County Williamson Act maps, the project area has no active Williamson Act contracts (DOC 2016).

Forestry

The City of Palmdale is located approximately 2.5 miles north of the Angeles National Forest and approximately 3 miles east of the Los Padres National Forest. The project area does not overlap with these forest lands (USDA 2017). There is no land designated or zoned as Forest or Timberland within the project area.

3.2.2 Regulatory Framework

State

California Farmland Mapping and Monitoring Program: The DOC, under the Division of Land Resource Protection, has established the Farmland Mapping and Monitoring Program (FMMP). The FMMP monitors the conversion of the state's farmland to and from agricultural use. The FMMP maintains an inventory of state agricultural land and updates its "Important Farmland Series Maps" every two years. The FMMP map series identifies eight classifications and uses a minimum mapping unit size of 10 acres. The FMMP also produces a biannual report on the amount of land converted from agricultural to non-agricultural use. Important farmlands are divided into the following five categories based on their suitability for agriculture:

Prime Farmland. Prime Farmland is land with the best combination of physical and chemical characteristics able to sustain long-term production of agricultural crops. This land has produced irrigated crops at sometime within the four years prior to the mapping date.

Farmland of Statewide Importance. Farmland of Statewide Importance is land that meets the criteria for Prime Farmland but with minor shortcomings such as greater slopes or lesser soil moisture capacity.

Unique Farmland. Unique Farmland has even lesser quality soils and produces the state's leading agricultural crops. This land is usually irrigated, but also includes non-irrigated orchards and vineyards.

Farmland of Local Importance. Farmland of Local Importance is land that is important to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.

Grazing Land. Grazing Land is land on which the existing vegetation is suited to the grazing of livestock.

Other Lands. This land does not meet the criteria of any of the other categories.

California Public Resources Code Section 12220(g): The California Public Resources Code defines "forest land" under section 12220(g) as land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. Projects are subject to this code if there are any potentially significant changes to existing areas zoned as forest land.

California Public Resources Code Section 4526: The California Public Resources Code defines "timberland" as land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis after consultation with the district committees and others. Projects may have significant impacts to timberland if the project conflicts with existing zoning.

California Government Code Section 51104(g): The California Government Code defines "timberland production zone" under Section 51104(g) as an area which has been zoned pursuant to Sections 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h) of the Government Code 51104. Projects may significantly impact timberland resources if the project conflicts with existing areas zoned for timberland production.

3.2.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to Agriculture and Forestry resources are based on Appendix G of the *CEQA Guidelines*. The proposed project would result in a significant impact to aesthetics if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- Conflict with existing zoning for agricultural use, or a Williamson Act Contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g));
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use; or
- Result in the loss of forest land or conversion of forest land to non-forest use.

A discussion of the impacts and mitigation measures for the proposed project are presented below.

Methodology

The WSMP would develop PWD's potable water system over the next 25 years in order meet the water quantity, water quality, system pressure, and reliability requirements of customers. Implementation of actions under this Plan would require the construction of various aboveground and underground facilities and support infrastructure including storage tanks, pump stations, pipelines and wells. Additionally, PWD is proposing a headquarters building expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to be constructed as part of the long-term facilities. Facilities to be implemented by 2020 are considered near-term components and are analyzed at a site-specific level. Facilities to be implemented after 2020 are considered long-term components. Preliminary locations for the long-term facilities have been established (see Figure 2-2), although locations are subject to change based on the need of facilities in the future. As such, these long-term facilities are therefore evaluated generally and broadly.

Impacts Discussion

Convert Farmland to Non-Agricultural Use

Impact 3.2-1: The proposed project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

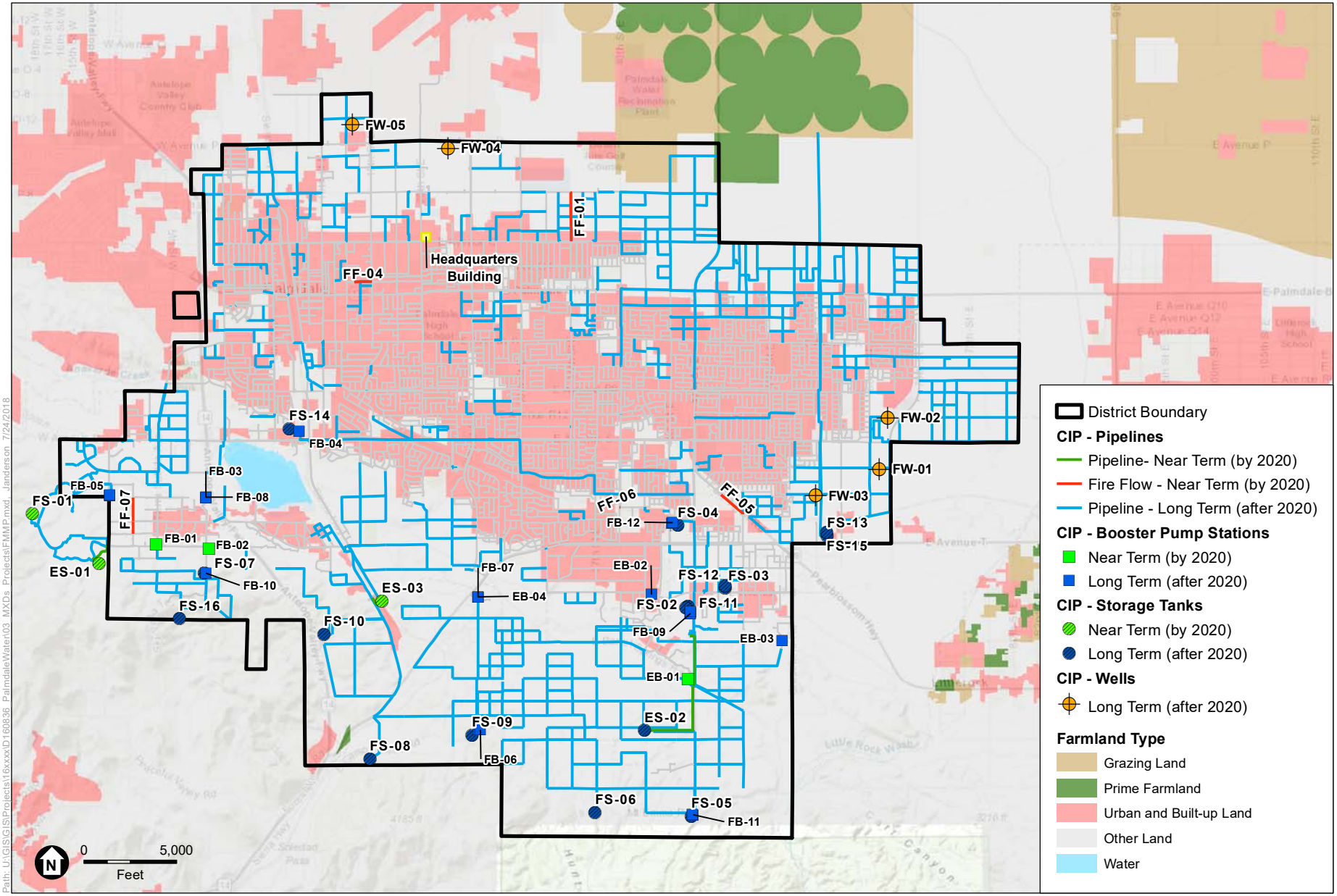
All Facilities (Near-Term and Long-Term)

According to the Department of Conservation's FMMP, most of the project area is located within urban and built up land, and land designated as "other." There is one small portion of land designated as Prime Farmland in the southern portion of the project area, approximately 1,000 feet east of the nearest proposed facility, long-term storage tank FS-08. There are no near-term or long-term proposed facilities that would be constructed within this portion of Prime Farmland (**Figure 3.2-1**). As a result, implementation of this storage tank and any other facilities would not result in the conversion of any Farmland to non-agricultural use. No impact would occur.

Mitigation Measures

None required.

Significance Determination: No Impact



SOURCE: Palmdale Water 2017; FMMP 2016

Palmdale Water District

Figure 3.2-1
Important Farmland

ESA

Conflict with Existing Zoning or Williamson Act Contract

Impact 3.2-2: The proposed project would not conflict with existing zoning for agricultural use, or a Williamson Act Contract.

All Facilities (Near-Term and Long-Term)

The Los Angeles County Williamson Act maps show that there are no active Williamson Act Contracts within the project area (DOC 2016). Therefore, no impacts to Williamson Act Contracts would occur.

Agriculture production in the City of Palmdale primarily occurs just east of the Palmdale Regional Airport site, just outside of the PWD service area, approximately 630 feet northeast of the intersection of East Avenue P and 50th Street E. The nearest proposed facility to this portion of land zoned as agriculture would be one long-term pipeline, just adjacent to the farmland within the northeast corner of the PWD service area (Figure 3.2-1). After the pipelines are buried, each site would be restored to pre-construction conditions. As a result, the proposed facilities would not conflict or interfere with existing zoning for agricultural use, and no impact would occur.

Mitigation Measures

None required.

Significance Determination: No Impact

Zoning or Rezoning of Forest Land or Timberland

Impact 3.2-3: The proposed project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production.

All Facilities (Near-Term and Long-Term)

The City of Palmdale is located approximately 2.5 miles north of the Angeles National Forest and approximately 3 miles east of the Los Padres National Forest. The project area does not overlap with these forest lands. There is no land designated or zoned as Forest or Timberland within the project area; therefore, no impacts regarding zoning or rezoning of forest or timberlands would occur.

Mitigation Measures

None required.

Significance Determination: No Impact

Conversion of Farmland or Forest Land

Impact 3.2-4: The proposed project would not involve other changes to the existing environment that could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

All Facilities (Near-Term and Long-Term)

As mentioned above, agriculture production in the City of Palmdale primarily occurs just east of the Palmdale Regional Airport site, just outside of the PWD service area. The nearest proposed facility to this portion of land zoned as agriculture would be one long-term pipeline, just adjacent to the farmland within the northeast corner of the PWD service area (Figure 3.2-1). After the pipelines are buried, each site would be restored to pre-construction conditions. The proposed facilities would not conflict or interfere with existing zoning for agricultural use, and no impact would occur.

Further, the City of Palmdale is located approximately 2.5 miles north of the Angeles National Forest and approximately 3 miles east of the Los Padres National Forest and does not overlap with these forest lands. All proposed facilities would be constructed and operated within the PWD service area except for two near-term storage tanks which would be implemented within unincorporated Los Angeles County. However, the construction of the storage tanks would not result in the conversion of forest land to non-forest use. Implementation of the proposed project would not result in the conversion of Farmland to non-agriculture use or forest land to non-forest use. No impact would occur.

Mitigation Measures

None required.

Significance Determination: No Impact

Loss of Forest Land or Conversion to Non-Forest Use

Impact 3.2-5: The proposed project would not result in the loss of forest land or conversion of forest land to non-forest use.

All Facilities (Near-Term and Long-Term)

Implementation of the project would not result in the loss of forest land or the conversion of forest land to non-forest use. No impact would occur.

Mitigation Measures

None required.

Significance Determination: No Impact

3.2.4 References

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3.3 Air Quality and Greenhouse Gas Emissions

This section addresses the air quality and greenhouse gas (GHG) emissions impacts associated with implementation of the proposed 2016 Water System Master Plan (WSMP or proposed project), which would include the construction and operation of new facilities and upgrades to existing facilities throughout the Palmdale Water District (PWD) service area and vicinity. These facilities include pipelines, storage tanks, pump stations and groundwater wells to be constructed in the near-term (before 2020) and long-term (after 2020). Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). This section provides an overview of existing air quality conditions within the proposed project area and surrounding region, the regulatory framework applicable to air pollutant and GHG emissions, and an analysis of potential air quality and GHG emissions impacts that would result from implementation of the proposed project.

3.3.1 Environmental Setting

Regional Climate and Meteorology

The proposed project is located in the western portion of the Mojave Desert Air Basin (MDAB). The Antelope Valley Air Quality Management District (AVAQMD) is the local air district with jurisdiction over air pollution sources in the City of Palmdale. The MDAB encompasses an assemblage of mountain ranges interspersed with long broad valleys, some of which include dry lakes. Many of the lower mountains rise from 1,000 to 4,000 feet above the valley floors. The MDAB is separated from the southern California coastal and central California Valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for air masses. Antelope Valley is bordered on the northwest by the Tehachapi Mountains, and separated from the Sierra Nevada Mountains to the north by the Tehachapi Pass (highest elevation of approximately 3,800 feet). The Antelope Valley is bordered to the south by the San Gabriel Mountains, bisected by Soledad Canyon (highest elevation of approximately 3,300 feet).

The prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions, and the blocking nature of the Sierra Nevada Mountains to the north. Air masses pushed onshore in Southern California by differential heating are channeled through the MDAB.

During the summer, the MDAB is generally influenced by the Pacific Subtropical High, which is a high pressure cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. Most desert moisture arrives from infrequent warm, moist, and unstable air masses from the south. The MDAB averages between three and seven inches of precipitation per year. The MDAB is classified as a dry-hot desert climate, with portions classified as dry-very hot desert, to indicate at least three months have maximum average temperatures over 100.4° F (AVAQMD 2016).

Criteria Air Pollutants

The California Air Resources Board (CARB) and the United States Environmental Protection Agency (USEPA) currently focus on the following air pollutants as indicators of ambient air quality: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable or breathable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}), fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. These pollutants are referred to as "criteria air pollutants" since they are the most prevalent air pollutants known to be harmful to human health, and extensive health-effects criteria documents are available about their effects on human health and welfare. National Ambient Air Quality Standards (NAAQS) have been established for each criteria pollutant to meet specific public health and welfare criteria set forth in the federal Clean Air Act (CAA). California has generally adopted more stringent ambient air quality standards for the criteria air pollutants (CAAQS, also referred to as State Ambient Air Quality Standards or state standards) and has adopted air quality standards for some pollutants for which there is no corresponding national standard.

Ozone

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air, but is formed through a complex series of chemical reactions in the presence of sunlight involving other compounds that are directly emitted (also known as ozone precursors) including reactive organic gases (ROGs) or volatile organic compounds (VOCs), and oxides of nitrogen (NO_X). While both ROGs and VOCs refer to compounds of carbon, ROG is a term used by CARB, based on a list of exempted carbon compounds determined by CARB, and VOC is a term used by USEPA, based on USEPA's own exempt list. For this analysis, the term VOC will be used. The time period of the chemical reactions required for ozone formation allows the reacting compounds to spread over a large area, producing regional pollution problems. Ozone concentrations are the cumulative result of regional development patterns rather than the result of a few significant emission sources.

Once ozone is formed, ozone remains in the atmosphere for 1 or 2 days. Ozone is then eliminated through reaction with chemicals on the leaves of plants, attachment to water droplets as they fall to earth (rainout), or absorption by water molecules in clouds that later fall to earth with rain (washout). Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. In addition to causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Volatile Organic Compounds

VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids. Some VOCs are also classified by the State as toxic air contaminants. VOCs are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons, as are architectural coatings. Emissions of VOCs themselves are not "criteria" pollutants; however, they contribute with NO_X to formation of ozone and are regulated as ozone precursor emissions.

Carbon Monoxide

CO, a colorless and odorless gas, is a relatively nonreactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicles. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. CO measurements and modeling were important in the early 1980s, when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts because of the retirement of older polluting vehicles, lower emissions from new vehicles, and improvements in fuels.

Nitrogen Dioxide

NO_2 is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as oxides of nitrogen (NO_X), which are reported as equivalent NO_2. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high-pollution days, especially in conjunction with high ozone levels.

Sulfur Dioxide

SO_2 is a colorless, extremely irritating gas or liquid. SO_2 enters the atmosphere as a pollutant, mainly as a result of burning high-sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfur trioxide (SO_3). Collectively, these pollutants are referred to as oxides of sulfur (SO_X).

Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of SO_2 aggravate lung diseases, especially bronchitis. It also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. SO_2 potentially causes wheezing, shortness of breath, and coughing. Long-term SO_2 exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease.

Particulate Matter

PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. Particulate matter can also damage materials and reduce visibility. One common source of $PM_{2.5}$ is diesel exhaust emissions.

PM_{10} consists of particulate matter emitted directly into the air (e.g., fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust) and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and VOCs. Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM_{10} and $PM_{2.5}$ are also emitted by wood burning in residential wood stoves and fireplaces and open agricultural burning. $PM_{2.5}$ can also be formed through secondary processes such as airborne reactions with certain pollutant precursors, including VOCs, ammonia (NH_3), NO_X, and SO_X.

Lead

Lead is a metal found naturally in the environment and present in some manufactured products. There are a variety of activities that can contribute to lead emissions, which are grouped into two general categories, stationary and mobile sources. On-road mobile sources include light-duty automobiles; light-, medium-, and heavy-duty trucks as well as motorcycles.

Emissions of lead have dropped substantially over the past 40 years. The reduction before 1990 was largely due to the phase-out of lead as an anti-knock agent in gasoline for on-road automobiles. Substantial emission reductions have also been achieved through enhanced controls in the metals-processing industry. In the MDAB, atmospheric lead is generated almost entirely by the combustion of leaded gasoline and contributes less than one percent of the material collected as total suspended particulates.

Toxic Air Contaminants

Non-criteria air pollutants or toxic air contaminants (TACs) are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes approximately 200 compounds, including particulate emissions from diesel-fueled engines.

Odorous Emissions

Though offensive odors from stationary sources rarely cause any physical harm, they still remain unpleasant and can lead to public distress generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency and intensity of the source; wind speed and direction; and the sensitivity of receptors. Generally, increasing the distance between the receptor and the source will mitigate odor impacts.

GHG Emissions

Gases that trap heat in the atmosphere are called GHGs. The major concern with GHGs is that increases in their concentrations are causing global climate change, which is a change in the average weather on Earth that can be measured by wind patterns, storms, precipitation, and

temperature. Although there is disagreement as to the rate of global climate change and the extent of the impacts attributable to human activities, most in the scientific community agree that there is a direct link between increased emissions of GHGs and long-term global temperature increases.

The State defines GHGs as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs). Because different GHGs have different global warming potentials (GWPs), and CO_2 is the most common reference gas for climate change (GWP of 1), GHG emissions are often quantified and reported as CO_2 equivalents (CO_2e). For example, CH_4 has a GWP of 25 (over a 100-year period); therefore, one metric ton (MT) of CH_4 is equivalent to 25 MT of CO_2 equivalents ($MTCO_2e$). The GWP ratios are available from the United Nations Intergovernmental Panel on Climate Change (IPCC) and are published in the *Fourth Assessment Report* (AR4). By applying the GWP ratios, project-related CO_2e emissions can be tabulated in metric tons (MT) per year. Large emission sources are reported in million metric tons (MMT) of CO_2e.[1]

Some of the potential effects in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more forest fires, and more drought years (CARB 2008). Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects (IPCC 2001):

- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures, fewer cold days and frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- Increase of heat index over land areas; and
- More intense precipitation events.

Also, there are many secondary effects that are projected to result from global warming, including global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.

California produced 440.4 $MMTCO_2e$ in 2015. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2015, accounting for approximately 39 percent of total GHG emissions in the state. This sector was followed by the industrial sector (23 percent) and the electric power sector (including both in-state and out-of-state sources) (19 percent) (CARB 2017).

[1] A metric ton is 1,000 kilograms; it is equal to approximately 1.1 U.S. tons and approximately 2,204.6 pounds.

Impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and toxic air contaminants. The quantity of GHGs that it takes to ultimately result in global climate change is not precisely known; however, it is clear that the quantity is enormous, and no single project would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climates. From the standpoint of the CEQA, GHG impacts to global climate change are inherently cumulative.

GHG Emission Sources

According to much of the scientific literature on this topic, emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural sectors. As mentioned previously, in California, the transportation sector is the largest emitter of GHGs, followed by industrial processes sector (CARB 2016a). Emissions of CO_2 are by-products of fossil fuel combustion. CH_4, a GHG with a high GWP of 4, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions), and is largely associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, and are two of the most common processes of CO_2 sequestration.

Existing Conditions

AVAQMD maintains the monitoring station throughout the MDAB that monitors air quality and compliance with associated ambient standards. The closest station to the proposed project site is approximately 6 miles south of the project site at 43301 Division Street in the City of Lancaster, CA. The following pollutants are monitored at this station: ozone, PM_{10} and $PM_{2.5}$, and NO_2. The most recent published data for the monitoring station are presented in **Table 3.3-1**. In addition, air pollutants of interest to the regulatory agencies for their potential adverse impacts on sensitive receptors are described below.

Both CARB and USEPA use the type of monitoring data shown in Table 3.3-1 to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment. The current attainment status for the AVAQMD is provided in **Table 3.3-2**.

TABLE 3.3-1
AIR QUALITY DATA SUMMARY (2014 – 2016)

Pollutant	Standard[a]	Monitoring Data by Year		
		2014	2015	2016
Ozone				
Highest 1 Hour Average (ppm)		0.101	0.132	0.108
Days over State Standard	0.09 ppm	3	26	3
Highest 8 Hour Average (ppm)		0.087	0.103	0.090
Days over National Standard	0.070 ppm	35	80	60
Days over State Standard	0.070 ppm	35	80	60
Nitrogen Dioxide				
Highest 1 Hour Average (ppm)		0.052	0.042	0.049
Days over National Standard	0.100 ppm	0	0	0
Days over State Standard	0.18 ppm	0	0	0
Annual Average (ppm)		0.008	*	0.008
Days over National Standard	0.053 ppm	0	0	0
Days over State Standard	0.030 ppm	0	0	0
Particulate Matter (PM_{10})				
Highest 24 Hour Average ($\mu g/m^3$)[b]		131.5	112.8	49.6
Days over National Standard (measured)[c]	150 $\mu g/m^3$	0	0	0
Days over State Standard (measured)[c]	50 $\mu g/m^3$	*	*	*
Annual Average ($\mu g/m^3$)[b]	20 $\mu g/m^3$	24.3	19.9	20.0
Particulate Matter ($PM_{2.5}$)				
Highest 24 Hour Average ($\mu g/m^3$)[b]		42.0	10.4	*
Days over National Standard (measured)[c]	35 $\mu g/m^3$	1	0	0
Annual Average ($\mu g/m^3$)[b]	12 $\mu g/m^3$	7.2	*	*

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
* = Insufficient data available to determine the value.

[a] Generally, state standards and national standards are not to be exceeded more than once per year.

[b] Concentrations and averages represent federal statistics. State and federal statistics may differ because of different sampling methods.

[c] Measurements are usually collected every six days. Days over the standard represent the measured number of days that the standard has been exceeded.

SOURCE: CARB 2016a.

TABLE 3.3-2
AVAQMD ATTAINMENT STATUS

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone – one hour	No Federal Standard	Nonattainment
Ozone – eight hour	Nonattainment	Nonattainment
PM_{10}	Unclassified	Nonattainment
$PM_{2.5}$	Unclassified/Attainment	Unclassified
CO	Unclassified/Attainment	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified	Attainment
Lead	Unclassified/Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility-Reducing Particles	No Federal Standard	Unclassified

SOURCE: CARB 2016b.

Sensitive Receptors

Land uses, such as schools, hospitals, and convalescent homes are considered to be sensitive to poor air quality conditions because infants, children, the elderly, and people with health afflictions (especially respiratory ailments), are more susceptible to respiratory infections and other air-quality-related health problems than the general public. Residential areas are also considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short.

Multiple near-term components of the proposed project, such as storage tanks and fire flow pipelines, are located within 100 feet of the nearest sensitive receptors, such as single-family residences. Some of the various long-term project components consisting of pipelines, pump stations, storage tanks, and production wells would likely be located in proximity to sensitive land uses such as residences, schools, hospitals and daycare centers as well. As implementation of the project proceeds, specific sensitive receptors will be identified and evaluated on a project-by-project basis during subsequent CEQA and environmental permit processes.

3.3.2 Regulatory Framework

Federal

The federal Clean Air Act requires the USEPA to identify NAAQS, or national standards, to protect public health and welfare for the following criteria air pollutants: ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. **Table 3.3-3** presents current national and state ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant.

TABLE 3.3-3
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES

Pollutant	Averaging Time	State Standard	National Standard (Primary)	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour	0.09 ppm	---	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NOx) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
	8 hours	0.070 ppm	0.070 ppm		
Nitrogen Dioxide	1 hour	0.18 ppm	0.100 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Avg.	0.030 ppm	0.053 ppm		
Carbon Monoxide	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
Sulfur Dioxide	1 hour	0.25 ppm	0.075 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	---	0.5 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Avg.	---	0.03 ppm		
Respirable Particulate Matter (PM_{10})	24 hours	50 $\mu g/m^3$	150 $\mu g/m^3$	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Avg.	20 $\mu g/m^3$	---		
Fine Particulate Matter ($PM_{2.5}$)	24 hours	---	35 $\mu g/m^3$	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.
	Annual Avg.	12 $\mu g/m^3$	12.0 $\mu g/m^3$		
Lead	Monthly Avg.	1.5 $\mu g/m^3$	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	---	1.5 $\mu g/m^3$		
	Rolling 3-month Average	---	0.15 $\mu g/m^3$		
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)	Geothermal Power Plants, Petroleum Production and refining
Sulfates	24 hour	25 $\mu g/m^3$	No National Standard	Breathing difficulties, aggravates asthma, reduced visibility	Produced by the reaction in the air of SO2.
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, discourages tourism.	See PM2.5.

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.

SOURCES: CARB, 2016d. *Ambient Air Quality Standards,* available at http://www.arb.ca.gov/research/aaqs/aaqs2.pdf
CARB, 2009b. *ARB Fact Sheet: Air Pollution Sources, Effects and Control,* http://www.arb.ca.gov/research/health/fs/fs2/fs2.htm

The CAA required each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The CAA added requirements for states containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution. A SIP is a "living" document that is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. USEPA has responsibility to review all state SIPs to determine if they conform to the mandates of the CAA and will achieve air quality goals when implemented. If the USEPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the plan within mandated timeframes can result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

Regulation of TACs, termed hazardous air pollutants (HAPs) under federal regulations, is achieved through federal, state and local controls on individual sources. The 1977 CAA Amendments required USEPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPs) to protect public health and welfare. These substances include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals.

In 2009, the USEPA Administrator made two distinct findings regarding GHGs under Section 202(a) of the CAA. USEPA adopted a Final Endangerment Finding for the six defined GHGs: CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6, which is required before USEPA can regulate GHG emissions under Section 202(a)(1) of the CAA. USEPA also adopted a Cause or Contribute Finding in which the USEPA Administrator found that GHG emissions from motor vehicle and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. These findings do not themselves impose any requirements on industry or other entities. However, these actions were a prerequisite for implementing GHG emissions standards for vehicles.

In 2009, the President of the United States announced a national policy for fuel efficiency and emissions standards in the U. S. auto industry. The standards were jointly adopted by USEPA and the U. S. Department of Transportation (USDOT) in 2010 and apply to passenger cars and light-duty trucks for model years 2012 through 2016. The rule surpasses the prior Corporate Average Fuel Economy (CAFE) standards and requires an average fuel economy standard of 35.5 miles per gallon (mpg) and 250 grams of CO_2 per mile by model year 2016, based on USEPA calculation methods. In 2012, standards were adopted for model year 2017 through 2025 passenger cars and light-duty trucks. By 2025, vehicles are required to achieve 54.5 mpg (if GHG reductions are achieved exclusively through fuel economy improvements) and 163 grams of CO_2 per mile. According to USEPA, a model year 2025 vehicle would emit one-half of the GHG emissions from a model year 2010 vehicle (USEPA 2012).

In 2011, USEPA and the National Highway Traffic Safety Administration (NHTSA) developed a program designed to reduce fuel consumption (and GHG emissions by association) from medium- and heavy-duty vehicles. The Heavy Duty Vehicle National Program was directed at model year 2014 to 2018 vehicles and is projected to reduce GHG emissions by approximately

270 million metric tons. In 2014, the President of the United States directed USEPA and NHTSA to extend the Heavy-Duty National Program beyond vehicle model year 2018, to further reduce fuel consumption through the application of advanced technologies. USEPA and NHTSA, in collaboration with CARB, issued a notice of proposed rulemaking in 2015. Requirements of this program apply to heavy- and medium-duty trucks used during proposed cleanup activities.

Other specific GHG regulations that USEPA has adopted to-date are as follows:

40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule. This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO_2e emissions per year. Additionally, reporting of emissions is required for owners of SF_6- and PFC-insulated equipment when the total nameplate capacity of these insulating gases is above 17,280 pounds.

40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule. USEPA recently mandated to apply Prevention of Significant Deterioration (PSD) requirements to facilities whose stationary source CO_2e emissions exceed 75,000 tons per year.

USEPA also recently released a proposed rule which would regulate GHG emissions from existing power plants across the nation, and establishes state-by-state 2030 GHG goals.

State

California Air Resources Board: CARB, a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, CARB conducts research, sets the CAAQS, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. CARB also sets fuel specifications to further reduce vehicular emissions. CARB has primary responsibility for the development of California's SIP, for which it works closely with the federal government and the local air districts. The SIP is required for the State to take over implementation of the CAA from USEPA.

California Clean Air Act: CARB manages air quality, regulates mobile emissions sources, and oversees the activities of county APCDs and regional AQMDs. CARB establishes state ambient air quality standards and vehicle emissions standards. California has adopted ambient standards that are more stringent than the federal standards for the criteria air pollutants, as shown in Table 3.3-1. Under the California Clean Air Act (CCAA) patterned after the CAA, areas have been designated as attainment or nonattainment with respect to the state standards. Table 3.3-2 summarizes the attainment status with California standards in the MDAB.

On-Road and Off-Road Vehicle Rules: In 2004, CARB adopted an Airborne Toxic Control Measure (ATCM) to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter (DPM) and other TACs (Title 13 California Code of Regulations [CCR], Section 2485). The ATCM applies to diesel-fueled commercial vehicles with

gross vehicle weight ratings (GVWR) greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This ATCM does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given time.

In 2008, CARB also approved the Truck and Bus Regulation to reduce PM and NO_X emissions from existing diesel vehicles operating in California (13 CCR, Section 2025, subsection (h)). The requirements were amended to apply to nearly all diesel-fueled trucks and buses with a GVWR greater than 14,000 pounds. For the largest trucks in the fleet, those with a GVWR greater than 26,000 pounds, there are two methods to comply with the requirements. The first way is for fleet owners to retrofit or replace engines, starting with the oldest engine model year, to meet 2010 engine standards, or better. This is phased over 8 years, starting in 2015 and would be fully implemented by 2023, meaning that all trucks operating in the State subject to this option would meet or exceed the 2010 engine emission standards for NO_X and particulate matter by 2023. The second option, if chosen, requires fleet owners, starting in 2012, to retrofit a portion of their fleet with diesel particulate filters (DPFs) achieving at least 85 percent removal efficiency, so that by January 1, 2016 their entire fleet is equipped with DPFs. However, DPFs do not lower NO_X emissions. Thus, fleet owners choosing the second option must still comply with the 2010 engine emission standards for their trucks and busses by 2020.

In addition to limiting exhaust from idling trucks, CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower (hp) such as bulldozers, loaders, backhoes and forklifts, as well as many other self-propelled off-road diesel vehicles. This regulation adopted by CARB in 2007 aims to reduce emissions by the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission controlled models (13 CCR, Section 2449). Implementation is staggered based on fleet size (which is the total of all off-road horsepower under common ownership or control), with large fleets beginning compliance in 2014, medium fleets in 2017, and small fleets in 2019. Each fleet must demonstrate compliance through one of two methods. The first option is to calculate and maintain fleet average emissions targets, which encourages the retirement or repowering of older equipment and rewards the introduction of newer cleaner units into the fleet. The second option is to meet the Best Available Control Technology (BACT) requirements by turning over or installing Verified Diesel Emission Control Strategies (VDECS) on a certain percentage of its total fleet horsepower. The compliance schedule requires that BACT turn overs or retrofits (VDECS installation) be fully implemented by 2023 in all equipment for large and medium fleets and by 2028 for small fleets.

Toxic Air Contaminants: The State Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). A total of 243 substances have been designated TACs under California law; they include the 189 (federal) HAPs adopted in accordance with AB 2728. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. Toxic air contaminant emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings.

In 1998, CARB identified DPM emissions as TACs. CARB subsequently developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* (CARB 2000), which represents proposals to reduce DPM emissions, with the goal of reducing emissions and associated health risks by 75 percent in 2010 and by 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed DPFs and ultra-low sulfur diesel fuel on diesel-fueled engines.

CARB published the *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB 2005). The primary goal in developing the handbook was to provide information that will help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution. The handbook highlights recent studies that have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities (i.e., distribution centers, rail yards, chrome platers, etc.). However, the health risk is greatly reduced with distance. For that reason, CARB provided some general recommendations aimed at keeping appropriate distances between sources of air pollution and sensitive land uses, such as residences.

California Greenhouse Gas Reduction Targets: In 2005, Executive Order S-3-05 promulgated the following GHG emission reduction targets:

- By 2010, California shall reduce GHG emissions to 2000 levels;
- By 2020, California shall reduce GHG emissions to 1990 levels; and
- By 2050, California shall reduce GHG emissions to 80 percent below 1990 levels.

In accordance with Executive Order S-3-05, the Secretary of CalEPA is required to coordinate efforts of various California agencies, which comprise the California Climate Action Team (CAT), in order to collectively and efficiently reduce GHGs. These California agencies include CARB, the Secretary of the Business, Transportation and Housing Agency, Department of Food and Agriculture, the Resources Agency, the California Energy Commission (CEC), and the Public Utilities Commission. The CAT provides periodic reports to the Governor and the State Legislature on the state of GHG reductions in the state as well as strategies for mitigating and adapting to climate change. The first CAT Report to the Governor and the Legislature in 2006 contained recommendations and strategies to help meet the targets in Executive Order S-3-05. The 2010 CAT Report expands on the policies in the 2006 assessment. The new information detailed in the CAT Report includes development of revised climate and sea-level projections using new information and tools that became available and an evaluation of climate change within the context of broader social changes, such as land-use changes and demographic shifts.

In 2015, Executive Order B-30-15 promulgated, the following targets and measures:

- Established a new interim statewide reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030.
- Ordered all state agencies with jurisdiction over sources of GHG emissions to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 reduction targets.

- Directed CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent.

CARB subsequently expressed its intention to initiate the second update to the Climate Change Scoping Plan update during 2015 and 2016 with adoption scheduled thereafter.

California Health and Safety Code, Division 25.5 – California Global Warming Solutions Act of 2006: In 2006, the California State Legislature adopted AB 32 (codified in the California Health and Safety Code [HSC], Division 25.5 – as the California Global Warming Solutions Act of 2006), which focuses on reducing GHG emissions in California to 1990 levels by 2020. HSC Division 25.5 defines GHGs as CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6 and represents the first enforceable statewide program to limit emissions of these GHGs from all major industries with penalties for noncompliance. The law further requires that reduction measures be technologically feasible and cost effective. Under HSC Division 25.5, CARB has the primary responsibility for reducing GHG emissions. CARB is required to adopt rules and regulations directing state actions that would achieve GHG emissions reductions equivalent to 1990 statewide levels by 2020.

As required by HSC Division 25.5, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020, originally set at 427 million metric tons $MMTCO_2e$, using the GWP values from the Intergovernmental Panel on Climate Change Second Assessment Report (IPCC SAR). CARB also projected the state's 2020 GHG emissions under business-as-usual (BAU) conditions – that is, emissions that would occur without any plans, policies, or regulations to reduce GHG emissions. CARB originally used an average of the state's GHG emissions from 2002 through 2004 and projected the 2020 levels at approximately 596 $MMTCO_2e$ (using GWP values from the IPCC SAR). Therefore, under the original projections, the State must reduce its 2020 BAU emissions by 28.4 percent in order to meet the 1990 target of 427 $MMTCO_2e$. In 2014, CARB revised the target using the GWP values from the IPCC Fourth Assessment Report (AR4) and determined that the 1990 GHG emissions inventory and 2020 GHG emissions limit is 431 $MMTCO_2e$. CARB also updated the State's 2020 BAU emissions estimate to account for the effect of the 2007–2009 economic recession, new estimates for future fuel and energy demand, and the reductions required by regulation that were recently adopted for motor vehicles and renewable energy. CARB's revised 2020 BAU emissions estimate using the GWP values from the IPCC AR4 is 509.4 $MMTCO_2e$. Therefore, the emission reductions necessary to achieve the 2020 emissions target of 431 $MMTCO_2e$ would be 78.4 $MMTCO_2e$, or a reduction of GHG emissions by approximately 15.4 percent. A summary of the GHG emissions reductions required under HSC Division 25.5 is provided in **Table 3.3-4**.

In 2016, the California State Legislature adopted Senate Bill (SB) 32 and its companion bill AB 197. SB 32 and AB 197 amends HSC Division 25.5, and establishes a new climate pollution reduction target of 40 percent below 1990 levels by 2030 and includes provisions to ensure the benefits of state climate policies reach into disadvantaged communities. CARB is in the process of preparing the second update to the Scoping Plan to reflect the 2030 target established in Executive Order B-30-15 and SB 32.

TABLE 3.3-4
ESTIMATED GREENHOUSE GAS EMISSIONS REDUCTIONS REQUIRED BY HSC DIVISION 25.5

Emissions Category	GHG Emissions ($MMTCO_2e$)
2008 Scoping Plan (IPCC SAR)	
2020 BAU Forecast (CARB 2008 Scoping Plan Estimate)	596
2020 Emissions Target Set by HSC Division 25.5 (i.e., 1990 Level)	427
Reduction below BAU Necessary to Achieve 1990 Levels by 2020	169 (28.4%) [a]
2011 Scoping Plan (GHG Estimates Updated in 2014 to Reflect IPCC AR4 GWPs)	
2020 BAU Forecast (CARB 2011 Scoping Plan Estimate)	509.4
2020 Emissions Target Set by HSC Division 25.5 (i.e., 1990 Level)	431
Reduction below BAU Necessary to Achieve 1990 Levels by 2020	78.4 (15.4%) [b]
Second Update to the Scoping Plan	
2030 BAU Forecast (CARB Second Update to Scoping Plan Estimate)	CARB is in the process of estimating these targets.
2030 Emissions Target Set by HSC Division 25.5 (i.e., 40% below 1990 Level)	
Reduction below BAU Necessary to Achieve 40% below 1990 Level by 2030	

[a] 596 – 427 = 169 / 596 = 28.4%
[b] 509.4 – 431 = 78.4 / 509.4 = 15.4%

SOURCE: CARB 2011

Local

Antelope Valley Air Quality Management District: AVAQMD has jurisdiction over air quality for the project area. AVAQMD has not adopted an Air Quality Management Plan (AQMP) for its jurisdiction. However, AVAQMD has adopted an Ozone Attainment Plan (OAP) in 2008 that demonstrates how AVAQMD will achieve attainment of the federal air quality standards for ozone. Accordingly, conformance with the OAP for development projects is determined by demonstrating compliance with local land use plans and population growth forecasts.

3.3.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of air quality and GHG emissions impacts are based on Appendix G of the *CEQA Guidelines*:

The proposed project would have a significant effect on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative threshold for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

The proposed project would have a significant effect on greenhouse gas emissions if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

As guided by Appendix G of the *CEQA Guidelines*, the significance criteria established by the applicable air quality management district may be relied upon to make the above determinations. As such, the significance thresholds and analysis methodologies in AVAQMD's *CEQA and Federal Conformity Guidelines* are used in evaluating proposed project impacts. AVAQMD has established annual and daily mass emissions thresholds for criteria pollutants and ozone precursors, which are shown in **Table 3.3-5.**

TABLE 3.3-5
AVAQMD SIGNIFICANCE THRESHOLDS

Pollutant	Annual Threshold (tons/year)	Daily Threshold (pounds/day)
CO	100	548
NO_X	25	137
VOC	25	137
SO_X	25	137
PM_{10}	15	82
$PM_{2.5}$	12	65
H_2S	10	54
Lead	0.6	3
CO_2e	100,000	548,000

SOURCE: AVAQMD 2016.

Methodology

The WSMP would develop PWD's potable water system over the next 25 years in order meet the water quantity, water quality, system pressure, and reliability requirements of customers. Implementation of actions under the WSMP would require the construction of various aboveground facilities and support infrastructure including storage tanks, pump stations, pipelines and wells. Additionally, PWD is proposing a headquarters building expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to be constructed as part of the long-term facilities. Projects to be implemented by 2020 are considered near-term project components and are analyzed at site-specific level. Projects addressed after 2020 are considered long-term projects. Preliminary locations for the long-term facilities have been established (see

Figure 2-2), although locations are subject to change based on the need of facilities in the future. As such, these long-term facilities are therefore evaluated generally and broadly.

This section focuses on the nature and magnitude of the change in the air quality environment and GHG emissions due to implementation of the proposed project. Air pollutant emissions associated with the proposed project would result from the construction and operation of the pipelines, pump stations, storage tanks and wells. The emissions generated by these activities and other secondary sources have been estimated and compared to the applicable thresholds of significance recommended by AVAQMD.

Consistency with Air Quality Attainment Plan

AVAQMD is required, pursuant to the CAA, to reduce emissions of criteria pollutants for which the MDAB is in non-attainment of the NAAQS (e.g., ozone and PM_{10}). AVAQMD's OAP contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving the NAAQS. These strategies were developed, in part, based on regional growth projections and existing land use designations prepared by the Southern California Association of Governments (SCAG). According to the *AVAQMD CEQA and Federal Conformity Guidelines*, a project is deemed to not conflict with the applicable air quality plan, and hence not be significant, if it is consistent with the existing land use plan that was used to generate the growth forecast. Zoning changes, specific plans, general plan amendments and similar land use plan changes which do not increase dwelling unit density, do not increase vehicle trips, and do not increase vehicle miles traveled are also deemed to not conflict with the applicable air quality plan (AVAQMD 2016).

Construction Emissions

Construction of the proposed project has the potential to generate temporary criteria pollutant emissions through the use of heavy-duty construction equipment, such as cranes and excavators, and through vehicle trips generated from worker trips, haul trucks, and vendor/material supply trucks traveling to and from the project area. In addition, fugitive dust emissions would result from demolition and various soil-handling activities. Evaporative emissions of VOCs result from the application of asphalt and architectural coatings and vary depending on the amount of asphalt and coatings applied on a daily basis. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of construction activity, and prevailing weather conditions. The assessment of construction air quality impacts considers each of these potential sources of emissions.

Daily regional emissions during construction are forecasted by assuming a conservative estimate of construction activities (i.e., assuming all construction occurs simultaneously) and applying the mobile source and fugitive dust emissions factors. The emissions are estimated using the California Emissions Estimator Model (CalEEMod) (Version 2016.3.1) software, an emissions inventory software program recommended by AVAQMD. CalEEMod is based on outputs from OFFROAD and EMFAC, which are emissions estimation models developed by CARB and used to calculate emissions from construction activities, including on- and off-road vehicles. The input values used in the CalEEMod analysis were adjusted to be project-specific based on construction

information provided by the PWD. These values were then applied to the construction phasing assumptions used in the criteria pollutant analysis to generate criteria pollutant emissions values for each construction activity. Detailed construction equipment lists, construction scheduling, and emissions calculations are provided in **Appendix AQ** of this Draft PEIR.

The proposed project is divided and analyzed in two phases: 1) near-term and 2) long-term phases. Near-term project components are estimated to begin construction in January 2019 and include the construction of three water storage tanks, three booster pump stations, approximately 6,658 feet of fire flow pipelines, and approximately 14,519 feet of improvement pipelines. The long-term project components would begin construction in 2021 and continue intermittently through 2040. The long-term project components would include the construction of new facilities or improvements to existing facilities, and would consist of 16 water storage tanks, seven new pumps at five existing pump stations, six new pump stations, five production wells, over 700,000 feet of transmission pipelines ranging from 6-to 24-inches in diameter, and a 21,000 square foot addition to the headquarters building.

For the purposes of this analysis, the near-term project components were modeled using CalEEMod based on known project-specific details. Construction of the near-term project components (water storage tanks, pump stations and pipelines) would generate pollutant emissions from the following construction activities and phases, including but not limited to: site preparation, grading, excavation, foundation installation, facility construction, paving and site restoration. Grading for the three storage tanks and three pump stations would cover a footprint of approximately 26,584 square feet and 37 square feet, respectively. No excavated soil is anticipated to be exported from the site.

Construction of the fire flow and improvement pipelines would consist of approximately 21,177 feet of pipeline installation by 2020. For the purposes of this analysis, the air quality modeling that was conducted assumed a 2,800-foot pipeline main replacement would be installed over a 36-day construction phase period, including pavement cutting, trench excavation, service connections, pipe installation, and backfill, as estimated by PWD. Therefore, peak daily construction assumes approximately 78 linear feet of pipeline installation would occur per day.

Long-term components of the proposed project would include construction of 16 water storage tanks, seven new pumps at five existing pump stations, six new pump stations, five production wells, and expansion of the PWD headquarters building by the year 2040. Construction activities may include excavation, trenching, and earthwork for the installation of water pipelines between facilities and new extraction wells, construction of buildings, tanks, and pump/well houses, worker and vendor vehicle trips, and the use of welding equipment and other handwork construction equipment. Detailed information, such as the linear feet of water pipelines, the footprint size of future water storage tanks, and the specific types and number of construction equipment or vehicle trips, is not known for these activities. Therefore, it is not possible to quantify specific construction emissions associated with the long-term phases of the proposed project and air quality impacts are analyzed qualitatively at a programmatic level.

Operation Emissions

Operational activities would consist of the operation of the pump stations, storage tanks, pipelines, wells, and expanded headquarters facility. Emissions produced from operation of the proposed project would be analyzed as an increase from existing conditions of the facilities. Periodic maintenance activities would generate emissions primarily from vehicle trips to the pump stations, storage tanks and wells. Other emissions from maintenance would include the collection of trash generated by the inspection and maintenance activities. Operational emissions associated with the headquarters expansion would not result in increased truck trips associated with staff or maintenance given that the facility would be located in the same location as existing facilities and maintenance areas and would not result in increased miles traveled. Given the limited expected number of vehicle trips to the facilities, the analysis of regional operational emissions includes a qualitative discussion of associated impacts.

In addition to regional pollutant emissions, localized impacts on sensitive receptors must also be addressed from operational activities. Because operational activities consist strictly of off-site emission sources (mobile sources) of criteria pollutants, the localized impacts from operation would not occur, and therefore, the analysis includes a qualitative discussion of associated impacts.

Sensitive Receptor Exposure to Pollutants

The localized effects from the on-site portion of the emissions are evaluated at nearby sensitive receptor locations potentially impacted by the proposed project. According to the *AVAQMD CEQA and Federal Conformity Guidelines*, any industrial project within 1,000 feet to an existing or planned sensitive receptor land use must be evaluated using AVAQMD's significance criteria for sensitive receptors. These criteria include projects that would result in a cancer risk greater than or equal to 10 in a million and/or a Hazard Index (non-cancerous) greater than or equal to 1.

CO Hotspots

Localized areas where ambient concentrations exceed state and/or federal standards are termed CO hotspots. Emissions of CO are produced in greatest quantities from motor vehicle combustion and are usually concentrated at or near ground level because they do not readily disperse into the atmosphere, particularly under cool, stable (i.e., low or no wind) atmospheric conditions. Carbon monoxide decreased dramatically in the MDAB with the introduction of the catalytic converter in 1975. No exceedances of CO have been recorded at monitoring stations in the MDAB for some time and the MDAB is currently designated as a CO attainment area for both the CAAQS and NAAQS.

The South Coast Air Quality Management District (SCAQMD) conducted CO modeling for the 2003 AQMP for the four worst-case intersections in the South Coast Air Basin. These include: (a) Wilshire Boulevard and Veteran Avenue; (b) Sunset Boulevard and Highland Avenue; (c) La Cienega Boulevard and Century Boulevard; (d) Long Beach Boulevard and Imperial Highway. In the 2003 AQMP, the SCAQMD notes that the intersection of Wilshire Boulevard and Veteran Avenue is the most congested intersection in Los Angeles County, with an average daily traffic volume of about 100,000 vehicles per day. This intersection is located near the on- and off-ramps

to Interstate 405 in West Los Angeles. The evidence provided in Table 4-10 of Appendix V of the 2003 AQMP shows that the peak modeled CO concentration due to vehicle emissions at these four intersections was 4.6 ppm (one-hour average) and 3.2 (eight-hour average) at Wilshire Boulevard and Veteran Avenue. When added to the existing background CO concentrations, the screening values would be 8.7 ppm (one-hour average) and 5.6 ppm (eight-hour average). Based on the data, more than 400,000 vehicles per day would need to pass through an intersection in order for the thresholds to be exceeded. As the proposed project would add at a nominal amount of trips through any intersection within the PWD service area, CO impacts are discussed qualitatively in this analysis.

TAC Emissions

The greatest potential for TAC emissions during construction would be related to DPM emissions associated with heavy-duty equipment during demolition, excavation and grading activities. Construction activities associated with the proposed project would be sporadic, transitory, and short term in nature. The OEHHA is responsible for developing and revising guidelines for performing health risk assessments (HRAs) under the State's Air Toxics Hot Spots Program Risk Assessment (AB 2588) regulation. In March 2015, OEHHA adopted revised guidelines that update the previous guidance by incorporating advances in risk assessment with consideration of infants and children using Age Sensitivity Factors (ASF) (OEHHA 2015). The analysis of potential construction TAC impacts considers the OEHHA revised guidelines as well as the duration of construction, level of construction activity, scale of the proposed project, and compliance with regulations that would minimize construction TAC emissions.

A qualitative analysis of TAC emissions from operational activities will also be included since the proposed project could include stationary sources of TACs, such as pumps. Some types of stationary sources would be subject to AVAQMD's rules, regulations and permitting. Thus, during the permitting process AVAQMD would analyze such sources (e.g., health risk assessment) based on their potential to emit TACs. If it is determined that the sources would emit TACs in excess of AVAQMD's applicable significance threshold, the AVAQMD would deny the operating permit.

Odors

Potential odor impacts are evaluated by conducting a screening-level analysis followed by a more detailed analysis as necessary. The screening-level analysis consists of reviewing the proposed project's site plan and project description to identify new or modified odor sources. If it is determined that the proposed project would introduce a potentially significant new odor source, or modify an existing odor source, then downwind sensitive receptor locations are identified and a site-specific analysis is conducted to determine impacts.

Greenhouse Gas Emissions

As noted above, the increased concentration of GHGs in the atmosphere has been linked to global warming, which can lead to climate change. Construction and operation of the proposed project would incrementally contribute to GHG emissions along with past, present and future activities.

As such, impacts of GHG emissions are analyzed here on a cumulative basis. According to the *AVAQMD CEQA and Federal Conformity Guidelines*, the proposed project would have a significant impact if it would generate GHG emissions in excess of the CO_2e quantities shown in Table 3.3-5.

Consistency with Greenhouse Gas Reduction Plans, Policies, and Regulations

The proposed project's GHG emissions are also evaluated by assessing consistency with applicable GHG reduction strategies. As discussed previously, the GHG regulations have been adopted primarily at the federal and state levels to reduce emissions of GHGs from project sources, such as trucks and energy, under the Clean Air Act and the State's GHG regulatory framework under HSC Division 25.5. Impacts are evaluated based on consistency with these applicable regulations.

Impacts Discussion

Air Quality Plan

Impact 3.3-1: The proposed project could conflict with or obstruct implementation of the applicable air quality plan.

All Facilities (Near-Term and Long-Term)

As discussed in the Methodology section above, a project is deemed to not conflict with the applicable air quality plan if it is consistent with the existing land use plan that was used to generate the growth forecast and does not increase dwelling unit density, vehicle trips, and vehicle miles traveled due to zoning changes, specific plans and general plan amendments. All near-term and long-term components of the proposed project do not include residential or commercial development and its implementation is not forecasted to induce any additional growth within the service area. The proposed project would involve construction of water system improvements throughout the PWD service area and would not alter the growth projections identified in the City of Palmdale General Plan or by SCAG (see Chapter 5, Growth Inducement). The proposed project would not result in long-term population or employment growth. Therefore, implementation of the project would not conflict with growth projections in the AVAQMD OAP. The proposed project would also incorporate control strategies, as applicable, consistent with the OAP. Construction of the proposed project would comply with AVAQMD Rule 403 (fugitive dust) requirements and would utilize a construction contractor(s) that complies with required and applicable BACT and the CARB In-Use Off-Road Diesel Vehicle Regulation. As such, the proposed project would not conflict with, or obstruct, implementation of the OAP, and this impact would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Air Quality Standards/Violations

Impact 3.3-2: The proposed project could violate an air quality standard or contribute substantially to an existing or projected air quality violation.

Storage Tanks, Pump Stations and Pipelines (Near-Term)

Construction Impacts

For purposes of this analysis, construction activities associated with the proposed storage tanks, pump stations and pipelines are expected to begin in January 2019 and would last until September 2019.[2] Construction may commence on a later date or construction could occur over a longer period of time than that analyzed in this air quality impact analysis. If either or both of these occur, construction impacts would be less than those analyzed, because a more energy-efficient and cleaner burning construction equipment fleet mix would be expected in the future, pursuant to State regulations that require construction equipment fleet operators to phase-in less polluting heavy-duty equipment. Furthermore, construction impacts would be spread out for a longer period of time, which is likely to reduce peak daily emissions. As a result, should the proposed project commence construction on a later date, or occur over a longer period of time than that analyzed in this air quality impact analysis, air quality impacts would be less than the impacts disclosed herein.

Construction impacts would be short-term and limited to the period of time when construction activities are taking place. The analysis below conservatively assumes that all storage tanks, pump stations and pipelines would be constructed at the same time and their respective construction phases would occur concurrently. The maximum daily emissions from the potentially overlapping phases were combined and compared against AVAQMD's air quality significance thresholds. Overlapping construction phases for the proposed project that would produce the highest peak daily emissions would include site preparation/grading for storage tanks, excavation/grading for pump stations, and pipe installation for pipelines. See Appendix AQ for the estimated construction schedule. The maximum daily emissions generated by each component of the proposed project and their sum are shown below in **Table 3.3-6**.

As shown in Table 3.3-6, construction of the storage tanks, pump stations and pipelines would not exceed any AVAQMD air quality significance thresholds and therefore would not violate a regional air quality standard.

[2] The modeling conducted for the near-term project components included in Appendix AQ assumes a project start of January 2018, which is a more conservative approach that starting the project at a later date as stated in this section. This is due to the fact that construction contractors are required by State regulations to phase in construction equipment that meet more stringent emissions standards over time; therefore, the analysis assumes more emissive equipment will be used for the project when in reality a less emitting fleet may be used during the January to September 2019 timeframe. Therefore, the analysis contained herein and in Appendix AQ provides a more conservative emissions analysis.

TABLE 3.3-6
DAILY CONSTRUCTION EMISSIONS

	Maximum Daily Emissions (lbs/day) [a]					
Project Component / Phase	**VOC**	**NOx**	**CO**	**SOx**	**PM_{10}**	**$PM_{2.5}$**
Storage Tanks						
Site Preparation / Grading	4.32	45.63	25.12	0.05	9.42	5.94
Foundation Installation	0.82	6.56	6.50	0.01	0.55	0.43
Tank Installation	3.60	29.89	21.97	0.04	1.81	1.61
Tank Finishes	11.06	9.52	8.62	0.01	0.80	0.71
Landscaping	1.50	13.45	10.61	0.01	1.09	0.94
Maximum Daily Emissions	**11.06**	**45.63**	**25.12**	**0.05**	**9.42**	**5.94**
Pump Stations						
Site Preparation	0.85	8.77	4.92	0.02	0.43	0.32
Yard Piping	1.71	15.77	15.41	0.03	1.45	0.92
Excavation / Grading	3.98	40.85	23.54	0.04	9.33	5.82
Foundation Installation	0.83	6.41	6.81	0.01	0.62	0.44
Pump House Construction	3.73	30.85	23.23	0.04	1.81	1.64
Site Restoration	1.52	13.46	10.81	0.01	1.13	0.95
Maximum Daily Emissions	**3.98**	**40.85**	**23.54**	**0.04**	**9.33**	**5.82**
Pipelines						
Site Preparation	0.81	10.04	4.47	0.01	0.46	0.40
Traffic Control	0.26	1.46	1.47	0.00	0.10	0.07
Potholing	0.42	2.69	2.68	0.00	0.23	0.21
Pipe Installation	2.70	27.44	18.44	0.04	1.31	1.17
Paving	1.57	14.82	9.64	0.02	0.71	0.63
Site Restoration	0.95	6.71	5.20	0.01	0.53	0.47
Maximum Daily Emissions	**2.70**	**27.44**	**18.44**	**0.04**	**1.31**	**1.17**
Total	**17.74**	**113.91**	**67.10**	**0.14**	**20.05**	**12.93**
AVAQMD Significance Thresholds	*137*	*137*	*548*	*137*	*82*	*65*
Significant Impact?	**No**	**No**	**No**	**No**	**No**	**No**

[a] Totals may not add up exactly due to rounding in the modeling calculations.

SOURCE: ESA 2017.

Operation Impacts

Operation of the storage tanks, pump stations and pipelines would involve the storage, pumping and conveyance of water supply for the project area. Since the electrical operation of the proposed facilities would be minimal, the increase in energy usage would be insubstantial, resulting in minimal emissions associated with regional energy production. In addition, energy production facilities operate under existing air quality permits and a portion of these emissions would be located largely outside the MDAB as electricity is imported into the region by Southern

California Edison. The primary source of emissions generated from operation of the proposed facilities would be from vehicle trips for periodic inspection and maintenance purposes. Otherwise, operation of the tanks, pumps and pipelines would be unmanned and there would be no daily worker trips to the facilities. Operational emissions of the proposed project would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant.

Storage Tanks, Pump Stations, Pipelines, Wells, and Headquarters Expansion (Long-Term)

Construction Impacts

For purposes of this analysis, construction activities associated with the long-term (i.e., in the future) components of the proposed project would occur in the future when project-specific details are known for each individual project proposed, such as the future pipeline improvements or new extraction wells. Construction of the future long-term facilities would be similar to the near-term facilities but in different locations within the PWD service area. Construction of storage tanks, pump stations, and the headquarters expansion would involve grading and facility construction at new or existing facility locations. Installation of pipelines would involve trenching within city streets and other public rights of way. Project-specific construction details for these facilities would be developed and evaluated in subsequent CEQA compliance documentation. Therefore, construction emissions modeling for subsequent phases of the proposed project could not be conducted for this analysis.

Long-term components of the proposed project would involve future installation of storage tanks, booster pump stations, pipelines, groundwater wells, and construction of an expanded headquarters building. It is expected that construction of the long-term projects would occur intermittently after 2020 and throughout the 20-year implementation period until 2040. Construction impacts would be temporary and limited to the period of time when construction activities are taking place. Future long-term components of the proposed project would be subject to environmental review and would include a determination of whether maximum daily construction-related emissions (lbs/day) would exceed AVAQMD's applicable significance thresholds. The amount of daily emissions generated for a particular project would vary depending on its size and location, the area of disturbance, the construction schedule and overlapping phases, and construction equipment number, types, and duration of operation needed. If necessary, mitigation measures to minimize daily air emissions generated and reduce potentially significant impacts would be implemented in accordance with regulatory requirements.

Long-term projects that would be of similar size, construction duration, and construction equipment mix as evaluated under the near-term would be expected to result in similar regional daily construction emissions as the near-term projects. Similar to the near-term projects, long-term projects would also be required to comply with the CARB ATCM anti-idling measure and

applicable BACT and the In-Use Off-Road Diesel Vehicle Regulation. Thus, long-term projects that would be of similar size, construction duration, and construction equipment mix as evaluated under the near-term would not be expected to generate regional daily construction emissions in excess of the regional daily construction emissions thresholds, and impacts would be less than significant, and no additional analysis would be required.

However, while details regarding future projects are not known, if future projects of substantially larger size and scale (i.e., substantially greater area of disturbance, daily construction activity, and number and duration of construction equipment operating daily) are proposed, the regional construction emissions generated by these projects could potentially result in greater daily emissions that may be in excess of the AVAQMD's significance thresholds. Future long-term components of the proposed project would be subject to environmental review, including a determination of whether maximum daily construction-related emissions (lbs/day) would exceed AVAQMD's applicable significance thresholds.

Long-term projects that could emit daily pollutant emissions above significance thresholds would be required to implement **Mitigation Measures AQ-1 and AQ-2**. For each project implemented under long-term phases of the proposed project, implementation of Mitigation Measures AQ-1 and AQ-2 would reduce construction-related emissions to below significance thresholds. Therefore, impacts would be less than significant.

Operations Impacts

Implementation of long-term components of the proposed project could increase energy usage, resulting in increased emissions associated with energy production. However, these emissions would be located largely outside the MDAB. The primary source of emissions generated from operation of the proposed facilities would be from vehicle trips for worker inspection and maintenance purposes. Otherwise, operation of the long-term facilities would be unmanned and there would be no daily worker trips to the facilities. Operational emissions of the proposed project would be less than significant.

Mitigation Measures

The following mitigation measures shall be implemented as appropriate by all long-term project components that are unable to demonstrate that construction emissions would be below the applicable AVAQMD thresholds without implementation of mitigation.

AQ-1: The following mitigation measures shall be incorporated to minimize emissions of NOx associated with construction activities for the proposed project:

- Construction activities shall require the use of 2010 and newer diesel haul trucks (e.g., material delivery trucks and soil import/export) to the extent feasible.
- Off-road diesel-powered construction equipment greater than 50 horsepower shall meet Tier 3 emissions standards, including Level 3 CARB-Certified diesel particulate filters at a minimum and Tier 4 for equipment makes and models that are commercially available within the Mojave Desert Air Basin.

AQ-2: For each individual project, PWD shall require by contract specifications that:

- Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for a period of five minutes or more to avoid excessive idling.
- Construction activities shall minimize use of diesel-powered generators and rely on the electricity infrastructure where appropriate power requirements are available without the need to construct additional infrastructure.
- Construction trucks shall be routed along haul routes minimize travel adjacent to sensitive receptor areas where feasible.

Significance Determination: Less than Significant with Mitigation

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Cumulative Increase of Criteria Pollutant

Impact 3.3-3: The proposed project could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative threshold for ozone precursors).

Storage Tanks, Pump Stations and Pipelines (Near-Term)

The project area is located within the MDAB, which is considered the cumulative study area for air quality. Because the MDAB is currently classified as nonattainment area for ozone, PM_{10}, and $PM_{2.5}$, cumulative development consisting of the proposed project along with other reasonably foreseeable future projects in the MDAB as a whole could violate an air quality standard or contribute to an existing or projected air quality violation.

AVAQMD does not currently have a methodology for assessing cumulative air quality impacts; however, as discussed under Impact 3.3-2, the proposed near-term project components would generate construction and operational emissions that would not exceed AVAQMD's air quality significance thresholds for any criteria pollutant. Therefore, the proposed project's contribution to reasonably foreseeable future projects in the MDAB would not result in a cumulatively considerable net increase of any criteria pollutants for which the project region is in nonattainment under an applicable federal or state ambient air quality standard and this impact would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Storage Tanks, Pump Stations, Pipelines, Wells, and Headquarters Expansion (Long-Term)

Individual projects to be implemented under the long-term phase of the proposed project may require intensive construction efforts, particularly if future projects larger than those evaluated under the near-term are proposed. Therefore, the daily construction emissions generated by long-term projects could potentially exceed AVAQMD's significance thresholds, requiring mitigation measures. Long-term components of the proposed project would be subject to environmental review, including a determination of whether maximum daily construction-related emissions (lbs/day) would exceed AVAQMD's applicable significance thresholds, and require mitigation to reduce to less than significant impact. Long-term projects that could result in a cumulatively considerable net increase of any criteria pollutant would be required to implement Mitigation Measures AQ-1 and AQ-2. For each project implemented under long-term phases of the proposed project, implementation of Mitigation Measures AQ-1 and AQ-2 would reduce construction-related emissions to below significance thresholds. Therefore, cumulative air quality impacts associated with construction-related pollutant emissions from the long-term phase of the proposed project, in conjunction with other past, current, and probable future projects, would not be cumulatively considerable, and cumulative impacts would be less than significant.

With respect to operational emissions, implementation of the proposed project would not result in substantial long-term regional emissions of criteria air pollutants and would not exceed the AVAQMD significance thresholds for criteria pollutants. Therefore, the proposed project's operational emissions would not be cumulatively considerable, and cumulative air quality impacts would be less than significant.

Mitigation Measures

Implement **Mitigation Measures AQ-1** and **AQ-2**.

Significance Determination: Less than Significant with Mitigation

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Sensitive Receptors

Impact 3.3-4: The proposed project could expose sensitive receptors to substantial pollutant concentrations.

Storage Tanks, Pump Stations and Pipelines (Near-Term)

Construction Impacts

Intermittent construction activities associated with the near-term components of the proposed project would result in short-term emissions of DPM, which is a TAC. During construction, the exhaust of off-road heavy-duty diesel equipment would emit DPM during general construction activities, such as site preparation, excavation, grading, installation of machinery, and paving.

DPM poses a carcinogenic health risk that is generally measured using an exposure period of 30 years for sensitive residential receptors, according to the OEHHA Guidance. Sensitive receptors would be located within 1,000 feet of multiple proposed near-term facilities; however, localized

DPM emissions (strongly correlated with $PM_{2.5}$ emissions) would be minimal and would be below significance thresholds as presented in Table 3.3-6. Although the localized analysis does not directly measure health risk impacts, it does provide data that can be used to evaluate the potential to cause health risk impacts. The low level of $PM_{2.5}$ emissions coupled with the short-term duration of construction activity and the relatively small-scale of the proposed project would result in overall low level of DPM concentrations in the project area. Furthermore, compliance with the CARB ATCM anti-idling measure, which limits idling to no more than five minutes at any location for diesel-fueled commercial vehicles, would further minimize DPM emissions in the project area. The proposed project would utilize a construction contractor(s) that complies with required and applicable BACT and the In-Use Off-Road Diesel Vehicle Regulation. Thus, it is expected that sensitive receptors would be exposed to emissions below thresholds and construction TAC impacts would be less than significant and no additional analysis is required.

Operation Impacts

The near-term components of the proposed project would not introduce any new on-site stationary sources of TACs, such as diesel-fueled pumps or generators. Near-term pumps would be added to existing pump stations that already have emergency generators as part of the baseline condition. The operation of the new pumps would be powered by electricity, and thus would not emit any TAC emissions. Therefore, the project would not expose surrounding sensitive receptors to TAC emissions and impacts would be less than significant.

CO Hotspots

A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. Projects may worsen air quality if they increase the percentage of vehicles in cold start modes by two percent or more; significantly increase traffic volumes (by five percent or more) over existing volumes; or worsen traffic flow, defined for signalized intersections as increasing average delay at intersections operating at Level of Service (LOS) E or F or causing an intersection that would operate at LOS D or better without the proposed project, to operate at LOS E or F. While construction-related traffic on the local roadways would occur during construction of the near-term projects, the net increase of construction worker vehicle trips to the existing daily traffic volumes on the local roadways would be relatively small and would not result in CO hotspots. Additionally, the construction-related vehicle trips would only occur in the short-term, and would cease once construction activities have been completed. During operation, only minimal emissions would be generated from vehicle trips by worker staff for periodic inspection and maintenance purposes.

For the near-term projects, it has been estimated that construction activity would generate up to 68 pounds per day of CO emissions on a peak day of construction, which is approximately 12 percent of the AVAQMD threshold of 548 pounds per day. Since construction-related traffic from workers and trucks would be minimal and not substantially increase CO concentrations in the project area, CO hotspot impacts to sensitive receptors would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Storage Tanks, Pump Stations, Pipelines, Wells, and Headquarters Expansion (Long-Term)

Construction Impacts

Intermittent construction activities associated with long-term components of the proposed project would result in short-term emissions of DPM, which is a TAC. During construction of each individual project component, the exhaust of off-road heavy-duty diesel equipment would emit DPM during general construction activities, such as site preparation excavation, installation of machinery, materials transport and handling, and building construction.

As discussed previously, DPM poses a carcinogenic health risk that is generally measured using an exposure period of 30 years for sensitive residential receptors, according to the OEHHA Guidance. Future long-term projects that would be of similar size, construction duration, construction equipment mix, and distance to sensitive receptors, as evaluated under near-term would be expected to result in minimal DPM emissions. Future projects would also be required to comply with the CARB ATCM anti-idling measure and applicable BACT and the In-Use Off-Road Diesel Vehicle Regulation. Thus, future projects that would be of similar size, daily construction duration, construction equipment mix, and distance to sensitive receptors as evaluated under near-term would not expose sensitive receptors to substantial pollutant concentrations in excess of the thresholds and construction TAC impacts would be less than significant and no additional analysis would be required.

However, while details regarding future long-term projects are not known, if future projects of substantially larger size and scale (i.e., substantially greater daily area of disturbance, daily intensity of construction schedule, and number, type, and usage of construction equipment) and that are located adjacent to sensitive receptors are proposed, the construction TAC emissions generated by these projects could potentially result in greater daily emissions that may exceed AVAQMD's significance thresholds.

Long-term projects that could emit pollutants above significance thresholds would be required to implement Mitigation Measures AQ-1 and AQ-2. Implementation of these measures would substantially reduce construction-related TAC emissions. Future long-term components of the proposed project would be subject to environmental review, including a determination of whether maximum daily construction-related emissions (lbs/day) would exceed AVAQMD's applicable significance thresholds, requiring mitigation. Therefore, the impact would be less than significant.

Operation Impacts

Long-term components of the proposed project would not introduce substantial new on-site stationary sources of TACs, such as diesel-fueled pumps or generators. Proposed new pumps added to existing pump stations would be powered with electricity; the existing pump stations would already have emergency generators as part of the existing baseline condition. New pump stations, however, would likely include new diesel-powered emergency generators to provide backup power to the electrical system. Emergency generators would be operated infrequently and would not emit significant amounts of TACs. The operation of the groundwater wells and expanded headquarters would be powered by electricity, and thus would not emit any TAC emissions. Therefore, the project would not expose surrounding sensitive receptors to TAC emissions and impacts would be less than significant.

CO Hotspots

A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. Projects may worsen air quality if they increase the percentage of vehicles in cold start modes by two percent or more; significantly increase traffic volumes (by five percent or more) over existing volumes; or worsen traffic flow, defined for signalized intersections as increasing average delay at intersections operating at Level of Service (LOS) E or F or causing an intersection that would operate at LOS D or better without the proposed project, to operate at LOS E or F. While construction-related traffic on the local roadways would occur during construction of each project, the net increase of construction worker vehicle trips to the existing daily traffic volumes on the local roadways would be relatively small and would not result in CO hotspots. Additionally, the construction-related vehicle trips would only occur in the short-term, and would cease once construction activities for a project has been completed. During operation of the proposed project, only minimal emissions would be generated from vehicle trips by worker staff for periodic inspection and maintenance purposes. Existing and future staff associated with the proposed headquarters facility expansion would accommodate future facilities to be constructed as part of the WSMP and would not present a substantial increase in workers to the site. Since construction-related traffic would not substantially increase CO concentrations in the project area, CO hotspot impacts to sensitive receptors would be less than significant.

Mitigation Measures

Implement **Mitigation Measures AQ-1** and **AQ-2**.

Significance Determination: Less than Significant with Mitigation

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Odors

Impact 3.3-5: The proposed project could create objectionable odors affecting a substantial number of people.

All Facilities (Near-Term and Long-Term)

Construction activities would be required for installation of all project components and associated facilities. During the construction phase of the proposed project, exhaust from construction equipment may produce discernible odors typical of most construction sites; however, such odors would be temporary. The proposed project would comply with the applicable provisions of the CARB ATCM regarding idling limitations for diesel trucks. Through mandatory compliance with AVAQMD Rules, no construction activities or materials are expected to create objectionable odors affecting a substantial number of people. Therefore, construction odors would be considered less than significant.

According to the South Coast Air Quality Management District's *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills,

dairies, and fiberglass molding. Operation of the storage tanks, pump stations, pipelines and groundwater wells would involve the storage and conveyance of water and would not generate odors. Therefore, objectionable odor impacts affecting a substantial number of people would not occur from the operation of the facilities, and impacts would be considered less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

GHG Emissions

Impact 3.3-6: The proposed project could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Storage Tanks, Pump Stations and Pipelines (Near-Term)

Near-term components of the proposed project would generate GHG emissions from a variety of sources. First, GHG emissions would be generated during construction of the near-term projects in the project area. Once fully operational, the projects' operations would generate direct GHG emissions from mobile sources (i.e., worker commute trips and periodic facility maintenance visits). Indirect source emissions associated with the proposed project would be generated from electrical consumption to power the pump stations. Due to the periodic maintenance vehicle trips and minimal electrical consumption during operation of the facilities, operational GHG emissions resulting from the facilities would be negligible, and therefore are not included in the table below. **Table 3.3-7** presents the summary of the estimated total and amortized construction GHG emissions of all project components.

TABLE 3.3-7
ESTIMATED PROJECT GHG EMISSIONS

Emission Source	CO_2e Emissions (MT/yr.)
Storage Tanks	276
Pump Stations	73
Pipelines	91
Total Construction Emissions	**440**
Amortized Construction Emissions (30 years)	**15**
GHG Significance Threshold	*100,000*
Exceeds Significance Threshold?	**No**

CO_2e= carbon dioxide equivalent; MT/yr = metric tons per year.

SOURCE: ESA 2017.

As shown in Table 3.3-7, construction of the proposed project would result in approximately 15 MT CO_2e and would not exceed the AVAQMD GHG screening threshold of 100,000 MT CO_2e. Operation of the proposed near-term projects would generate minimal GHG emissions and would not exceed the GHG significance threshold. As such, implementation of the proposed project would not generate, either directly or indirectly, substantial GHG emissions and impacts would be less than significant.

Storage Tanks, Pump Stations, Pipelines, Wells, and Headquarters Expansion (Long-Term)

For purposes of this analysis, construction activities associated with the long-term components of the proposed project would begin at a later time when project-specific details are proposed for each individual project, such as the future pipeline improvements or new extraction wells. Construction of the long-term facilities would be similar to the near-term facilities but in different locations within the PWD service area. Construction of storage tanks, pump stations, and the headquarters expansion would involve grading and facility construction at new or existing facility locations. Installation of pipelines would involve trenching within city streets and other public rights of way. Project-specific construction details for these facilities would be developed and evaluated in subsequent CEQA compliance documentation. Therefore, GHG emissions modeling for long-term phases of the proposed project were not conducted for this analysis.

It is expected that construction during the long-term components of the proposed project would occur intermittently throughout the implementation period. The amount of emissions generated for a particular project would vary depending on its size, the area of disturbance, intensity of construction and the length of the construction schedule. Long-term project would be subject to environmental review and would include a determination of whether GHG emissions would exceed AVAQMD's applicable significance thresholds.

Once constructed, operation of the long-term projects would increase energy usage, resulting in increased GHG emissions associated with energy production. The primary source of GHG emissions generated from operation of the proposed facilities would be from vehicle trips for worker inspection and maintenance purposes. Existing and future staff associated with the proposed headquarters facility expansion would accommodate future facilities to be constructed as part of the WSMP and would not present a substantial increase in workers to the site. Otherwise, operation of the long-term facilities would be unmanned and there would be no daily worker trips to the facilities.

Although construction and operation emissions were not modeled for this analysis, it is anticipated that GHG emissions resulting from the long-term projects would not exceed AVAQMD's screening threshold. Assuming that construction of facilities in the long-term phase would be completed after 2020 and intermittently over the following 20 years, total construction emissions would be amortized over 30 years. In addition, it is anticipated that operation of the facilities would not result in substantial GHG emissions. Operation of additional pipelines and extraction wells would involve additional energy usage to transmit and extract water in the project area; however, these activities are not expected to result in substantial GHG emissions. Therefore, it is reasonable to assume that implementation of the long-term projects would not

generate, either directly or indirectly, substantial GHG emissions and impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Consistency with Greenhouse Gas Reduction Plans, Policies, and Regulations

Impact 3.3-7: The proposed project could conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

Storage Tanks, Pump Stations and Pipelines (Near-Term)

As discussed in Impact 3.3-6, the GHG emissions generated by the construction and operation of near-term projects would not exceed the AVAQMD's significance threshold of 100,000 MT CO_2e per year. The primary source of GHG emissions generated by project implementation would occur during construction, which would be temporary in nature. The proposed project would utilize contractors that are in compliance with regulations including the USEPA Heavy Duty Vehicle Greenhouse Gas Regulation, CARB ACTM that limits heavy-duty diesel motor vehicle idling, and the low carbon fuel standard. Additionally, as the program is not a land use project, GHG emissions associated with mobile sources would only occur from periodic vehicle trips by workers for inspection and maintenance purposes, which would not generate substantial emissions. The annual GHG emissions associated with the operation of the facilities would generate minimal GHG emissions. Other emissions from maintenance would include electricity demand from the pump stations, which are expected to be generally similar to current electricity demand levels and electric utility providers would be required to comply with the State's Renewables Portfolio Standard. Consequently, the implementation of the proposed project would not generate substantial amounts of GHG emissions that would hinder the State's ability to achieve the goal under HSC Division 25.5 of achieving 1990 levels of GHG emissions by 2020.

Furthermore, the proposed project would not conflict with or impede the future statewide GHG emission reductions goals. CARB has outlined a number of potential strategies for achieving the 2030 reduction target of 40 percent below 1990 levels. These potential strategies include renewable resources for half of the State's electricity by 2030, reducing petroleum use in cars and trucks, and reducing the carbon content of transportation fuels. The proposed project would comply with these future regulations, as promulgated by the USEPA, CARB, CEC, or other agency. As a result, the proposed project would be expected to exhibit declining GHG emissions trajectory in-line with future State GHG reductions goals codified in HSC Division 25.5 for 2030. As a result, this impact would be less than significant.

Storage Tanks, Pump Stations, Pipelines, Wells, Headquarters Expansion (Long-Term)

The long-term projects would be expected to comply with applicable construction- and operational-related GHG regulations as discussed under the near-term projects analysis above. Therefore, implementation of the long-term projects would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

3.3.4 References

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3.4 Biological Resources

This section describes and evaluates potential impacts to biological resources that could result from implementation of the proposed 2016 Water System Master Plan (WSMP or proposed project), which would include the construction and operation of new facilities and upgrades to existing facilities throughout the Palmdale Water District (PWD) service area and vicinity. These facilities include pipelines, storage tanks, pump stations and groundwater wells to be constructed in the near-term (before 2020) and long-term (after 2020). Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). Existing biological conditions within the PWD and vicinity, applicable policies, ordinances, and regulations; potential environmental impacts; and mitigation measures, where appropriate, are described. A Biological Resources Technical Report (ESA 2018) was prepared for the project (located in **Appendix BIO** of this Draft PEIR) and is referenced throughout this section.

3.4.1 Environmental Setting

The following sections describe the environmental setting for biological resources within the project area, which is located almost entirely within the City of Palmdale, but also includes portions of land within unincorporated Los Angeles County. The project area includes the PWD service area plus areas adjacent to the service area where proposed facilities are located.

Regional Setting

The project area is located in the Antelope Valley, which comprises the western tip of the Mojave Desert, opening up to the Victor Valley to the east and the Great Basin to the northeast. The Antelope Valley is north of the San Gabriel Mountains and southeast of the Tehachapi Mountains and the Diablo Range of the Coast Ranges. The San Andreas Rift Zone occurs along the southern boundary of the Antelope Valley and it is the tectonic movement between the Pacific and North American plates in this zone that has produced the topographical differences found in the region (ESA 2018).

The Mojave Desert is known as the “High Desert” because most of the region is found between 2,000 and 4,000 feet. The climate of the Mojave Desert has extreme fluctuations of daily temperatures, strong seasonal winds, and clear skies. Temperatures have been as low as 8° Fahrenheit (F) in January and as high as 119° F in August. In late winter and early spring, the wind is a prominent feature, with dry winds blowing in the afternoon and evening. Winds in excess of 25 miles per hour (mph), with gusts of 75 mph or more are not uncommon. Although it is windy during all months, November, December, and January are the calmest. The humidity is below 40% most of the year; however, during most winter nights, and during and after summer rains the humidity can reach above 50%. The Mojave Desert lies in the rainshadow of the Coast Ranges and receives an average annual precipitation of 5 inches. Most of the rain falls between November and April. There is, however, a summer thunderstorm season from July to September with violent and heavy, highly localized, rainstorms possible (ESA 2018).

The Antelope Valley supports a variety of vegetation communities due the varied geography that occurs in the region. In the higher elevations of the valley along the lower, northern slopes of the San Gabriel Mountains northern mixed chaparral and Joshua tree woodland scrub occur. At lower elevations big sagebrush scrub intergrades with creosote bush scrub on the desert floor. On the desert floor, Rosamond Lake is a closed basin that receives water from the Antelope Valley watershed, which includes Big Rock and Little Rock Creeks from the San Gabriel Mountains, Amargosa Creek which collects runoff from the Sierra Pelona Mountain Range, and runoff from the southeastern slopes of the Tehachapi Mountains (ESA 2018).

Local Setting

The proposed project southern boundary is located in the northern foothills of the San Gabriel Mountains and Sierra Pelona Ridge, which has low to moderately steep slopes and has sparse development. The San Andreas Rift Zone is trends from the central portion of the western boundary to the southeast corner of the proposed project area. Portions of the proposed project area north of the San Andreas Rift Zone have relatively flat topography and predominantly developed for residential, retail, and industrial zones. The extreme east-northeastern portions of the proposed project area also have sparse development and have ecological characteristics that a more similar to the Mojave Desert (ESA 2018).

Vegetation and Land Cover in the Project Area

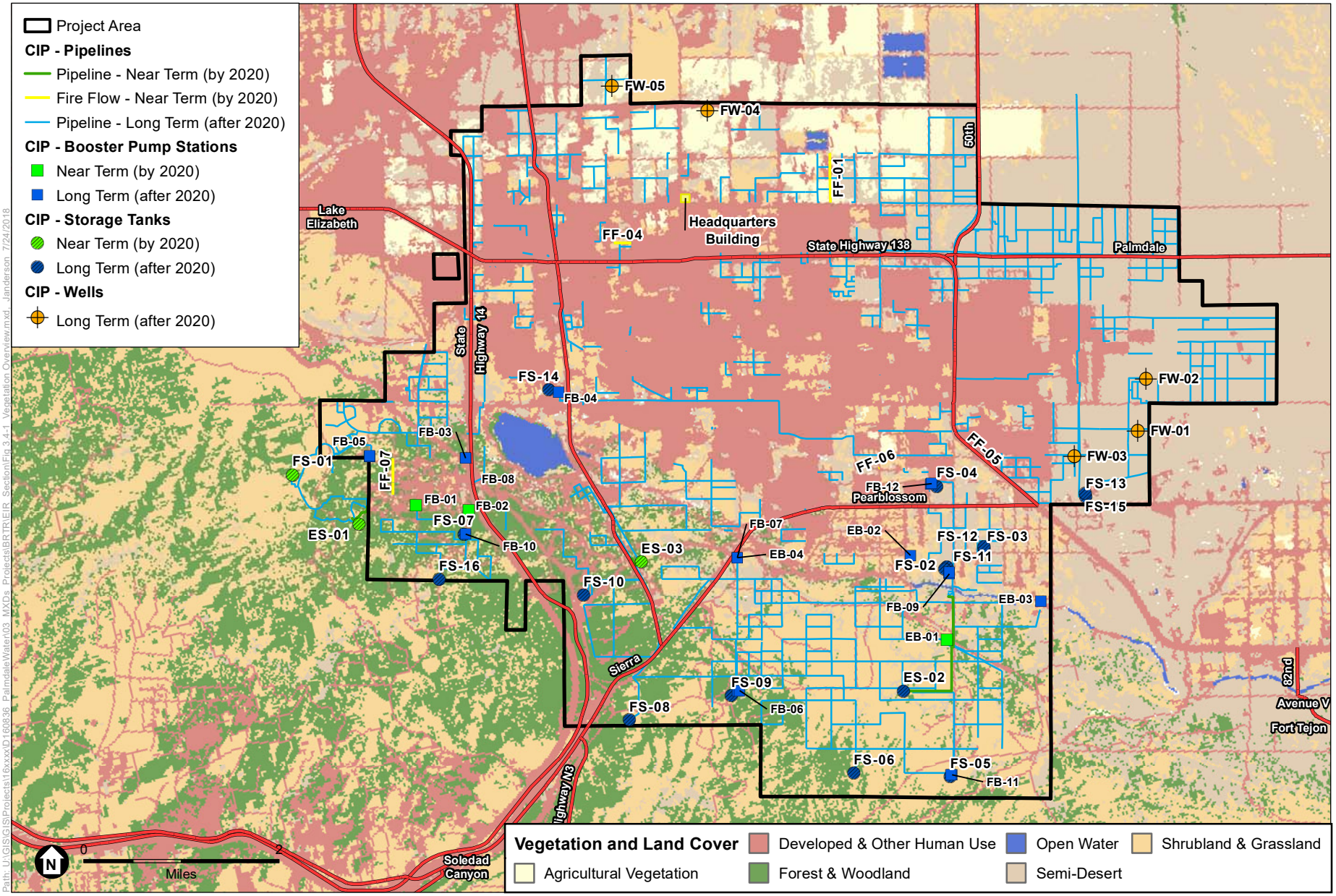
The following are the Level 1-U.S. National Vegetation Classification standards (Federal Geographic Data Committee 1997), as shown on **Figure 3.4-1**, found within the project area that are sub-classified by the associated terrestrial natural communities (Holland 1986). The description for the terrestrial natural communities and land covers is for the typical conditions associated with each type.

Agricultural Vegetation

Agricultural Vegetation are areas that are currently being used for agriculture or have been fallow for several years. The fallow areas typically become dominated by ruderal species, such as non-native herbaceous species and grasses (primarily *Bromus* spp.). Activities, such as livestock grazing, mowing and disking, which disturb the soils and remove vegetation, are common in the areas and limit successional growth to native, shrub-based plant communities. Agricultural Vegetation is found primarily in the northern portion of the project area.

Developed and Other Human Use

Developed and Other Human Use areas have been either built upon with impervious structures or groundcover (roads and parking lots), or have been converted to parks that are typically used for recreational activities. These areas support little to no native vegetation and are not expected to support special-status species. Developed and Other Human Use areas are found throughout the project area.



SOURCE: Palmdale Water 2017; USGS 2011

Palmdale Water District

Figure 3.4-1
Vegetation and Land Cover Overview

ESA

Forest and Woodland

Tropical, temperate and boreal forests, woodlands and tree savannas characterized by broadly mesomorphic (those that are soft and with little fibrous tissue, but not succulent), including scleromorphic (a plant with hard, stiff leaves), tree growth forms (including broad-leaved, needle-leaved, sclerophyllous (hard, stiff leaves), palm, bamboo trees, and tree ferns), typically with at least 10% cover, irregular horizontal spacing of vegetation structure, and spanning humid to seasonally dry tropical to boreal and subalpine climates and wet to dry substrate conditions. This community includes native as well as managed forests, and some plantation forests where human management is infrequent (ESA 2018).

Joshua Tree Woodland

Joshua Tree Woodland is fairly open with Joshua tree typically as the only arborescent species (up to 40 feet tall), with numerous shrub species between three and 15 feet tall. Typically, little to no herbaceous, annual understory is present for most of the year. The dominant species display a diversity of life forms: sclerophyllous evergreen trees and shrubs (*Yucca* spp.), microphyllous (small plant leaf with one single, unbranched leaf vein), evergreen shrubs (*Juniperus* spp.), semi-deciduous shrubs (*Eriogonum* spp.), semi-succulents (*Lycium* spp.), and succulents (*Opuntia* spp.). The main growing season is spring, with growth limited by cold temperatures in the winter and limited rainfall in the summer and fall. Many species of species of annual herbs may germinate following sufficient rainfall in the late fall or winter and flower in mid-spring . Within the project area, Joshua Tree Woodland occurs primarily in the south and southwest along the lower slopes of the San Gabriel Mountains and Sierra Pelona Range (ESA 2018). This habitat is considered a sensitive natural community by the CDFW (CDFW, 2018).

Mojavean Juniper Woodland and Scrub

Mojavean juniper woodland and scrub is an extremely open woodland dominated by California juniper, with an understory that is composed of elements typically found in the Mojave Mixed Woody Scrub community (ex.: *Eriogonum* spp., *Ephedra* spp., and *Opuntia* spp.). The community typically occurs on gentle slopes or alluvium and intergrades with Joshua tree woodland or Mojave creosote bush scrub at lower elevations (ESA 2018). Within the project area, Mojavean juniper woodland and scrub occurs primarily along the slopes and hilltops in southwest. California juniper habitat is considered a sensitive natural community by the CDFW (CDFW, 2018).

Semi-desert Chaparral

The semi-desert chaparral community consists of shrubs between 5 and 10 feet in height, and is somewhat more open than most chaparrals. Some of the dominant taxa include California juniper, California buckwheat (*Eriogonum fasciculatum*), and cacti (*Opuntia* spp.); these are not broad-leaved sclerophylls that are typically associated with chaparral communities. The vegetation is dormant, or nearly so, in the winter due to lower temperatures and in the late summer due to low availability of water. Semi-desert chaparral is less fire-prone than other chaparrals because of the lower fuel loads . Within the project area, semi-desert chaparral occurs in the south at higher elevations. This community often intergrades with Joshua tree woodland (ESA 2018).

Open Water

Open water in the project area is associated with Lake Palmdale, Una Lake, and sump ponds located within the San Andreas Rift Zone, as well as the artificial California Aqueduct, which generally parallels the San Andreas Rift Zone. The terrestrial communities associated with this land cover include the following (ESA 2018).

Transmontane Freshwater Marsh

Transmontane freshwater marshes develop in or adjacent to areas of slow-moving or still permanent freshwater. This community is dominated by cattail (*Typha* spp.), which often form a closed canopy, with bulrushes (*Schoenoplectus* spp.) and sedges (*Carex* spp.) in the understory. The growing season for this community is short due to low winter temperatures. This community often intergrades with transmontane alkali marsh. Within the project area, transmontane freshwater marsh occurs in small patches along the San Andreas Rift Zone (ESA 2018). This habitat is considered a sensitive natural community by the CDFW (CDFW, 2018).

Transmontane Alkali Marsh

Transmontane alkali marsh is similar to transmontane freshwater marsh, which it often intergrades with, but is usually dominated by more salt-tolerant hydrophytes. Plant species typically found in this community include cattail, sedges, saltgrass (*Distichlis spicata*), bulrushes, and boraxweed (*Nitrophila occidentalis*). Within the project area, transmontane alkali marsh occurs in small patches along the San Andreas Rift Zone (ESA 2018). This habitat is considered a sensitive natural community by the CDFW (CDFW, 2018).

Semi-Desert

Succulents, small-leaved shrubs and trees, desert grasses and other xeromorphic growth forms (those with adaptation mechanisms against water loss) are dominant or characteristic in this type, which can include very open rocky or sandy desert types. Vegetation often has open and irregular horizontal canopy spacing, typically less than five meters tall. Mesomorphic trees have less than 10% cover, and xeromorphic growth forms, including succulent trees and shrubs (e.g., cacti, euphorbias), and small-leaved shrubs and trees, have the majority of cover compared to mesomorphic or cryomorphic (plants that have adaptations to survive cold temperatures and resist frost damage) growth forms. The herb cover varies from open to absent, with various growth forms, including ephemerals and succulent forbs (ESA 2017).

Desert Saltbush Scrub

Desert Saltbush Scrub is usually strongly dominated by one of several species of saltbush (*Atriplex* spp.), with other characteristic species including spiny hopsage (*Grayia spinosa*), cheesebush (*Hymenoclea salsola*), and boxthorn (*Lycium* spp.). This vegetation community is found in poorly drained alkaline and/or saline soils, widely distributed above and on the margins of dry desert lake beds in the Mojave, Great Basin, and Colorado deserts. Desert Saltbush Scrub usually is composed of fine scale mosaics of vegetation series and associations with different component species becoming dominant. It is dependent on small changes in topography and water table depth. Within the project area, Desert Saltbush Scrub occurs primarily in the north and northeast in low-lying areas mixed in with Rabbitbrush Scrub and Mixed Woody Scrub (ESA 2018). This habitat is considered a sensitive natural community by the CDFW (CDFW, 2018).

Mojave Creosote Bush Scrub

Mojave Creosote Bush Scrub is composed of medium-sized shrubs dominated by creosote (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) that are widely spaced with little vegetation in between. Many species of ephemeral herbs may flower in late March and April if the winter rains are sufficient. Other, less numerous, species of annuals appear following summer thundershowers. Growth is prevented by cold in winter and limited by drought in other seasons. Mojave Creosote Bush Scrub typically occurs on well-drained secondary soils with very low available water holding capacity on slopes, fans, and valleys rather than upland sites with thin residual soils or sites with high soil salinity. This community intergrades at higher elevations with shadscale scrub or Joshua tree woodland, and at lower elevations, or more osmotic sites, with desert chenopod scrub. Within the project area, Mojave Creosote Bush Scrub occurs primarily in the east in portions near Little Rock Wash (ESA 2018).

Mojave Wash Scrub

Mojave Wash Scrub community is composed of widely spaced shrubs, with scattered to locally dense tree canopy cover, on usually otherwise barren sandy soils at the bottoms of wide canyons along incised arroyos of upper bajadas and along braided washes of lower bajadas. Characteristic species include scalebroom (*Lepidospartum squamatum*), catclaw acacia (*Acacia greggii*), allscale, desert willow (*Chilopsis linearis*), brittlebush (*Encelia farinosa*), cheesebush (*Hymenoclea salsola*), creosote bush, and boxthorn. The usual aspect is widely scattered shrubs, including allscale and cheesebush, with mostly barren sandy soil between. Within the project area, Mojave Wash Scrub occurs primarily in the east in portions within Little Rock Wash (ESA 2018). This habitat is considered a sensitive natural community by the CDFW (CDFW 2018).

Shrubland and Grassland

Shrubs and herbs with broadly mesomorphic (including scleromorphic) growth forms (including broad-leaved, needle-leaved, and sclerophyllous shrubs, some types of rosette shrubs, and herbaceous forbs and grasses) dominate this type. Vegetation structure is typically moderately open to closed canopy, with irregular horizontal canopy spacing and variable height, but typically less than five meters, and where mesomorphic trees have less than 10% cover and mesomorphic shrub and herb growth forms have the majority of cover compared to xeromorphic or cryomorphic growth forms (ESA 2018).

Big Sagebrush Scrub

Big Sagebrush Scrub is mostly a treeless, soft-woody shrub-dominated community, composed of shrubs approximately 1.5 to 6.5 feet tall that is dominated by big sagebrush (*Artemisia tridentata*). The understory is characterized by patches of bare ground and scattered herbs. This community often is found in close proximity to woodlands and coniferous forests. This vegetation can occur in the understory of tree-dominated, high elevation communities of pinyon-juniper woodlands, montane mixed coniferous forest, and alpine forest. At lower elevations, Big Sagebrush Scrub occurs adjacent to saltbush scrub, blackbush scrub, Joshua tree woodland, and creosote bush scrub communities. This community is well-suited to a variety of soils and terrain ranging from rocky, well-drained slopes to fine-textured valley soils with high a water table. Within the project area, Big Sagebrush Scrub occurs primarily in the southwest along the slopes

and valleys. This community often intergrades with rabbitbrush scrub in areas that have been regularly disturbed (ESA 2018).

Mojave Mixed Woody Scrub

Mojave Mixed Woody Scrub is complex community that is open enough to be passable and usually characterized by Joshua tree, desert tea (*Ephedra* spp.), beavertail cactus (*Opuntia basilaris*), California buckwheat, and bladderpod (*Isomeris arborea*). This community typically occurs on very shallow, overly-drained, often rolling to steep soils that are usually derived from granitic parent materials. The sites where this community is located have extremely low water holding capacity, mild alkalinity, and are not very saline. On deeper soils with higher water holding capacity, or at cooler elevations, the community intergrades with Great Basin scrubs, Blackbush Scrub, or Pinyon Woodlands; at warmer elevations with Creosote Bush Scrub. Within the project area, Mojave Mixed Woody Scrub occurs primarily in the southwest along the slopes and valleys (ESA 2018). This habitat is considered a sensitive natural community by the CDFW (CDFW 2018).

Rabbitbrush Scrub

Rabbitbrush Scrub is dominated by rubber rabbitbrush (*Ericameria nauseosus*), a three-foot-tall gray, woody shrub that has a yellowish inflorescence that blooms in late summer or fall. Elements from other communities, such as big sagebrush scrub and Mojave mixed woody scrub, are also found in rabbitbrush scrub. This community occurs in areas that have undergone disturbances such as fire, grazing, and/or soil tilling. Within the project area, Rabbitbrush Scrub throughout the region in areas that have undergone regular disturbances (agricultural practices, grubbing, grazing, etc.) (ESA 2018).

Vegetation at Near-Term Project Components

Table 3.4-1 summarizes the land cover and vegetation communities for each of the near-term project components. This level of classification is based on the dominant plant species found within a defined area. Also given are the other plant species that were found during the survey of each location.

TABLE 3.4-1
VEGETATION COMMUNITIES AND PLANT COMPOSITION FOR EACH NEAR-TERM PROJECT COMPONENT

Project Component	Vegetation Alliance(s)	Plant Species Found within the Component Location
Storage tank ES-01	California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)	California buckwheat (*Eriogonum fasciculatum*), desert needle grass (*Stipa speciosa*), cheatgrass (*Bromus tectorum*), red brome (*B. madritensis* ssp. *rubens*), California four o' clock (*Mirabilis laevis*), California juniper (*Juniperus californica*), interior goldenbush (*Ericameria linearifolia*), Tucker's oak (*Quercus john-tuckeri*), shortpod mustard (*Hirschfeldia incana*), checker fiddleneck (*Amsinckia tessellata*)

TABLE 3.4-1
VEGETATION COMMUNITIES AND PLANT COMPOSITION FOR EACH NEAR-TERM PROJECT COMPONENT

Project Component	Vegetation Alliance(s)	Plant Species Found within the Component Location
Storage tank FS-01	California Juniper Woodland (*Juniperus californica* Woodland Alliance)	California juniper, California buckwheat, Acton encelia (*Encelia actoni*), chaparral yucca (*Hesperoyucca whipplei*), rubber rabbitbrush (*Ericameria nauseosa*), California ephedra (*Ephedra californica*), Cooper's boxthorn (*Lycium cooperi*), California four o' clock, cheatgrass, red brome, desert needle grass
APN 3054-004-016	California Buckwheat Scrub, California Juniper Woodland, Rubber Rabbitbrush Scrub (*Ericameria nauseosa* Shrubland Alliance), Cheatgrass Grassland (*Bromus tectorum* herbaceous)	California juniper, California buckwheat, Acton encelia, chaparral yucca, rubber rabbitbrush, California ephedra, big sagebrush (*Artemisia tridentata*), California four o' clock, cheatgrass, red brome, Tucker's oak, California juniper, shortpod mustard, checker fiddleneck, Joshua tree, interior goldenbush, big berry manzanita (*Arctostaphylos glauca*), hollyleaf redberry (*Rhamnus ilicifolia*), beavertail cactus (*Opuntia basilaris* ssp. *basilaris*)
Storage tank ES-03	California Joint Fir Scrub (*Ephedra californica* Shrubland Alliance)	California ephedra, California buckwheat, Joshua tree, rubber rabbitbrush checker fiddleneck, cheatgrass, red brome, beavertail cactus, shortpod mustard, chaparral yucca, creosote
APN 3053-022-006	California Joint Fir Scrub, Rubber Rabbitbrush, California Juniper Woodland	California ephedra, California buckwheat, rubber rabbitbrush, Joshua tree, checker fiddleneck, cheatgrass, red brome, beavertail cactus, shortpod mustard, chaparral yucca, creosote, fourwing saltbush (*Atriplex canescens*), big sagebrush, Acton encelia
Pump Station EB-01	Developed - within existing facility. Adjacent: Rubber Rabbitbrush Scrub, Fourwing Saltbush Scrub (*Atriplex canescens* Shrubland Alliance)	Adjacent: rubber rabbitbrush, fourwing saltbush
Pump Station FB-01	Developed – within existing facility. Adjacent: California Buckwheat Scrub	Adjacent: California buckwheat
Pump Station FB-02	Developed – within existing facility. Adjacent: California Buckwheat Scrub, Rubber Rabbitbrush Scrub	Adjacent: California buckwheat, rubber rabbitbrush
Pipeline FF-01	Sited within the existing dirt road (west 35th St. E.) in the southern half and through Rubber Rabbitbrush Scrub in the north. Adjacent: Rubber Rabbitbrush Scrub, Cheatgrass Grassland, Sandbar Willow Thickets (*Salix exigua* Shrubland Alliance); within manmade canal on the eastside of the southern half of the pipeline)	rubber rabbitbrush, sandbar willow (*Salix exigua*), cheatgrass, red brome, shortpod mustard, jimsonweed (*Datura wrightii*)
Pipeline FF-04	Rubber Rabbitbrush Scrub, Cheatgrass Grassland	rubber rabbitbrush, cheatgrass, red brome, shortpod mustard, common sunflower (*Helianthus annuus*)
Pipeline FF-05	Sited within cleared shoulder of State Route 138. Adjacent: Rubber Rabbitbrush Scrub,	Adjacent: rubber rabbitbrush, Russian thistle (*Salsola tragus*), cheatgrass, red brome, shortpod mustard, jimsonweed
Pipeline FF-06	Developed – within asphalt road. Adjacent: Cheatgrass Grassland.	Adjacent: cheatgrass, red brome
Pipeline FF-07	Sited within the existing dirt road (Camares Dr.). Adjacent: California Juniper Woodland, California Buckwheat Scrub	Adjacent: California juniper, California buckwheat, cheatgrass, red brome, Tucker's oak, big berry manzanita, Joshua tree, rubber rabbitbrush

TABLE 3.4-1
VEGETATION COMMUNITIES AND PLANT COMPOSITION FOR EACH NEAR-TERM PROJECT COMPONENT

Project Component	Vegetation Alliance(s)	Plant Species Found within the Component Location
Pipeline along 47th Street East, connecting the proposed improvements at pump station EB-01 south and then extending the pipeline west through undeveloped land to an existing deficiency recommended tank	Sited within an asphalt road (47th St E.) north of Barrel Springs Rd. and within natural lands south. California Joint Fir Scrub, Rubber Rabbitbrush Scrub, Cheatgrass Grassland, California Juniper Woodland, Creosote Bush Scrub (*Larrea tridentata* Shrubland Alliance)	California buckwheat, California ephedra, rubber rabbitbrush, interior goldenbush, Mexican bladdersage (*Scutellaria mexicana*), California juniper, creosote, Cooper's boxthorn, chaparral yucca, checker fiddleneck, cheatgrass, red brome, shortpod mustard, desert needle grass
Pipeline within the ROW of Sierra Highway, connecting an existing storage tank and pump station southeast to an existing deficiency recommended tank (ES-03)	California Joint Fir Scrub, Rubber Rabbitbrush Scrub, Cheatgrass Grassland, Fourwing Saltbush Scrub, California Juniper Woodland, Creosote Bush Scrub, Orchard	California ephedra, California buckwheat, rubber rabbitbrush, Joshua tree, checker fiddleneck, cheatgrass, red brome, beavertail cactus, shortpod mustard, chaparral yucca, creosote, fourwing saltbush scrub, big sagebrush, Acton encelia
Pipeline west of Lakeview Drive through undeveloped land connecting to the proposed storage tank ES-01	Sited within the existing dirt road (unnamed). Adjacent: California Buckwheat Scrub, California Juniper Woodland, Rubber Rabbitbrush Scrub, Cheatgrass Grassland, Tucker Oak Chaparral (*Quercus john-tuckeri* Shrubland Alliance)	Adjacent: California buckwheat, rubber rabbitbrush, Tucker's oak, California juniper, cheatgrass, red brome, interior goldenbush, big berry manzanita, hollyleaf redberry, California ephedra, desert needle grass

SOURCE: ESA 2018.

Common Wildlife Species

The developed portions of the project area have little habitat value for native wildlife. Species that occur within developed areas are typically very common and acclimated to human activity and are able to utilize the introduced ornamental plant species or artificial structures for foraging and breeding behaviors. In natural environments, many wildlife species may be habitat specialists; however, most wildlife species are not restricted to a single vegetation community, occurring instead in several communities, especially those of similar species composition and physical structure. Some animals, birds, and wide-ranging mammals in particular, may utilize an array of dissimilar communities for forage and cover (ESA 2018).

Fish

No naturally occurring native fish populations are present within the project area based upon species' range and habitat requirements. Nonnative species that have been introduced into the perennial water bodies in the project area (including Palmdale Lake, Una Lake, and the California Aqueduct) include brown bullhead, (*Ameiurus nebulosus*), carp (Cyprinidae), mosquitofish (*Gambusia affinis*), and striped bass (*Morone saxatilis*) (ESA 2018).

Amphibians

Native amphibians that may occur in the project area based upon species' range and habitat requirements are limited to western toad (*Anaxyrus boreas*) and Baja California treefrog (*Pseudacris hypochondriaca*). These species are found in areas where drainages, cattle ponds, lakes, seeps, etc. provide standing water that persist long enough for breeding and metamorphosis of tadpoles to occur. An example of this is the freshwater marshes along the San Andreas Rift Zone, Lake Palmdale, and Una Lake. Nonnative amphibians introduced to the area could include

bullfrog (*Lithobates catesbeiana*) and African clawed frog (*Xenopus laevis*), which are primarily aquatic and depend on perennial water sources (ESA 2018).

Reptiles

Common reptiles observed during the surveys or expected to occur within the project area (due to the presence of habitat elements with which the species are typically associated and the project area occurring within the range of the species) include: common side-blotched lizard (*Uta stansburiana*), western fence lizard (*Sceloporus occidentalis*), yellow-backed spiny lizard (*Sceloporus uniformis*), desert night lizard (*Xantusia vigilis*), tiger whiptail (*Aspidoscelis tigris*), California kingsnake (*Lampropeltis californiae*), coachwhip (*Coluber flagellum*), Great Basin gopher snake (*Pituophis catenifer*), western rattlesnake (*Crotalus oreganus*), and Mohave rattlesnake (*Crotalus scutulatus*) (ESA 2018).

Birds

Birds observed during the surveys or expected to occur within the project area (due to the presence of habitat elements with which the species are typically associated and the project area occurring within the range of the species) include: California Quail (*Callipepla californica*), red-tailed hawk (*Buteo jamaicensis*), mourning dove (*Zenaida macroura*), barn owl (*Tyto alba*), Anna's hummingbird (*Calypte anna*), western scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), cactus wren (*Campylorhynchus brunneicapillus*), Bewick's wren (*Thryomanes bewickii*), California towhee (*Pipilo crissalis*), northern mockingbird (*Mimus polyglottos*), sagebrush sparrow (*Artemisiospiza nevadensis*), and house finch (*Carpodacus mexicanus*). Nonnative species found in the urbanized areas of the project area include rock pigeon (*Columba livia*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*). This list does not include transient birds that may utilize the habitats within the project area for only a short duration, but would not nest there (ESA 2018).

Mammals

Mammals observed during the surveys or expected to occur within the project area (due to the presence of habitat elements with which the species are typically associated and the project area occurring within the range of the species) include: desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyi*), white-tailed antelope ground squirrel (*Ammospermophilus leucurus*), Merriam’s kangaroo rat (*Dipodomys merriami*), deer mouse (*Peromyscus maniculatus*), desert woodrat (*Neotoma lepida*), and coyote (*Canis latrans*). Common nonnative species found in the urbanized areas of the project area include black rat (*Rattus rattus*), Norway rat, (*Rattus norvegicus*), house mouse (*Mus musculus*), domestic cat (*Felis catus*), and domestic dog (*Canis lupus familiaris*). In addition to the common mammals listed, the project area is used by a variety of bats for foraging (ESA 2018).

3.4.2 Regulatory Framework

Federal

Endangered Species Act (USC, Title 16, § 1531 through 1543): The Federal Endangered Species Act (FESA) and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. In addition, the FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA also provides a program for the conservation and recovery of threatened and endangered species as well as the conservation of designated critical habitat that USFWS determines is required for the survival and recovery of these listed species.

Section 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) share responsibilities for administering the FESA. Regulations governing interagency cooperation under Section 7 are found in CCR Title 50, Part 402. The opinion issued at the conclusion of consultation will include a statement authorizing "take" (i.e., to harass, harm, pursue, hunt, wound, kill, etc.) that may occur incidental to an otherwise legal activity.

Section 9 lists those actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit. Application procedures are found at 50 CFR 13 and 17 for species under the jurisdiction of USFWS and 50 CFR 217, 220, and 222 for species under the jurisdiction of NMFS (ESA 2018).

Migratory Bird Treaty Act (16 USC 703 through 711): The Migratory Bird Treaty Act (MBTA) is the domestic law that affirms, or implements, a commitment by the U.S. to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. The MBTA makes it unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, or kill migratory birds. The law also applies to the removal of nests occupied by migratory birds during the breeding season. The MBTA makes it unlawful to take, pursue, molest, or disturb these species, their nests, or their eggs anywhere in the United States (ESA 2018).

Federal Clean Water Act (33 USC 1251 through 1376): The Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires a project operator for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. to obtain state certification, thereby ensuring that the discharge will comply with provisions of the CWA. The California State Water Resources Control Board administers the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the United States. Section 404 establishes a permit program administered by the U.S. Army Corps of Engineers (USACE) that regulates the discharge of dredged or fill material into waters of the United States, including wetlands. USACE implementing regulations are found at 33 CFR 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the United States Environmental Protection Agency in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts (ESA 2018). The USACE has indicated that the isolated washes within the Antelope Valley watershed are not considered navigable water of the U.S.

Wetlands and Other Waters of the United States: Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources and can fall under the jurisdiction of several regulatory agencies. USACE exerts jurisdiction over waters of the United States, including all waters that are subject to the ebb and flow of the tide; wetlands and other waters such as lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds; and tributaries of the above features. The extent of waters of the United States is generally defined as that portion that falls within the limits of the ordinary high water mark (OHWM). Typically, the OHWM corresponds to the two-year flood event.

Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas, are defined by USACE as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (ESA 2018).

State

California Endangered Species Act (California Fish and Game Code § 2050 et seq.): The California Endangered Species Act (CESA) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no state agency consultation procedures under the CESA. For projects that would affect a listed species under both the CESA and the FESA, compliance with the FESA would satisfy the CESA if the California Department of Fish and Wildlife (CDFW) determines that the federal incidental take authorization is "consistent" with the CESA

under California Fish and Game Code Section 2080.1. For projects that would result in take of a species listed under the CESA only, the project operator would have to apply for a take permit under Section 2081(b) (ESA 2018).

California State Fish and Game Code § 1600 et seq.: Under these sections of the California Fish and Game Code, the project operator is required to notify CDFW prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the code, a "stream" is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports or has supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial watercourses valuable to fish and wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events (ESA 2018).

Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement, which becomes part of the plans, specifications, and bid documents for the project (ESA 2018).

California State Fish and Game Code §§ 2080 and 2081: Section 2080 of the California Fish and Game Code states that "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to Section 2081 of the code, CDFW may authorize individuals or public agencies to import, export, take, or possess State-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memoranda of Understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by CDFW, which makes this determination based on available scientific information and considers the ability of the species to survive and reproduce (ESA 2018).

California State Fish and Game Code §§ 3503 and 3503.5: Under these sections of the California Fish and Game Code, the project operator is not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds of prey; the taking or possessing of any migratory nongame bird as designated in the MBTA; the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or nongame birds protected by the MBTA; or the taking of any nongame bird pursuant to California Fish and Game Code Section 3800 (ESA 2018).

California Environmental Quality Act Guidelines, § 15380: Although threatened and endangered species are protected by specific federal and state statutes, *California Environmental Quality Act (CEQA) Guidelines* § 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected, and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the *CEQA Guidelines* for addressing impacts. Local planning documents such as general plans often identify these resources as well (ESA 2018).

Native Plant Protection Act (California Fish and Game Code §§ 1900-1913): California's Native Plant Protection Act (NPPA) requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use. This allows CDFW to salvage listed plant species that would otherwise be destroyed. The project operator is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants. However, this act does not apply to the clearing of land for agricultural purposes or to public agencies and does not apply to this project (ESA 2018).

Regional Water Quality Control Board: Under Section 401 of the CWA, the California State Water Resources Control Board, via the local Regional Water Quality Control Board (RWQCB), must certify that actions receiving authorization under Section 404 of the CWA also meet state water quality standards. The RWQCB also regulates waters of the state under the Porter-Cologne Act Water Quality Control Act (Porter Cologne Act). The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for impacts to wetlands and/or waters of the state. The RWQCB also has jurisdiction over waters deemed 'isolated' or not subject to Section 404 jurisdiction under the SWANCC decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the state and prospective dischargers are required obtain authorization through an Order of Waste Discharge or waiver thereof from the RWQCB and comply with other requirements of Porter-Cologne Act (ESA 2018).

Local

Los Angeles County General Plan: The Los Angeles County 2035 General Plan provides the policy framework for how and where the unincorporated County will grow through the year 2035, and is designed to guide the long-term physical development and conservation of the County's land and environment in the unincorporated areas, through a framework of goals, policies and implementation programs (ESA 2018).

The Significant Ecological Areas (SEA) Program (Los Angeles County Department of Regional Planning 2009) is a component of General Plan 2035. An SEA is a designation given to land that contains irreplaceable biological resources. The objective of the SEA Program is to preserve the genetic and physical diversity of the County by designing biological resource areas capable of sustaining themselves in the future. The County's current SEAs are regulated by a conditional use permit (CUP) to Significant Ecological Areas Technical Advisory Committee (SEATAC) Review. SEATAC is an advisory committee to the Regional Planning Commission. SEATAC reviews conceptual project designs and carefully evaluates the biologic resources within a project site, taking into account the surrounding area (e.g., linear features such as streams). This process supports consideration and approval of the CUP for any project that occurs in an SEA (ESA 2018).

City of Palmdale's Joshua Tree and Native Desert Vegetation Preservation Ordinance: City of Palmdale's "Joshua Tree and Native Desert Vegetation" ordinance (Chapter 14.04) was established to protect and preserve desert vegetation, particularly Joshua trees (*Yucca brevifolia*) and California juniper (*Juniperus californica*), but also species protected under the California Desert Native Plants Act (Food and Agricultural Code section 80001, et seq.). All development proposal applications for sites containing native desert vegetation shall include a desert vegetation preservation plan, submitted with the development application, to receive a native desert vegetation removal permit from the City of Palmdale. All development proposals for land which contains desert vegetation shall be subject to the provisions stated in the ordinance regarding the preservation of native desert vegetation both on-and off-site (ESA 2018).

3.4.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the level of significance of impacts to biological resources are based on Appendix G of the *CEQA Guidelines*. The proposed project would have a significant impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

Methodology

The following describes the methodology used to determine the biological resources characteristics and species potential for the project area.

Background Research and Desktop Analysis

As described in the Biological Resources Technical Report prepared for the project (ESA 2018), a literature and database review was conducted that included a review of aerial photographs of the project area and surrounding vicinity, and United States Geological Survey (USGS) topographic maps. Biological resource databases that were queried included the CDFW California Natural Diversity Database (CNDDB), California Native Plant Society (CNPS) On-line Inventory of Rare and Endangered Vascular Plants of California, and the USFWS Information, Planning, and Conservation System (IPaC). Additional resources reviewed included:

- USGS Gap Analysis Program (GAP) Land Cover Data Set
- USFWS web-based Critical Habitat Portal map application
- eBird's web-based bird database.
- Calflora's *What Grows Here* web-based plant database
- USFWS web-based Wetlands Mapper
- USFWS National Wetlands Inventory data
- U.S. Department of Agriculture (USDA)-Natural Resources Conservation Service Web Soil Survey
- Los Angeles County Significant Ecological Areas Program

Database searches helped identify which special-status species have been previously recorded within the region, which assisted in establishing a list of "target species" that could be affected by the implementation of the project. The CNDDB, CNPS and IPaC were queried for special-status resources with the potential to occur within the USGS *Palmdale* 7.5-minute topographic quadrangle map for which the project area occurs, and the surrounding eight quadrangles: *Lancaster West, Lancaster West, Alpine Butte, Ritter Ridge, Littlerock, Acton, Pacifico Mountain,* and *Juniper Hills*. The CNDDB was also queried for the purposes of identifying sensitive natural communities that have been recorded in the vicinity of the project site. Sensitive natural communities are designated as such by various resource agencies, such as the CDFW, or in local policies and regulations, and are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent or distribution, and are considered threatened

enough to warrant some level of protection. Sensitive natural communities include those that are identified in the CDFW *List of California Terrestrial Communities* (ESA 2018)

Biological Resources Reconnaissance Survey

As described in the Biological Resources Technical Report prepared for the project (ESA 2018), a biological resources reconnaissance survey was conducted by an ESA Senior Biologist on July 6, 2017, that focused on the near-term project components within the project area. The reconnaissance survey was conducted on foot within accessible portions of each component and the surrounding vicinity. Additionally, a windshield survey was conducted through the remaining portions of the project area to groundtruth the background research and desktop analysis.

The ESA biologist identified potential biological resource constraints within the project area. Special attention was paid to habitats having the potential to support sensitive biological resources (e.g., special-status species, sensitive natural communities and riparian habitats), including waterways and associated habitats potentially subject to USACE, CDFW, and/or RWQCB jurisdiction. Aerial photography and Geographic Positioning System technology was used to accurately record the location of any sensitive biological resources encountered (ESA 2018).

During the biological resource reconnaissance, plant communities were characterized to quantify their limits within the project area. Plant communities were initially mapped directly on aerial photographs and then digitized in ArcGIS. Plant taxonomy followed Hickman (1993), as updated in Baldwin, et al. (2012), and plant community descriptions were characterized using Sawyer et al. (2009); however, plant communities, land uses and habitats not clearly described within the manuals were characterized based on the CDFW's *List of California Terrestrial Natural Communities* and/or based on the dominant species or other visual characteristics observed (ESA 2018).

Wildlife species were identified during the field reconnaissance by sight or call, or other evidence of presence such as tracks, nests, scat, or remains, and with use of taxonomic keys where appropriate. Vertebrate taxonomy followed CDFW for fish, amphibians, reptiles, birds, and mammals.

The analysis of potential wildlife habitat linkages (i.e., wildlife migration corridors) within the project area and surrounding landscape was assessed based on the conditions documented during the field reconnaissance surveys, as well as information compiled from literature and analysis of aerial photographs. This information was used to identify whether the project area, in its current condition, is critical to large-scale wildlife movement within the region. The discussions in this report related to wildlife movement focus on areas within the project area, immediate vicinity, and general region (ESA 2018).

Special-status Species Habitat Assessment

"Special-status" species discussed in this report include plants and animals that are listed under CESA or FESA species that are considered sufficiently rare or sensitive under CEQA, and species protected under other regulations. Special-status species include the following:

- Species listed or proposed for listing as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under CESA or FESA;
- Species protected under the federal Bald and Golden Eagle Protection Act;
- Species that meet the definitions of rare or endangered under CEQA;
- Plants listed as rare under the California NPPA (Fish and Game Code § 1900 et seq.);
- Plants considered by the CNPS to be rare, threatened, or endangered in California (California Rare Plant Rank [CRPR] 1,2 and 4);
- Species covered under an adopted Natural Community Conservation Plan/Habitat Conservation Plan;
- CDFW wildlife species of special concern;
- Wildlife fully protected in California (Fish and Game Code § 3511, 4700, and 5050); and/or,
- Avian species protected by the MBTA.

A list of target special-status species and sensitive natural communities was developed based on the search results of the databases. Potentially-occurring special-status species were defined as having potential to occur within and/or immediately adjacent to the project area based upon known range and habitat suitability. Available background information, including USGS topographic maps and current and historical aerial photographs, and available online databases were used in conjunction with Geographic Information System (GIS) data to characterize and map plant communities, and identify any USFWS-designated critical habitat or CDFW sensitive natural communities (ESA 2018).

The status of special-status species with potential to occur within the project area and/or the immediate vicinity was assessed following the database searches and field survey. Following the assessment, each species was assigned to one of the categories listed below:

Present: Species is known to occur within the project area, based on recent (within 20 years) CNDDB or other records, and there is suitable habitat present within the project area, or the species was observed within the project area during the field survey.

Medium Potential: Species is known to occur in the vicinity of the project area (based on recent [within 20 years] CNDDB or other records or based on professional expertise specific to the project area or species), and there is suitable habitat within the project area that makes the probability of the species occurring there high. Alternatively, there is suitable habitat within the project area and within the known range of the species.

Low Potential: Species is known to occur in the vicinity of the project area (within the area comprised by the surrounding USGS quadrangles); however, there is only poor quality or marginal habitat within the project area and the probability of the species occurring is low.

Absent: There is no suitable habitat for the species within the project area, or the area is located outside the known range of the species. Alternatively, a species was surveyed for during the appropriate season with unequivocal negative results for species occurrence.

Bird species are differentiated on the basis of their occurrence in the project area as nesters, foragers, winter residents and/or transients. When determining potential for impacts, only bird species that have potential to nest in the project area were considered, since it is expected that there would be no direct impact from project activities to species in the other categories because of their ability to leave the project area (ESA 2018).

Impacts Discussion

Effect on Species

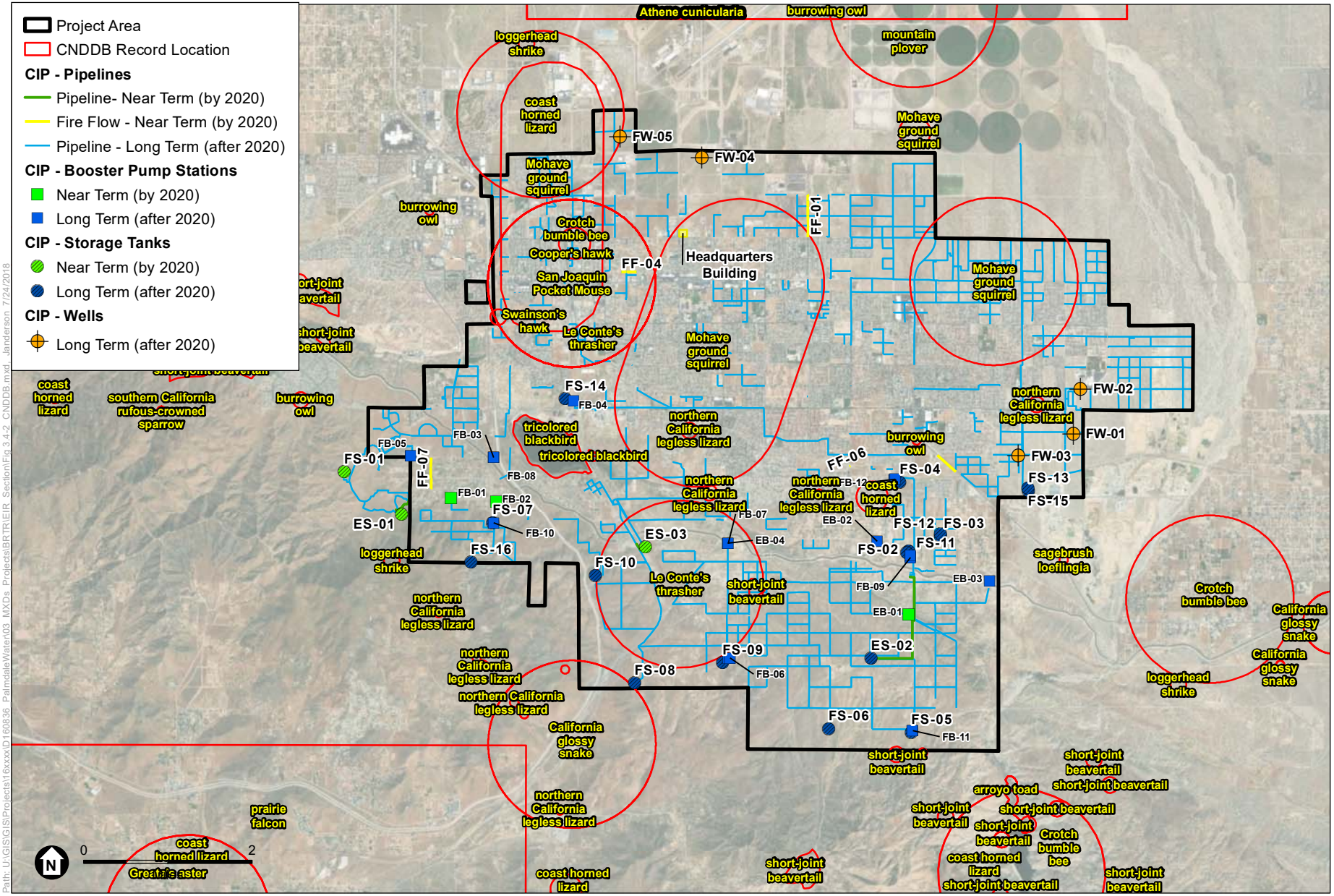
Impact 3.4-1: The proposed project could have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

A total of 50 special-status plant (20) and wildlife (30) species have been recorded in the CNDDB, CNPS, and/or USFWS IPaC database (see **Figure 3.4-2)**. Of these, it was determined that 28 of the species (16 plant and 12 wildlife) do not have the potential to occur in the project area due to habitat and/or range restrictions, and are excluded from further discussion. Therefore, four special-status plant species (see **Table 3.4-2**) and 18 wildlife species (see **Table 3.4-3**) have the potential or are known to occur within the project area and are evaluated.

Special-status Plants

A focused survey for rare plants was not conducted as part of the survey; however, four CNPS-listed special-status plant species (slender mariposa lily, *Calochortus clavatus* var. *gracilis*; Robbins' nemacladus, *Nemacladus secundiflorus* var. *robbinsii*; short-joint beavertail, *Opuntia basilaris* var. *brachyclada*; and Mason's neststraw; *Stylocline masonii*) were determined to have some potential to occur within the southern portion of the project area based on the presence of suitable habitat and recent local records. This includes the potential occurrence for some or all of the four species on the following near-term project components: ES-01, FS-01, ES-03, Pipeline along 47th Street East, Pipeline along Sierra Highway, and Pipeline west of Lakeview Drive. Long-term project components that are sited in undeveloped lands that support suitable habitat for the species in the southern portion of the projects may also support the four species.

Alkali mariposa lily (*Calochortus striatus*) is not expected in the project area. The project area is south of the range of the species. The nearest known records are located approximately 6.5 miles north of the study area and are found primarily in alkaline meadows and moist creosote-bush scrub, which are not found in the project area.



SOURCE: Palmdale Water 2017; CNDDB 2017

Palmdale Water District

Figure 3.4-2
CNDDB Record Locations in the Project Area and Vicinity

ESA

TABLE 3.4-2
STATUS OF POTENTIALLY OCCURRING SPECIAL-STATUS PLANT SPECIES WITHIN THE PROJECT AREA AND AT NEAR-TERM PROJECT COMPONENTS

Common Name ***Scientific Name***	**Federal/State/ CRPR[1] Status**	**General Habitat[2]**	**Micro-Habitat[2]**	**Potential to Occur within the Project Area**	**Potential to Occur at Near-Term Project Components**
slender mariposa lily *Calochortus clavatus* var. *gracilis*	None / None / 1B.2	Chaparral, coastal scrub, valley and foothill grassland.	Shaded foothill canyons; often on grassy slopes within other habitat. 690-5,950 ft.	Low Potential. The nearest known record of the species is located approximately seven miles to the west of the project area on Portal Ridge. Marginal habitat is located in the hilly topography in the southern portion of the project area.	Low Potential. Marginal habitat for the species is found at ES-01, FS-01, and Pipeline west of Lakeview Drive.
Robbins' nemacladus *Nemacladus secundiflorus* var. *robbinsii*	None / None / 1B.2	Chaparral, valley and foothill grassland.	Dry, sandy or gravelly slopes. 1,150-5,580 ft.	Medium Potential. The nearest known record of the species is located approximately one mile to the south of the project area and that record is located within habitat (California Juniper Woodland) found in the southern and southwestern portions of the project area, including the San Andreas Rift Zone and the hilly topography south of it..	Medium Potential. Marginal habitat for the species is found at ES-01, FS-01, and Pipeline west of Lakeview Drive.
short-joint beavertail *Opuntia basilaris* var. *brachyclada*	None / None / 1B.2	Chaparral, Joshua tree woodland, Mojavean desert scrub, pinyon-juniper woodland.	Sandy soil or coarse, granitic loam. 1,400-5,910 ft.	Present. There are two records from the southern portion of the project area. There is suitable habitat for the species in the including the San Andreas Rift Zone and the hilly topography south of it.	Medium Potential. The species was not observed, but suitable habitat for the species is found at ES-01, FS-01, ES-03, Pipeline along 47th Street East, Pipeline within the ROW of Sierra Highway, and Pipeline west of Lakeview Drive.
Mason's neststraw *Stylocline masonii*	None / None / 1B.1	Chenopod scrub, pinyon and juniper woodland.	Sandy washes. 330-3,940 ft.	Low Potential. The nearest known record of the species is located approximately 5.3 miles to the southwest of the project area; however, that record is located within habitat (California Juniper Woodland) that is found in the southern and southwestern portions of the project area This includes the San Andreas Rift Zone and the hilly topography south of it.	Low Potential. Marginal habitat for the species is found at ES-01, FS-01, and Pipeline west of Lakeview Drive.

1 CRPR = California Rare Plant Rank
1B CNPS Priority List 1B: plant Rare, Threatened, or Endangered in CA and elsewhere; eligible for state listing.
.1 - Seriously threatened in California (high degree/immediacy of threat).
.2 - Fairly threatened in California (moderate degree/immediacy of threat).
2 General Habitat and Micro-Habitat are taken from the CNDDB descriptions of the species.

SOURCE: ESA 2018

TABLE 3.4.3
STATUS OF POTENTIALLY OCCURRING SPECIAL-STATUS WILDLIFE SPECIES WITHIN THE PROJECT AREA AND AT NEAR-TERM PROJECT COMPONENTS

Common Name Scientific Name	Federal/State/ CDFW[1] Status	General Habitat[2]	Micro-Habitat[2]	Potential to Occur within the Project Area	Potential to Occur at Near-Term Project Components
Reptiles					
silvery legless lizard *Anniella pulchra pulchra*	None / None / SSC	Sandy or loose loamy soils under sparse vegetation.	Soil moisture is essential. they prefer soils with a high moisture content.	Present. There are recent records of the species within the project area. Habitat for the species is found throughout the project area in areas with relative undisturbed native vegetation communities.	Medium Potential. The species was not observed, but suitable habitat is found at ES-01, FS-01, ES-03, Pipeline along 47th Street East, and Pipeline west of Lakeview Drive.
coast horned lizard *Phrynosoma blainvillii*	None / None / SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes.	Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Present. There are recent records of the species within the project area. Habitat for the species is found throughout the project area in areas with relative undisturbed native vegetation communities.	Medium Potential. The species was not observed, but suitable habitat is found at ES-01, FS-01, ES-03, Pipeline along 47th Street East, Pipeline within the ROW of Sierra Highway, and Pipeline west of Lakeview Drive.
Birds					
Cooper's hawk *Accipiter cooperii*	None / None / WL	Woodland, chiefly of open, interrupted or marginal type.	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Present. The majority of the records for the species in the project area are from winter and typical nesting habitat does not occur; however, the species is known to be adapting to urban environments.	Present. An individual was observed as a transient over near ES-01. The species is not expected to nest on the parcel due to the lack of suitable habitat.
tricolored blackbird *Agelaius tricolor*	None / Candidate Endangered / SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California.	Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometer of the colony.	Present. The species is known to nest at Lake Palmdale and Una Lake in cattails (*Typha* sp.) and tule (*Schoenoplectus acutus*).	Absent. None of the near-term project components support habitat for the species.
southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	None / None / WL	Resident in Southern California coastal sage scrub and sparse mixed chaparral.	Frequents relatively steep, often rocky hillsides with grass and forb patches.	Low Potential. Marginal nesting habitat for the species is located in the southern portion of the project area, south of the San Andreas Fault Rift Zone.	Low Potential. Marginal nesting habitat is found at ES-01, FS-01, and Pipeline west of Lakeview Drive.

Common Name Scientific Name	Federal/State/ CDFW[1] Status	General Habitat[2]	Micro-Habitat[2]	Potential to Occur within the Project Area	Potential to Occur at Near-Term Project Components
golden eagle *Aquila chrysaetos*	None / None / FP	Rolling foothills, mountain areas, sage-juniper flats, and desert.	Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Present. The species occurs as a transient during migration, during foraging activities, or as a winter resident. Absent-Nesting. Typical nesting habitat is not found in the project area.	Low Potential. The species may occur as a transient during migration, during foraging activities, or as a winter resident on ES-01, FS-01, ES-03, Pipeline along 47th Street East, Pipeline within the ROW of Sierra Highway, and Pipeline west of Lakeview Drive.
Bell's sage sparrow *Artemisiospiza belli belli*	None / None / WL	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range.	Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground. Territories about 50 yards apart.	Low Potential. Typical nesting habitat is not found in the project area. The species may occur as a transient during migration or as winter resident.	Low Potential. The species may occur as a transient during migration or as a winter resident. Typical nesting habitat is not found at any of the near-term project components. The species may occur during foraging or wintering.
burrowing owl *Athene cunicularia*	None / None / SSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Present. There are recent occurrences of the species in the project area and suitable nesting and wintering habitats are present.	Low Potential. Marginal breeding/wintering habitat is found at ES-01, FS-01, ES-03, Pipeline FF-05, FF-06, Pipeline along 47th Street East, and Pipeline west of Lakeview Drive.
ferruginous hawk *Buteo regalis*	None / None / WL	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats.	Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	Present. The species occurs as a transient during migration or as a winter resident. Absent-Nesting. Typical nesting habitat is not found in the project area.	Low Potential. The species may occur as a transient during migration or as a winter resident on ES-01, FS-01, ES-03, Pipeline FF-05, Pipeline along 47th Street East, Pipeline within the ROW of Sierra Highway, and Pipeline west of Lakeview Drive.
Swainson's hawk *Buteo swainsoni*	None / Threatened / None	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees.	Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Present. The species occurs as a transient during migration or during foraging activities. Absent-Nesting. Typical nesting habitat is not found in the project area.	Low Potential. The species may occur as a transient during migration or as a winter resident at ES-01, FS-01, ES-03, Pipeline FF-05, Pipeline along 47th Street East, Pipeline within the ROW of Sierra Highway, and Pipeline west of Lakeview Drive.

Common Name Scientific Name	Federal/State/ CDFW[1] Status	General Habitat[2]	Micro-Habitat[2]	Potential to Occur within the Project Area	Potential to Occur at Near-Term Project Components
mountain plover *Charadrius montanus*	None / None / SSC	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms.	Short vegetation, bare ground and flat topography. Prefers grazed areas and areas with burrowing rodents.	Low Potential. The species may occur as a wintering resident. Absent-Nesting. Typical nesting habitat is not found in the study area. The single record for nesting in the study area is from 1921 and it is mapped to vicinity of Palmdale, per specimen locality, with the exact collection location unknown. The nearest recent recorded nest location is located approximately eight miles to the northeast of the study area in an area that was historically agriculture.	Absent. None of the near-term project components support wintering habitat for the species.
merlin *Falco columbarius*	None / None / WL	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms and ranches.	Clumps of trees or windbreaks are required for roosting in open country.	Present. The species occurs as a transient during migration or as a winter resident. Absent-Nesting. Typical nesting habitat is not found in the project area.	Low Potential. The species may occur as a transient during migration or as a winter resident at ES-01, FS-01, ES-03, Pipeline FF-05, Pipeline along 47th Street East, Pipeline within the ROW of Sierra Highway, and Pipeline west of Lakeview Drive.
prairie falcon *Falco mexicanus*	None / None / WL	Inhabits dry, open terrain, either level or hilly.	Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	Present. The species occurs as a transient during migration or as a winter resident. Absent-Nesting. Typical nesting habitat is not found in the project area.	Low Potential. The species may occur as a transient during migration or as a winter resident at ES-01, FS-01, ES-03, Pipeline FF-05, Pipeline along 47th Street East, Pipeline within the ROW of Sierra Highway, and Pipeline west of Lakeview Drive.
loggerhead shrike *Lanius ludovicianus*	None / None / SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes.	Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Present. There are recent occurrences of the species in the project area and suitable nesting habitat is present in Forest and Woodland, Semi-Desert, and Shrubland and Grassland vegetation communities.	Present. Individual observed at Pipeline along 47th Street East.

Common Name Scientific Name	Federal/State/ CDFW[1] Status	General Habitat[2]	Micro-Habitat[2]	Potential to Occur within the Project Area	Potential to Occur at Near-Term Project Components
least Bell's vireo *Vireo bellii pusillus*	Endangered / Endangered / WL	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet.	Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	Present. The species has potential nesting records from Una Lake and there is potential nesting habitat at Lake Palmdale. The species is not expected to nest in the project area outside of these two locations. No long-term projects are expected at the locations; the species would not be impacted.	Absent. None of the near-term project components support suitable nesting/foraging habitat for the species.
Mammals					
pallid bat *Antrozous pallidus*	None / None / SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Low Potential. Typical roosting habitat does not occur in the project area. The species may occur as a transient during migration or foraging activities.	Low Potential. Typical roosting habitat does not occur at any of the near-term project components. The species may occur as a transient during migration or foraging activities.
Townsend's big-eared bat *Corynorhinus townsendii*	None / None / SSC	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. extremely sensitive to human disturbance.	Low Potential. Typical roosting habitat does not occur in the project area. The species may occur as a transient during migration or foraging activities.	Low Potential. Typical roosting habitat does not occur at any of the near-term project components. The species may occur as a transient during migration or foraging activities.
Yuma myotis *Myotis yumanensis*	None / None / SA	Optimal habitats are open forests and woodlands with sources of water over which to feed.	Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	Low Potential. Typical roosting habitat does not occur in the project area. The species may occur as a transient during migration or foraging activities.	Low Potential. Typical roosting habitat does not occur at any of the near-term project components. The species may occur as a transient during migration or foraging activities.

1 CDFW Status
FP = Fully Protected. species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.
SA = Special Animal tracked by CDFW or has been given special-status by a non-governmental agency.
SSC = Species of Special Concern. Species are given this designation by CDFW due to declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.
WL = Watch List. For species that were previously SSC but no longer merit SSC status, or which do not meet SSC criteria but for which there is concern and a need for additional information to clarify its status.
2 General Habitat and Micro-Habitat are taken from the CNDDB descriptions of the species.

SOURCE: ESA 2018.

Special-status Wildlife

Near-term project components with suitable habitat for silvery legless lizard and coast horned lizard are ES-01, FS-01, ES-03, Pipeline along 47th Street East, and Pipeline west of Lakeview Drive. Habitat for the two lizard species is found throughout the project area in areas with relative undisturbed native vegetation communities; therefore, long-term project components that are sited in undeveloped lands that support suitable habitat for the species may also support the two species.

There are four of the special-status bird species that may nest in the project area and be impacted by project activities: Cooper's hawk (*Accipiter cooperii*), burrowing owl (*Athene cunicularia*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), and loggerhead shrike (*Lanius ludovicianus*). Project activities are not expected to impact seven special-status bird species (golden eagle, *Aquila chrysaetos*; Bell's sage sparrow, *Artemisiospiza belli belli*; ferruginous hawk, *Buteo regalis*; Swainson's hawk, *Buteo swainsoni*; mountain plover, *Charadrius montanus*; merlin, *Falco columbarius*; and prairie falcon, *Falco mexicanus*) that may occur within the project area and/or individual near-term project components as transients during migration or as winter residents. The species are expected to avoid project areas due to human activity and good housekeeping policies should be implemented to reduce attracting potential prey species to the project area. No near-term and long-term projects are planned for Lake Palmdale and Una Lake, so impacts to nesting least Bell's vireo (*Vireo bellii pusillus*) and tricolored blackbird (*Agelaius tricolor*) are not anticipated.

Desert tortoise (*Gopherus agassizii*) is not expected to occur in the project area. Desert tortoise does not have any records within the CNDDB queried area. The nearest CNDDB record, from 1990, for the species is located approximately eight miles to the northeast of the study area near Lake Los Angeles. The study area is primarily urbanized and lacks connectivity with known populations of the species and there are few large areas of creosote bush scrub in the study area.

Swainson’s hawk is not expected to nest in the project area. Antelope Valley Swainson’s hawks are known to have historically nested in Joshua tree woodlands and foraged in grasslands and native desert scrub communities. Currently, they nest in Joshua tree woodlands, ornamental roadside trees, and windrow or perimeter trees in active and historical agricultural areas. Foraging habitat includes dry land and irrigated pasture, alfalfa, fallow fields, low-growing row or field crops, new orchards, and cereal grain crops. The species may also forage in grasslands, Joshua tree woodlands, and other desert scrub habitats that support a suitable prey base (California Energy Commission and CDFW 2010). The single CNDDB record for nesting in the study area is from 1921 and it is mapped to vicinity of Palmdale, per specimen locality, with the exact collection location unknown. The nearest recent recorded nest location is located approximately eight miles to the northeast of the study area in an area that was historically agriculture.

Mohave ground squirrel (*Xerospermophilus mohavensis*) is not expected in the project area. Protocol trapping efforts in northeastern Los Angeles County from 2008–2012 have failed to find the species (Leitner 2015). Just as in the previous 10-year period, the only positive records were at several sites within or very close to Edwards Air Force Base (Leitner 2015).

Storage Tanks (Near-Term)

Suitable habitat for special-status plants (slender mariposa lily, Robbins' nemacladus, short-joint beavertail, and Mason's neststraw) and wildlife (silvery legless lizard, coast horned lizard, southern California rufous-crowned sparrow, burrowing owl, and loggerhead shrike) is located at the proposed locations for near-term storage tanks ES-01, ES-03, and FS-01. Construction of the storage tanks could impact special-status plant and wildlife species that have the potential to occur in the project area. Any impacts to special-status species would be considered significant without mitigation. Implementation of **Mitigation Measures BIO-1 through BIO-4** would require pre-construction focused surveys for rare plants and special-status reptiles; nesting bird surveys; and protocol burrowing owl surveys. With the implementation of these measures, impacts would be reduced to a less than significant level.

Storage Tanks (Long-Term)

A total of 16 storage tanks could be constructed over the program's long-term planning period. The location of the proposed long-term storage tanks can be seen on Figure 2-2; however, these locations are subject to change in the future. Multiple storage tanks such as FS-06 and FS-08 would be located within undeveloped land; therefore, it is possible that the construction of the storage tanks could impact special-status plant and wildlife species that have the potential to occur in the project area. Any impacts to special-status species would be considered significant without mitigation. Implementation of Mitigation Measures BIO-1 through BIO-4 would require pre-construction focused surveys for rare plants and special-status reptiles; nesting bird surveys; and protocol burrowing owl surveys. With the implementation of these measures, impacts would be reduced to a less than significant level.

Pumps (Near-Term)

All three proposed near-term pumps would be implemented within existing pump stations that are developed and would not support special-status plant and wildlife species. No impacts to special-status species are expected due to the implementation of the proposed project. Impacts are considered less than significant; no mitigation is required.

Pumps (Long-Term)

The proposed project includes four new pumps at five existing pump stations, as well as six new pump stations within the project area. Although locations are preliminary in nature, the new pump stations may be located in undeveloped land; therefore, it is possible that the construction of the pump stations could impact special-status plant and wildlife species that have the potential to occur in the project area. Any impacts to special-status species would be considered significant without mitigation. Implementation of Mitigation Measures BIO-1 through BIO-4 would require pre-construction focused surveys for rare plants and special-status reptiles; nesting bird surveys; and protocol burrowing owl surveys. With the implementation of these measures, impacts would be reduced to a less than significant level.

Pipelines (Near-Term)

The majority of the proposed near-term pipelines are sited within or adjacent to existing roads and would not require the removal of vegetation for construction; however, Pipeline along 47th Street East, Pipeline along Sierra Highway, and Pipeline west of Lakeview Drive are within or

adjacent to undeveloped areas. Suitable habitat for special-status plants (slender mariposa lily, Robbins' nemacladus, short-joint beavertail, and Mason's neststraw) and wildlife (silvery legless lizard, coast horned lizard, southern California rufous-crowned sparrow, burrowing owl, and loggerhead shrike) is present. Construction of the pipelines could impact special-status plant and wildlife species that have the potential to occur in the project area. Any impacts to special-status species would be considered significant without mitigation. Implementation of Mitigation Measures BIO-1 through BIO-4 would require pre-construction focused surveys for rare plants and special-status reptiles; nesting bird surveys; and protocol burrowing owl surveys. With the implementation of these measures, impacts would be reduced to a less than significant level.

Pipelines (Long-Term)

The majority of the proposed long-term pipelines are sited within or adjacent to existing roads and would not require the removal of vegetation for construction. Any pipelines that are sited within undeveloped areas could impact special-status plant and wildlife species that have the potential to occur in the project area. Any impacts to special-status species would be considered significant without mitigation. Implementation of Mitigation Measures BIO-1 through BIO-4 would require pre-construction focused surveys for rare plants and special-status reptiles; nesting bird surveys; and protocol burrowing owl surveys. With the implementation of these measures, impacts would be reduced to a less than significant level.

Wells (Long-Term)

The proposed wells would be located in the northern and eastern portion of the PWD service area. The northern two wells would be located in open space near industrial facilities and the Palmdale Regional Airport. Based on the predominately agricultural and semi-desert vegetation surrounding these northern wells and previously documented species occurrences, this area could support coast horned lizard, burrowing owl, and loggerhead shrike. The northeastern three wells would be located in an undeveloped area just east of developed land containing a high school and residential land uses (Figure 2-2). The area has habitat that could support silvery legless lizard, coast horned lizard, burrowing owl, and loggerhead shrike. It is possible that the construction of the wells could impact special-status wildlife species that have the potential to occur in the project area. Any impacts to special-status species would be considered significant without mitigation. Implementation of Mitigation Measures BIO-2 through BIO-4 would require pre-construction focused surveys for special-status reptiles; nesting bird surveys; and protocol burrowing owl surveys. With the implementation of these measures, impacts would be reduced to a less than significant level.

Headquarters Expansion (Long-Term)

The proposed long-term headquarters building expansion would be located on a developed parcel and would not support special-status plant and wildlife species. No impacts to special-status species are expected due to the implementation of the proposed project.

Mitigation Measures

BIO-1: **Pre-Construction Focused Surveys for Rare Plants.** The following measures are recommended to avoid and/or reduce potential impacts to special-status plants as a result of proposed project activities for near-term project components

and long-term projects in undeveloped portions of the project area with suitable habitat:

- A floristic survey focusing on the four special-status species (slender mariposa lily, Robbins' nemacladus, short-joint beavertail, and Mason's neststraw) with some potential to occur should be conducted by a qualified biologist for the aforementioned near-term project components and the long-term project components that are located in the San Andreas Rift Zone and the hilly topography south of it. The surveys should take place from April to May to cover the blooming period of the four species. The results of the survey should be documented in a report that will be submitted to CDFW.
- If the floristic survey is positive for any of the four species (slender mariposa lily, Robbins' nemacladus, short-joint beavertail, and Mason's neststraw), or any other sensitive plant species, and the avoidance of the special-status plant species is not feasible, coordination with CDFW would be required to determine suitable mitigation. The mitigation strategy may include avoidance, on-site or off-site restoration, translocation, and/or seed collection. If restoration and/or translocation are needed, a restoration/revegetation plan must be prepared and approved by CDFW. At a minimum, the plan should include a description of the existing conditions, site selection criteria, site preparation and planting methods, maintenance and monitoring schedule, performance standards, adaptive management strategies, and identification of responsible parties.

BIO-2: **Pre-Construction Focused Surveys for Special-status Reptiles.** The following measures are recommended to avoid and/or reduce potential impacts to special-status reptiles (coast horned lizard and silvery legless lizard) as a result of proposed project activities on the aforementioned near-term project components and in portions of the project area with suitable habitat for the species:

- A qualified biologist should conduct a preconstruction clearance survey throughout proposed impact areas for silvery legless lizard and coast horned lizard. If individuals are observed within or near the project work areas during preconstruction clearance surveys or construction monitoring, a qualified biologist should relocate the individuals to suitable habitat outside of the proposed impact areas so that construction-related impacts are avoided.
- A qualified biologist should monitor the removal of vegetation to confirm special-status species are not impacted.
- Prior to the commencement of construction activities, construction personnel should check under stationary equipment to confirm no wildlife species are present.
- All trash should be collected daily and taken offsite for proper disposal.

BIO-3: **Nesting Bird Surveys.** If project activities occur within the bird nesting season (generally defined as February 1st through August 31st), a qualified biologist should conduct a nesting bird survey within two weeks of the anticipated start date to identify any active nests within 300 feet of impact areas for most bird species, but 500 feet for raptors. If an active nest is found, the nest should not be

impacted and project activities should be conducted as recommended by the biologist to avoid the nest, such as implementation of suitable buffer zones or postponing construction until the young have fledged and are no longer associated with the nest. A common nest buffer for most bird species is 300 feet, whereas raptors may require a buffer up to 500 feet; however, avoidance buffers may be reduced within urban areas, where appropriate, at the discretion of the biologist.

BIO-4: **Protocol Burrowing Owl Surveys.** There is marginal breeding/wintering habitat for the species at the following near-term project components: ES-01, FS-01, ES-03, Pipeline FF-05, FF-06, the Pipeline along 47th Street East, and the Pipeline west of Lakeview Drive. A burrowing owl habitat assessment using CDFW protocols (CDFW 2012) should be conducted by a qualified biologist for these near-term project components and any long-term project component that is located within areas that are determined to have potential to support the species. For the near-term and long-term project components in areas that are assessed as having potential habitat to support burrowing owl, presence/absence surveys will be conducted per CDFW protocol (CDFW 2012), as follows:

- Four site visits are necessary to complete the protocol. For breeding season surveys, at least one site visit will be conducted between February 15 and April 15, and a minimum of three survey visits, at least three weeks apart, between April 15 and July 15, with at least one visit after 15 June. The initial survey will consist of the project site and a buffer of 150 meters, where access is available, that will be covered by qualified biologists using transects spaced seven to 20 meters apart, adjusting for vegetation height and density. All potential burrows used by burrowing owl as determined by the presence of one or more burrowing owls, pellets, prey remains, whitewash, or decoration will be mapped using a GPS device. Follow up surveys will then check any burrows that have been mapped. If conducting non-breeding season surveys, the same methods for breeding season surveys, but the three follow up visits will be spread evenly throughout the nonbreeding season.
- If the surveys are positive for the presence of burrowing owl, CDFW will be consulted on how to proceed to avoid and minimize potential project-related impacts to this species. Mitigation and avoidance measures may include no-work buffers and/or seasonal limitations for burrows that cannot be avoided. Burrowing owl artificial burrow and exclusion plans are a potential option for burrows that would be directly impacted by project activities.

Significance Determination: Less than Significant with Mitigation.

Riparian Habitat and Sensitive Natural Communities

Impact 3.4-2: The proposed project could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.

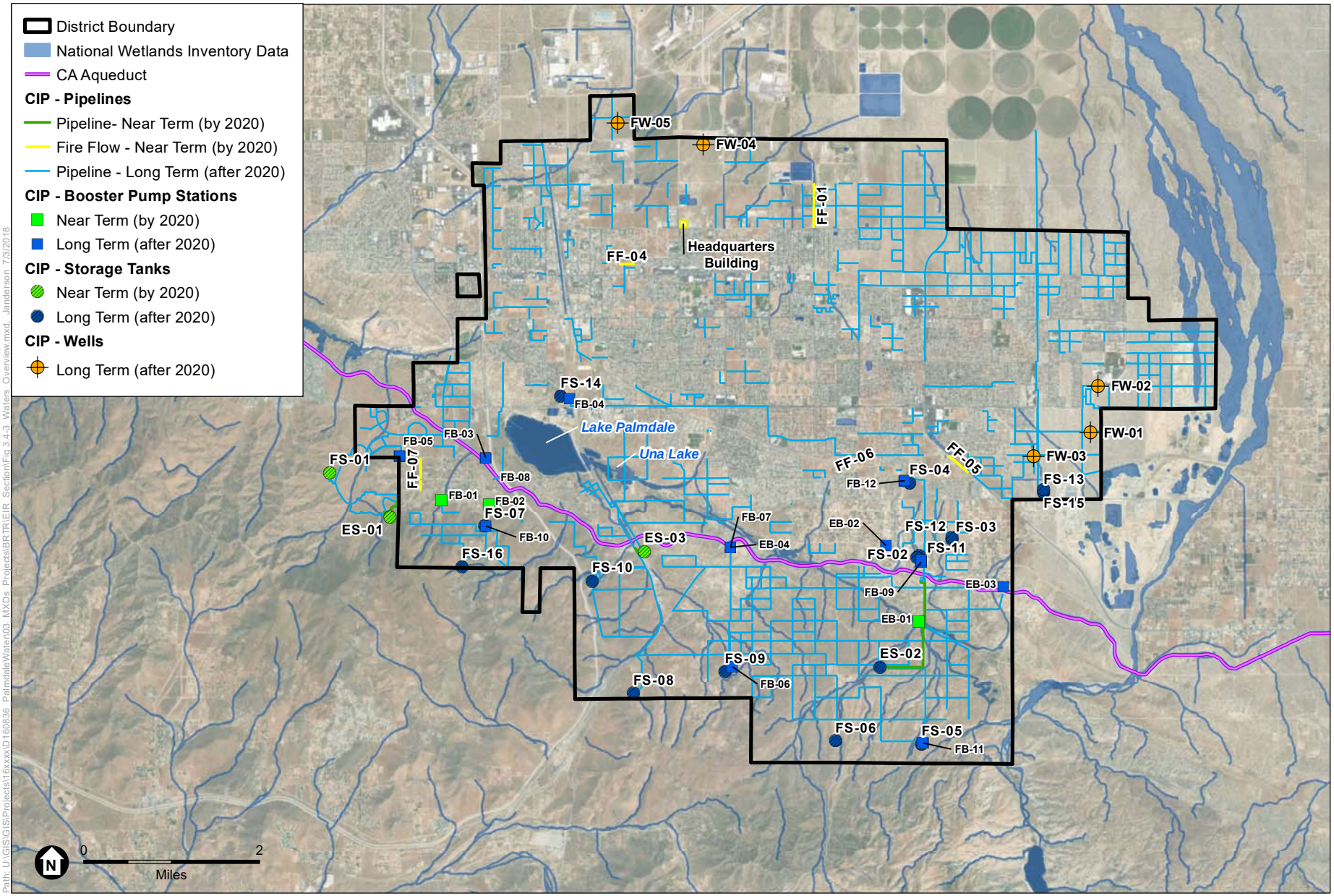
There are many water features within the project area that could support riparian habitat; water features found in the project area are Lake Palmdale, Una Lake, Littlerock Wash, and Anaverde Creek (see **Figure 3.4-3**). The following vegetation communities in the project area are considered sensitive natural communities by the CDFW: Joshua tree woodland, Mojavean juniper woodland and scrub (California juniper), transmontane freshwater marsh, transmontane alkali marsh, desert saltbush scrub, Mojave wash scrub, and Mojave mixed woody scrub.

Within the San Andreas Rift Zone there are springs and wetland areas that support riparian vegetation. Two manmade structures, the California Aqueduct and the Palmdale Ditch (managed by the District), convey water through the project area. The watershed within the project area north of the California Aqueduct and San Andreas Rift Zone has been primarily been removed or altered by development, but runoff water from streets may be conveyed into canals that may be jurisdictional waters.

Two near-term project components have potential jurisdictional waters. **Table 3.4.4** summarizes the water features in relation to the project components.

TABLE 3.4-4
POTENTIAL CDFW JURISDICTIONAL WATERS OCCURRING WITHIN OR ADJACENT TO NEAR-TERM PROJECT COMPONENTS

Project Component	Type of Water Feature	Notes
Pipeline along 47th Street East, connecting the proposed improvements at pump station EB-01 south and then extending the pipeline west through undeveloped land to an existing deficiency recommended tank	Ephemeral stream	The proposed pipeline route crosses a potential stream toward the end of the portion of the line that goes west from 47th Street East.
Pipeline FF-01	Ephemeral canal in the southern half and meandering stream in the northern half.	Waters sources for the feature appears to be runoff from E. Ave. Q and the residential community to the south. Groundwater levels in the area are also affected by seepage from Sanitation Districts of Los Angeles County facility to the north. The proposed pipeline route crosses the stream several times in the northern half. The route could be sited further to the west to avoid the stream. Vegetation within the stream consists of Rubber Rabbitbrush Scrub.



Path: U:\GIS\GIS\Projects\16xxxx\D160836_PalmdaleWaten03_MXDs_Projects\BRTR\EIR_Section\Fig_3.4-3_Waters_Overview.mxd_Janderson_7/9/2018

SOURCE: Palmdale Water 2017; USFWS 2017

Palmdale Water District

Figure 3.4-3
Overview of Mapped Waters in the Project Area and Vicinity

ESA

Storage Tanks (Long-Term)

A total of 16 storage tanks could be constructed over the program's long-term planning period. The location of the proposed long-term storage tanks can be seen on Figure 2-2; however, these locations are subject to change in the future. Multiple storage tanks such as FS-06 and FS-08 would be located within undeveloped land; therefore, it is possible that the construction of the storage tanks could impact riparian habitat and jurisdictional water features that are regulated by the CDFW. Long-term storage tanks have the potential to be located in one of the multiple sensitive natural communities present in the project area. Implementation of **Mitigation Measure BIO-5** would require siting of long-term storage tanks to either avoid impacts to jurisdictional waters and associated riparian habitat or obtain the appropriate regulatory approvals if such impacts cannot be avoided. Implementation of **Mitigation Measure BIO-6** would require either avoidance of native desert vegetation (including CDFW sensitive natural communities) or obtainment of a native desert vegetation removal permit from the City, which involves preservation and mitigation stipulations. With implementation of these measures, impacts would be less than significant. With implementation of these measures, impacts would be less than significant.

Storage Tanks (Near-Term)

No hydrological features or habitats that would fall under the jurisdiction of CDFW or USFWS were observed at the proposed locations for the near-term storage tanks. Storage tank FS-01 would be located within juniper woodland habitat, which is considered a CDFW sensitive natural community. Implementation of Mitigation Measure BIO-6 would require either avoidance of California juniper habitat or obtainment of a native desert vegetation removal permit from the City, which involves preservation and mitigation stipulations. With implementation of this measure, impacts would be less than significant.

Pumps (Near-Term)

All three proposed near-term pumps would be implemented within existing pump stations that are developed and do not have riparian habitat and other types of hydrological features. Further, near-term pumps would not affect any sensitive natural communities. No impacts to riparian habitat, jurisdictional waters, or sensitive natural communities are expected due to the implementation of the proposed project.

Pumps (Long-Term)

The proposed project includes four new pumps at five existing pump stations, as well as six new pump stations within the project area. Although locations are preliminary in nature, the new pump stations may be located in undeveloped land; therefore, it is possible that the construction of the pump stations could impact jurisdictional waters and associated riparian habitat. Further, long-term pumps have the potential to be located in one of the multiple sensitive natural communities present in the project area. Implementation of Mitigation Measure BIO-5 would require siting of long-term pumps to either avoid impacts to jurisdictional waters and associated riparian habitat or obtain the appropriate regulatory approvals if such impacts cannot be avoided. Implementation of Mitigation Measure BIO-6 would require either avoidance of native desert vegetation (including CDFW sensitive natural communities) or obtainment of a native desert vegetation removal permit

from the City, which involves preservation and mitigation stipulations. With implementation of these measures, impacts would be less than significant.

Pipelines (Near-Term)

The majority of the proposed near-term pipelines are sited within or adjacent to existing roads; however, two near-term pipelines (Pipeline along 47th Street East and Pipeline FF-01), as currently sited, cross waters that may be jurisdictional under State regulations. Furthermore, the pipeline along 47th Street East would be partially located in juniper woodland and two other pipelines (Pipeline FF-07 and Pipeline west of Lakeview Drive) would be located adjacent to juniper woodland. Therefore, near-term pipelines have the potential to impact riparian habitat and a sensitive natural community.

The proposed project would use trenchless construction methods to avoid sensitive features such as jurisdictional waters. If trenchless construction methods could not be used to avoid impacts to jurisdictional waters and riparian habitat during construction of the 47th Street East pipeline and Pipeline FF-01, then Mitigation Measure BIO-5 would require a formal jurisdictional delineation to be conducted for the waters crossed by these two pipelines and obtainment of any necessary regulatory approvals. Implementation of Mitigation Measure BIO-6 would require either avoidance of California juniper or obtainment of a native desert vegetation removal permit from the City, which involves preservation and mitigation stipulations. With implementation of these measures, impacts would be less than significant.

Pipelines (Long-Term)

The majority of the proposed long-term pipelines are sited within or adjacent to existing roads and would not impact riparian habitats or other hydrological features. Any pipelines that are sited within undeveloped areas could impact jurisdictional waters and riparian habitat. Further, long-term pumps have the potential to be located in one of the multiple sensitive natural communities present in the project area. Implementation of Mitigation Measure BIO-5 would require siting of long-term pipelines to either avoid impacts to jurisdictional waters and associated riparian habitat or obtain the appropriate regulatory approvals if such impacts cannot be avoided. Implementation of Mitigation Measure BIO-6 would require either avoidance of native desert vegetation (including CDFW sensitive natural communities) or obtainment of a native desert vegetation removal permit from the City, which involves preservation and mitigation stipulations. With implementation of these measures, impacts would be less than significant.

Wells (Long-Term)

The majority of the proposed long-term wells are sited within or adjacent to existing roads and would not impact riparian habitats or other hydrological features. Wells that are sited within undeveloped areas could impact jurisdictional waters and riparian habitats. Further, long-term wells have the potential to be located in one of the multiple sensitive natural communities present in the project area. Implementation of Mitigation Measure BIO-5 would require siting of long-term wells to either avoid impacts to jurisdictional waters and associated riparian habitat or obtain the appropriate regulatory approvals if such impacts cannot be avoided. Implementation of Mitigation Measure BIO-6 would require either avoidance of native desert vegetation (including CDFW sensitive natural communities) or obtainment of a native desert vegetation removal permit

from the City, which involves preservation and mitigation stipulations. With implementation of these measures, impacts would be less than significant.

Headquarters Expansion (Long-Term)

The headquarters building expansion would be implemented within developed land adjacent to the existing headquarters building; the land does not have riparian habitat and other types of hydrological features. Further, the expansion would not have the potential to impact existing sensitive communities in the area as it would occur on developed land. No impacts to riparian habitat, jurisdictional waters, or sensitive natural communities are expected due to the implementation of the proposed project.

Mitigation Measures

BIO-5: **Jurisdictional Waters Delineation and State Permitting.** Near-term pipelines (e.g., the pipeline along 47th Street East and Pipeline FF-01) cross waters that may be jurisdictional and could thus discharge into Waters of the State or alter of the bed and banks of streams regulated under Fish and Game Code. A jurisdictional delineation for these near term pipelines shall be conducted to determine the limits of potential jurisdictional waters. The results of the formal jurisdictional waters delineation will be used during project design to determine if jurisdictional waters can be avoided. If jurisdictional water can be avoided, then no further mitigation is necessary. If jurisdictional water features will be potentially impacted by the proposed project, then a Report of Water Discharge will be submitted to the Lahontan RWQCB and, if deemed necessary, Waste Discharge Requirements will be obtained from the agency. Concurrently, a Notification of Lake or Streambed Alteration will be submitted to the CDFW and, if deemed necessary, a Lake or Streambed Alteration Agreement will be obtained. Conditions for the certification and agreement may require additional surveys for plants and wildlife, as well as best management practices to minimize impacts.

For long-term storage tanks, pumps, pipelines, and wells, it is first recommended that project components be sited to avoid impacts to areas that appear to convey or pond water and any associated riparian habitat. If these areas cannot be avoided, a jurisdictional delineation for these facilities (as described above for near term pipelines) shall be conducted and associated permits obtained from RWQCB and CDFW.

BIO-6: **Native Desert Vegetation Removal Permit.** If project components, near-term or long-term, within the boundaries of the City of Palmdale cannot be sited to avoid impacts to native desert vegetation species including sensitive natural communities as defined by CDFW, then a native desert vegetation removal permit will be necessary. This specifically applies to removal of Joshua trees and/or California junipers on project sites with a density equal to or greater than two individuals per acre (per the Joshua Tree and Native Desert Vegetation Preservation Ordinance. The PWD shall comply with all terms and conditions of the permit, including preparation and implementation of a desert vegetation preservation plan. Associated conditions and measures could include but are not limited to:

- A desert vegetation preservation plan prepared by a qualified biologist (i.e., desert native plant specialist) consisting of a written report and site plan depicting the location of each Joshua tree and/or California juniper and, if determined necessary by the City of Palmdale, a long-term maintenance program for any Joshua trees and/or California junipers left onsite.
- Joshua trees and/or California junipers to be left onsite shall 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 and/or California junipers per acre cannot be preserved onsite (the minimum standard of preservation), the trees shall be transplanted to an ecologically appropriate offsite location by the Palmdale Water District as approved by the City of Palmdale.
- In lieu of transplantation of Joshua trees and/or California junipers from areas to be developed by the project, the Palmdale Water District may satisfy the requirements of the City code through payment of a fee to the City. Joshua trees and/or California junipers preserved onsite, in landscape easements, or landscape assessment districts are to be maintained in a healthy condition for a minimum of two (2) 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.

Significance Determination: Less than Significant with Mitigation.

Federally Protected Wetlands

Impact 3.4-3: The proposed project could have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

On January 9, 2001, the United States Supreme Court issued a decision in Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (2001) 121 S.Ct. 675 (SWANCC) that held that the language of the CWA cannot be interpreted as conferring authority for the federal government to regulate “isolated, intrastate, and nonnavigable waters” merely because migratory birds may frequent them. The Court emphasized the states’ responsibility for regulating such waters. The Antelope Valley is an internally drained basin with no connection to navigable waters. The USACE has indicated that the isolated washes within the Antelope Valley watershed are not considered navigable water of the U.S. Therefore, the USACE has disclaimed all wetlands and drainages within the basin based upon the SWANCC decision, with the exception of Lake Palmdale. Lake Palmdale is a man-made lake originally constructed for water supply and storage, and currently also receives water inputs from the State Water Project. Though Lake Palmdale does not have a downstream surface connection with the lower Antelope Valley watershed (i.e. isolated), past approved jurisdictional determinations have demonstrated a potential nexus to commerce (i.e. (a)(3)(i) water). Lake Palmdale has and currently does support navigation and substantial surface water related recreation with the potential for interstate commerce.

All Facilities (Near-Term and Long-Term)

No near-term or long-term storage tanks, pump station, pipelines, or groundwater wells would affect Lake Palmdale. Construction at the PWD headquarters buildings would not affect Lake Palmdale. No impacts to federally protected wetlands are expected due to the implementation of the proposed project.

Mitigation Measures

None required.

Significance Determination: Less than Significant.

Wildlife Corridors and Nursery Sites

Impact 3.4-4: The proposed project could interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Migration of wildlife either seasonally or in response to resource availability is vital for survival in virtually all ecosystems. Migration corridors are linkages between large open space areas. Top tier predators, mezzo predators and prey species alike utilize migration corridors for travel and refuge between open space areas, as well as for wintering and breeding grounds. Some migration corridors are created naturally by topography and have been used by wildlife for hundreds or thousands of years, and some have been constructed by humans to mitigate for the loss of existing natural corridors, such as bridge crossings, underpasses and culverts. Natural features commonly utilized for local wildlife movement and migration include creeks, rivers, canyons and valleys, because these low-lying riparian areas are generally flat and include an over story of vegetation that provides shelter from predators.

On a regional level, the project area is not a part of, nor contain a portion of, a major wildlife corridor or habitat linkage (South Coast Missing Linkages 2008). The majority of the project area is developed and the remaining natural open space is fragmented by developments, which limits the area's use by wildlife for movement on a regional scale. On a local scale, for each of the proposed near-term and long-term project components, there is wildlife movement across each site, lending to the intrinsic habitat value, but none of the sites provide a critical linkage between two large, undisturbed habitat areas.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Local Policies or Ordinances Protecting Biological Resources

Impact 3.4-5: The proposed project could conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Joshua tree and California juniper, which are protected under the City of Palmdale's "Joshua Tree and Native Desert Vegetation" ordinance (Chapter 14.04), occur throughout the project area, including in developed areas that have retained native vegetation. The only near-term project within the city limits of Palmdale with Joshua tree and California juniper is the southern portion of pipeline along 47th Street East.

Storage Tanks (Near-Term)

As currently sited, none of the near-term storage tanks are located within the Palmdale city limits and would thus not be subject to the City of Palmdale's "Joshua Tree and Native Desert Vegetation" ordinance protecting Joshua trees and California junipers. No impacts related to confliction with any local policies or ordinances protecting biological resources would occur.

Storage Tanks (Long-Term)

A total of 16 storage tanks could be constructed over the program's long-term planning period. The location of the proposed long-term storage tanks can be seen on Figure 2-2. Multiple storage tanks such as FS-06 and FS-08 would be located within undeveloped land; therefore, it is possible that the construction of the storage tanks could impact Joshua tree and California juniper. Implementation of Mitigation Measure BIO-6 would require either avoidance of Joshua tree and California juniper or obtainment of a native desert vegetation removal permit from the City, which involves preservation and mitigation stipulations. With implementation of this measure, impacts would be less than significant.

Pumps (Near-Term)

All three proposed near-term pumps would be implemented within existing pump stations that are developed and do not have Joshua tree and California juniper. No impacts related to confliction with any local policies or ordinances protecting biological resources would occur.

Pumps (Long-Term)

The proposed project includes four new pumps at five existing pump stations, as well as six new pump stations within the project area. Although locations are preliminary in nature, the new pump stations may be located in undeveloped land; therefore, it is possible that the construction of the pump stations could impact Joshua tree and California juniper. Implementation of Mitigation Measure BIO-6 would require either avoidance of Joshua tree and California juniper or obtainment of a native desert vegetation removal permit from the City, which involves preservation and mitigation stipulations. With implementation of this measure, impacts would be less than significant.

Pipelines (Near-Term)

The Pipeline along 47th Street East is within the Palmdale city limits and it goes through habitat that supports Joshua tree and California juniper. Construction of the pipeline could impact the two species. Implementation of Mitigation Measure BIO-6 would require either avoidance of

Joshua tree and California juniper or obtainment of a native desert vegetation removal permit from the City, which involves preservation and mitigation stipulations.

Pipelines (Long-Term)

The majority of the proposed long-term pipelines are sited within or adjacent to existing roads and would not impact Joshua tree and California juniper. Any pipelines that are sited within undeveloped areas, and within the Palmdale city limits, could impact Joshua tree and California juniper. Implementation of Mitigation Measure BIO-6 would require either avoidance of Joshua tree and California juniper or obtainment of a native desert vegetation removal permit from the City, which involves preservation and mitigation stipulations. With implementation of this measure, impacts would be less than significant.

Wells (Long-Term)

A currently sited, the long-term wells are located within the Palmdale city limits and in an area that supports Joshua tree. Construction of the wells could impact the species. Implementation of Mitigation Measure BIO-6 would require either avoidance of Joshua tree and California juniper or obtainment of a native desert vegetation removal permit from the City, which involves preservation and mitigation stipulations. With implementation of this measure, impacts would be less than significant.

Headquarters Expansion (Long-Term)

The headquarters building expansion would be implemented within the existing PWD headquarters parcel which is developed and therefore does not have Joshua tree and California juniper. No impacts related to confliction with any local policies or ordinances protecting biological resources would occur.

Mitigation Measures

Implement Mitigation Measure BIO-6.

Significance Determination: Less than Significant with Mitigation

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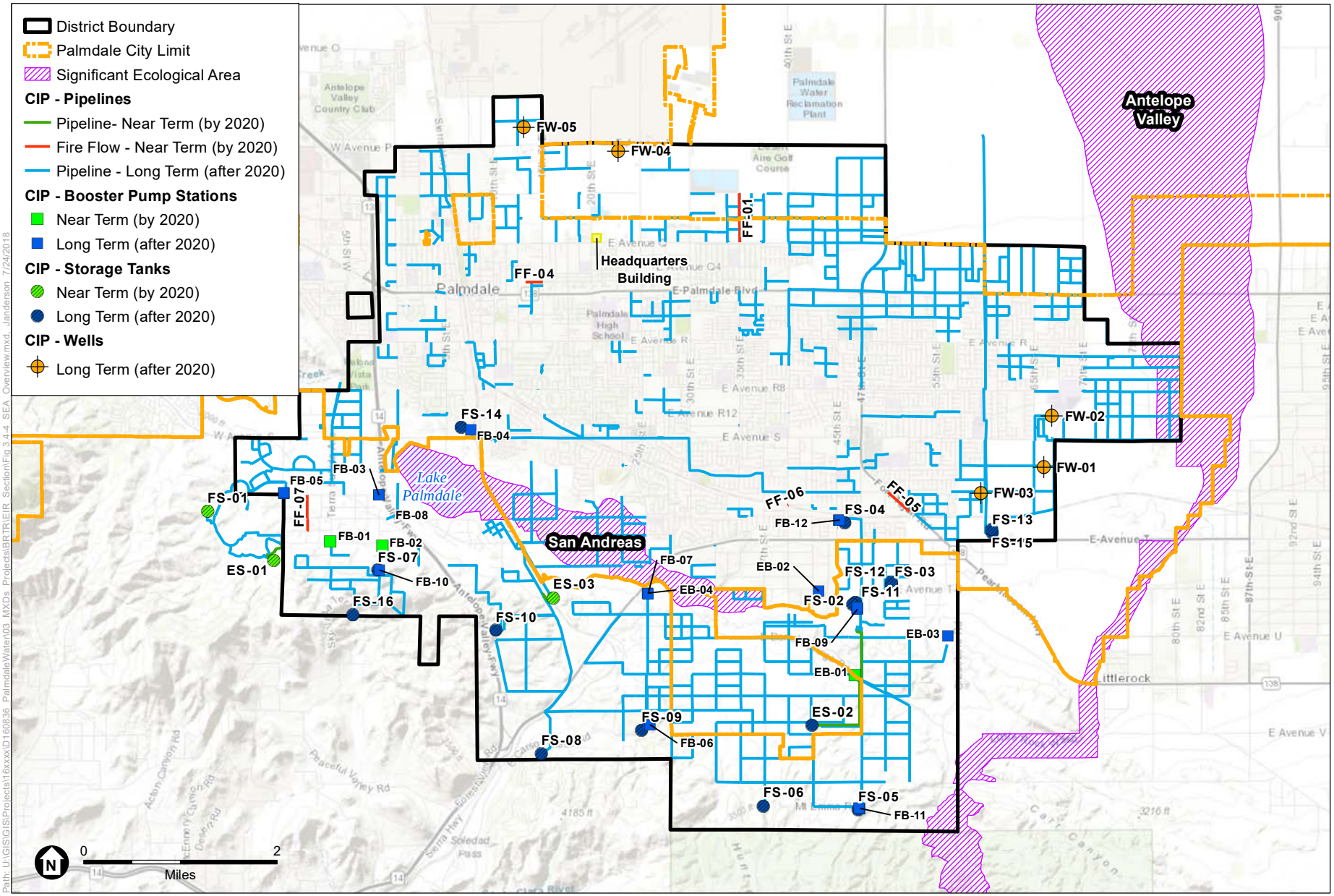
Conservation Plans

Impact 3.4-6: The proposed project could conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

The project area contains portions of the Antelope Valley SEA and the San Andreas Rift Zone SEA (see **Figure 3.4-4**). None of the near-term project components are within the SEAs. Any long-term projects proposed for these areas would have to adhere to the design compatibility criteria for each SEA (Los Angeles County Department of Regional Planning 2009).



SOURCE: Palmdale Water 2017; Los Angeles Department of Regional Planning 2017

Palmdale Water District

Figure 3.4-4
Overview of Significant Ecological Areas in the Project Area and Vicinity

ESA

Storage Tanks (Near-Term and Long-Term)

As currently sited, none of the near-term or long-term storage tanks are located within an SEA. No impacts to SEAs are expected due to the implementation of the proposed project.

Pumps (Near-Term and Long-Term)

As currently sited, none of the near-term or long-term pumps are located within an SEA. No impacts to SEAs are expected due to the implementation of the proposed project.

Pipelines (Near-Term)

As currently sited, none of the near-term pipelines are located within an SEA. No impacts to SEAs are expected due to the implementation of the proposed project.

Pipelines (Long-Term)

As currently sited, several long-term pipelines are located in the Antelope Valley SEA and the San Andreas Rift Zone SEA (see Figure 3.4-4). The proposed locations go through undeveloped lands of the SEA and could be incompatible with SEA design compatibility criteria. PWD would coordinate with SEATAC and adhere to the design compatibility criteria for each SEA if determined applicable (Los Angeles County Department of Regional Planning 2009). Impacts would be less than significant.

Wells (Long-Term)

As currently sited, none of the long-term wells are located within an SEA. No impacts to SEAs are expected due to the implementation of the proposed project.

Headquarters Expansion (Long-Term)

As currently sited, the proposed headquarters building expansion is not located within an SEA. No impacts to SEAs are expected due to the implementation of the proposed project.

Mitigation Measures

Significance Determination: Less than Significant

3.4.4 References

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3.5. Cultural Resources

This section describes and evaluates potential impacts to cultural resources that could result from implementation of the proposed 2016 Water System Master Plan (WSMP or proposed project), which would include the construction and operation of new facilities and upgrades to existing facilities throughout the Palmdale Water District (PWD) service area and vicinity. These facilities include pipelines, storage tanks, pump stations and groundwater wells to be constructed in the near-term (before 2020) and long-term (after 2020). Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). Existing cultural conditions within the PWD and vicinity, applicable policies, ordinances, and regulations; potential environmental impacts; and mitigation measures, where appropriate, are described.

3.5.1 Environmental Setting

The following sections describe the environmental setting for cultural resources within the project area, which is located almost entirely within the City of Palmdale, but also includes portions of land within unincorporated Los Angeles County. The project area includes the PWD service area plus areas adjacent to the service area where proposed facilities are located.

Natural Setting

The proposed project area, located mainly within the PWD, lies within the Antelope Valley, which exists along the boundary between two major geomorphic provinces: the Transverse Ranges and the Mojave Desert (CGS 2002). The Transverse Ranges province is characterized by east-west oriented ranges including the Tehachapi Mountains to the north, and the San Gabriel, Sierra Pelona and Liebre Mountains to the southwest. The Mojave Desert province is characterized primarily by a broad interior region of isolated mountain ranges separated by expanses of desert plains. The Mojave Desert province is wedged between the Garlock Fault and the San Andreas Fault, which have uplifted the surrounding mountains relatively rapidly, isolating the Mojave Desert from the Pacific Coast and creating the interior drainage basins of the western Mojave Desert, such as the Antelope Valley. The west end of the Antelope Valley is defined by the Tehachapi and San Gabriel Mountains, forming the v-shaped basin of the western Mojave Desert.

The Antelope Valley varies in elevation from 2,270 feet above mean sea level (amsl) on the desert floor to 3,000 to 4,000 feet amsl at the surrounding foothills. Due to its location in the rain shadow of the nearby San Gabriel Mountains, the Antelope Valley experiences a wide range of diurnal and seasonal temperature variations. Precipitation within the Antelope Valley averages just above five inches per year and falls principally as either rain or snow during October through March; however, tropical storms originating in the Pacific Ocean can cause as much as 20 percent of the annual rainfall to occur during the months of August through October (Grayson 1993). In general, the southern foothills receive more precipitation than the drier, lower plains.

Geologic Setting

The project area is located in the southern Antelope Valley, at the eastern-most edge of the Mojave Desert, and includes the San Andreas Fault and the northern slopes of the San Gabriel Mountains. The Antelope Valley is a tectonically controlled basin, forming a wedge between the San Andreas Fault to the south and the Garlock Fault to the north (Ponti 1985). Sediment has been deposited into the basin since the Miocene, with recent deposition resulting from erosion of the Transverse Ranges and Tehachapi Mountains that began in the Late Tertiary, when the San Gabriel Mountains were uplifted (Norris and Webb 1990; Ponti 1985). The geology of the project area is in large part dominated by the San Andreas Fault, which crosses the central-southern project area on a northwest-to-southeast diagonal. Rocks on the northern side of the fault consist of the Anaverde Formation and the underlying granitic bedrock, while rocks to the south of the fault consist of the older Punchbowl and Vasquez formations and the underlying granitic bedrock.

Prehistoric Setting

The prehistory of the Mojave Desert is generally described in terms of cultural "complexes." A complex is a specific archaeological manifestation of a general mode of life, characterized archaeologically by technology, artifact types, economic systems, trade, burial practices, and other aspects of culture. Complexes are typically associated with particular chronological periods. The prehistory of the Mojave is generally divided into the following time-periods/complexes: Paleo-Indian, Lake Mojave Complex, Pinto Complex, Gypsum Complex, Rose Springs Complex, and Late Prehistoric.

Paleo-Indian (10,000-8,000 B.C.)

The Paleo-Indian period is sparsely represented in the Mojave, primarily by large, fluted Clovis projectile points. This limited evidence suggests that early human occupants of the Mojave probably lived in small, mobile groups in temporary camps in the vicinity of permanent water sources (Sutton et al. 2007). In the Antelope Valley, a fragment of a fluted Clovis point was recorded on the southern slopes of the Tehachapis, and recent excavations at Rosamond Lake have documented a terminal Pleistocene/Early Holocene occupation (Pacific Legacy 2007). In addition, the earliest occupation of CA-KER-2821/H, an extensive multicomponent site near Willow Springs, has been radiocarbon dated to 9,020-9,430 RCYBP (radiocarbon years before present) (Way 2009).

Lake Mojave Complex (8,000-6,000 B.C.)

In terms of material culture, the Lake Mojave Complex is typified by stone tools such as Lake Mojave and Silver Lake projectile points, bifaces, steep-edged unifaces, crescents, and some ground stone implements (Sutton et al. 2007). Lake Mojave groups were organized in relatively small, mobile groups and practiced a forager-like subsistence strategy. Some trade with coastal groups was practiced, as evidenced by the presence of shell beads. Lake Mojave sites have been found primarily around Fort Irwin, Lake Mojave, Lake China, Rosamond Lake, and Twentynine Palms.

The Pinto Complex (6,000 to 3,000 B.C)

Archaeological deposits dating from the Pinto Period suggest that Pinto settlement patterns consisted of seasonal occupation by small, semi-sedentary groups that were dependent upon a combination of big and small-game hunting and collection strategies, which could include the exploitation of stream or water resources. Typically, sites of this period are found along lake shores and streams or springs, some of which are now dry. Material culture representative of this period in California prehistory includes roughly formed projectile points, "heavy-keeled" scrapers, choppers, and a greater prevalence of flat millingstones and manos (hand-held grinding stones), indicating a more intensive use and processing of plant resources (Warren 1984; Sutton et al. 2007). At the end of the middle Holocene, around 3,000 B.C., environmental conditions became much drier and hotter, and few sites in the Mojave date to the period between 3000 and 2,000 B.C., suggesting that the area's population may have decreased during this period of unfavorable climate (Sutton et al. 2007).

Gypsum Complex (c. 2,000 B.C. to A.D. 200)

Many archaeological sites of this period are small and surficial, probably of a temporary nature. It is during this time, however, that more archaeological evidence suggestive of inter-tribal trade appears, particularly between the desert and the coast. At site CA-LAN-192 at Lovejoy Springs, which has a prominent Gypsum component, a group inhumation with at least nine individuals was uncovered, including a child buried with approximately 3,000 *Olivella* shell beads from the southern Californian coast (Price et al. 2008). The artifact assemblage associated with this period also includes an increased number of millingstones and manos, and it is believed that it was during this period that the pestle and mortar were introduced. These technological developments may point to the increased consumption of seeds and mesquite. Other artifacts associated with the Gypsum Period include Humboldt Concave Base, Gypsum Cave, Elko Eared, and Elko Corner-notched projectile points (Warren 1984).

Rose Springs Complex (c. A.D. 200 to 1200)

The general cultural pattern for this period is a continuation of that of the preceding Gypsum Period. Rose Springs archaeological sites are more numerous than previous periods and contain more well-developed middens, indicating an increase in population and a more permanent settlement pattern (Sutton et al. 2007). In addition, the archaeological record attests to established trade routes between desert and coastal populations by way of shell beads and steatite, as well as an introduction of Anasazi influence from the eastern Great Plains as evidenced by the appearance of turquoise and pottery. Material culture related to this complex includes obsidian artifacts, Rose Spring and Eastgate projectile points, millingstones, manos, mortars and pestles, slate pendants, and incised stones (Warren 1984). Rose Springs sites along Amargosa Creek, west of Palmdale, contain workshops for the production of beads made out of steatite and chlorite schist, materials native to that area (Price et al. 2008). These beads, and others like them, are found in other sites across the western Mojave.

The frequent use of obsidian is a defining feature of the Rose Springs period. Obsidian from the Coso volcanic field, 70 miles north of Mojave, was imported in near-finished form for use in making lithic tools (Price et al. 2008). The importing of obsidian seems to have dropped sharply

at the end of the Rose Springs period, possibly associated with the Medieval Climatic Anomaly, a period of climate change around A.D. 1100 to 1300, and the concurrent migration of Numic-speaking populations out of southeastern California and into the Great Basin.

Late Prehistoric Period (A.D. 1200 to European Contact)

By the Late Prehistoric Period, an extensive network of established trade routes wound their way through the desert, routing goods to populations throughout the Mojave region. Trade routes have been postulated as running along the foothills on the southern border of the Antelope Valley and along the Mojave River (Farmer 1935; Sutton 1988). The Antelope Valley sat at a convenient geographical location for controlling trade, between the Great Basin and the southern coastal region (Sutton 1988).

It is also believed that these trade routes encouraged or were the motivating factors for the development of more "increasingly complex socioeconomic and sociopolitical organizations" among Protohistoric peoples in southern California (Warren 1984). Housepit village sites are prevalent during this period, as are the presence of Desert Side-notched and Cottonwood projectile points, brownware and buffware ceramics, steatite shaft straighteners, painted millingstones, and, to a lesser degree, coastal shell beads. Beginning around A.D. 1300, however, a decline in trade occurred and well-established village sites were abandoned (Warren 1984). Few sites in the Antelope Valley were occupied after A.D. 1650 (Warren 1984). This is in direct contrast to the southern Sierra Nevada and Tehachapi Mountains regions, where the density of settlements increased after A.D. 1300.

Historic Setting

Antelope Valley

The first Europeans explorers were Pedro Fages in 1772 and Juan Bautista de Anza and Father Francisco Garces in 1774 (Greene 1983). In 1775, Father Garces separated from de Anza and crossed the Mojave Desert along the ancient Mojave Trail from Needles west to the San Gabriel Mission.

The first recorded American visitors were the party of Jedediah Smith, who crossed the Mojave Desert along the Mojave Trail in 1826. Ewing Young and Kit Carson followed his route in the 1820s and 1830s. Kit Carson, who had participated in Jedediah Smith's 1828 expedition, later was the guide for John C. Fremont in 1844. This expedition was one of the first to document in detail the Antelope Valley.

Prior to the advent of the railroad, stagecoach routes were the primary means of transportation across the Antelope Valley. Willow Springs, located about 20 miles northwest of Palmdale, was an established resting place along both prehistoric and historic-era Spanish and American trails and stage routes. Jedediah Smith stopped there in 1827, and later John C. Fremont in 1944 (Pacific Legacy 2007). In 1876, the railroad came to the Antelope Valley when the Southern Pacific Railroad's line that ran south from the San Joaquin Valley was connected to the line from Los Angeles. In 1884, this line joined the Atchison, Topeka, & Santa Fe line that ran east through Needles (Pacific Legacy 2007).

Although settlement had been encouraged by the Homestead Act of 1862 and the Desert Land Act of 1877, the Antelope Valley did not see much growth until after the coming of the railroad. In the 1880s, a number of groups established colonies in the Antelope Valley, including the Quakers, German Lutherans, and Utopian Socialists. However, fluctuating water levels and years of severe drought brought a quick end to many of these colonies (Jones & Stokes 2005). By 1930, over eighty settlements had been established in the region, most along railroad lines (Jones & Stokes 2005).

Agriculture and ranching were the primary economic focus of homesteaders in the Antelope Valley. During the initial wave of settlement in the 1880s and 1890s, dry-farming methods proved fairly successful. However, this was in large part because these were unusually wet years. A severe drought between 1894 and 1904 brought an end to most agricultural enterprises. After the drought, irrigation was used with some success, particularly for the cultivation of alfalfa, grapes, and peaches which became the valley's primary crop (COLA Public Library 2009).

City of Palmdale

Palmdale has its roots in two small, early communities: Harold (Alpine Station) and Palmenthal. Harold was a natural location for a community because it was at the crossroads of the two major transportation routes on the valley floor: the Southern Pacific Railroad and Fort Tejon Road (now Barrel Springs Road). Palmenthal was established in 1886 when approximately 60 families of Swiss and German descent moved westward to California primarily from Nebraska and Illinois. They had been told that when they saw palm trees, they would be very close to the Pacific Ocean. The families settled here and called their new town Palmenthal (City of Palmdale 2009).

By the 1890s, farming families began to migrate to Palmenthal and nearby Harold to grow grain and fruit. However, most of these settlers were unfamiliar with the desert climate, so when drought years came about, many abandoned their farms. Palmenthal's name changed to Palmdale in 1899. The rest of the settlers, including the post office, moved closer to the Southern Pacific Railroad, which had been established through the valley in 1876. Southern Pacific built a railroad station along the tracks which eventually became the center of today's Palmdale.

Agriculture continued to be the primary industry for Palmdale until the outbreak of World War II. In addition to the establishment of Muroc Air Force Base in Lancaster in 1933, the United States government later bought Palmdale Airport in 1952 where aerospace development and testing facilities called United States Air Force Plant 42, were located. One year later, in 1953, Lockheed established a facility at the airport. From that point on, the aerospace industry surpassed agriculture as the primary source of local employment. Today Palmdale is even referred to as the "Aerospace Capital of America" because of its heritage in being the home of many of the aircraft used in the United States military. In August 1962, the township of Palmdale officially became the City of Palmdale with the incorporation of 2 square miles (5 square kilometers) of land around the present day civic center.

Palmdale Water District

PWD evolved from several private water companies, the first being the Palmdale Water Irrigation Company in 1886 (PWD n.d.). The company dug its first irrigation ditch, which was 6.5 miles long and diverted water from Little Rock Creek to serve the burgeoning town. In 1895, the South Antelope Valley Irrigation Company formed and began construction on the Palmdale Dam, which helped form the Palmdale Lake. The Palmdale Ditch, which was an approximate 8.5-mile earthen ditch with a wooden trestle and wooden flume, was constructed to bring water to Lake Palmdale (PWD n.d.).

In the early 1900s a survey of a reservoir site on Little Rock Creek for the Palmdale Water Company was compiled by the engineering offices of J.P. Lippincott. From this survey and other studies, it was decided by a vote in 1918 that a public irrigation district would be the most financially feasible option for Palmdale. Under provisions of Division 11 of the Water Code of the State of California, the Palmdale Water Irrigation District (PWD) was formed to supply irrigation water to approximately 4,500 acres of agricultural land. Six years after the District was formed, Littlerock Dam constructed by the Bent Bros. Builders was completed in 1924 (PWD n.d.).

Once completed, the Littlerock Dam was the highest reinforced concrete, multiple-arch dam in the United States, and had a water capacity of 4,200-acre feet. Within eight years of its completion, the State of California declared the dam unsafe, and repairs and renovations were completed. In 1940, dam's capacity was reduced due to sediment built up and to help with areas water storage capacity standby water walls were developed (PWD n.d.).

A shift in the water supply needs developed in Palmdale during the late 1940s and 1950s when the predominate industry in Palmdale shifted from agricultural to aerospace. To keep up with the demand for ground water and water from the Littlerock Reservoir, PWD expanded the water supply from the State Water Project. Under this new program, the Palmdale Irrigation District expanded and encompassed a total of 34,000 acres (PWD n.d.).

In 1973, the name of the company was changed to the Palmdale Water District since PWD was primarily supplying water for municipal and industrial uses. From the mid-1960s through 1985, concern was raised over the seismic safety of Littlerock Dam, and in 1995 rehabilitation of the Dam was completed and the spillway height was raised twelve feet, which doubled the capacity of the reservoir (PWD n.d.). The dam was documented by the Historic American Engineering Record in 1981, and images and plans of the dam are available at the U.S. Library of Congress.

PWD now boasts a district that encompasses 187 square miles of land and has a distribution system of "403 miles of pipeline…24 active water wells, 14 booster pumping stations, and 20 water tanks with a capacity of 50 million gallons of water" (PWD n.d.).

3.5.2 Regulatory Framework

State

California Environmental Quality Act: CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at *Public Resources Code (PRC) Section 21000 et seq.* CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or unique archaeological resources. Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.

The *CEQA Guidelines* (Title 14 California Code of Regulations [CCR] Section 15064.5) recognize that historical resources include: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (California Register); (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the *CEQA Guidelines* apply. If an archaeological site does not meet the criteria for a historical resource contained in the *CEQA Guidelines*, then the site may be treated in accordance with the provisions of Section 21083, which is as a unique archaeological resource. As defined in Section 21083.2 of CEQA a "unique" archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or,
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be

made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required. The *CEQA Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (*CEQA Guidelines* Section 15064.5(c)(4)).

A significant effect under CEQA would occur if a project results in a substantial adverse change in the significance of a historical resource as defined in *CEQA Guidelines* Section 15064.5(a). Substantial adverse change is defined as "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired" (*CEQA Guidelines* Section 15064.5(b)(1)). According to *CEQA Guidelines* Section 15064.5(b)(2), the significance of a historical resource is materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics that:

A. Convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

B. Account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in a historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

C. Convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a Lead Agency for purposes of CEQA.

In general, a project that complies with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (Standards) is considered to have mitigated its impacts to historical resources to a less-than-significant level (CEQA Guidelines Section 15064.5(b)(3)).

California Register of Historical Resources: The California Register is "an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility for the California Register are based upon National Register criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

To be eligible for the California Register, a prehistoric or historic-period property must be significant at the local, state, and/or federal level under one or more of the following four criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2. Is associated with the lives of persons important in our past;

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

A resource eligible for the California Register must meet one of the criteria of significance described above, and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally determined eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and,
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and,
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

California Health and Safety Code Section 7050.5: California Health and Safety Code Section 7050.5 requires that in the event human remains are discovered, the County Coroner be contacted to determine the nature of the remains. In the event the remains are determined to be Native American in origin, the Coroner is required to contact the California Native American Heritage Commission (NAHC) within 24 hours to relinquish jurisdiction.

California Public Resources Code Section 5097.98: California PRC Section 5097.98, as amended by Assembly Bill 2641, provides procedures in the event human remains of Native American origin are discovered during project implementation. PRC Section 5097.98 requires that no further disturbances occur in the immediate vicinity of the discovery, that the discovery is adequately protected according to generally accepted cultural and archaeological standards, and that further activities take into account the possibility of multiple burials. PRC Section 5097.98 further requires the NAHC, upon notification by a County Coroner, designate and notify a Most Likely Descendant (MLD) regarding the discovery of Native American human remains. Once the MLD has been granted access to the site by the landowner and inspected the discovery, the MLD

then has 48 hours to provide recommendations to the landowner for the treatment of the human remains and any associated grave goods.

In the event that no descendant is identified, or the descendant fails to make a recommendation for disposition, or if the land owner rejects the recommendation of the descendant, the landowner may, with appropriate dignity, reinter the remains and burial items on the property in a location that will not be subject to further disturbance.

California Government Code Sections 6254(r) and 6254.10: These sections of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency."

Paleontological Resources: The CEQA Guidelines (Title 14, Chapter 3 of the California Code of Regulations, Section 15000 *et seq*.), define the procedures, types of activities, individuals, and public agencies required to comply with CEQA. As part of CEQA's Initial Study process, one of the questions that must be answered by the lead agency relates to paleontological resources: "Will the proposed project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" (CEQA Guidelines Section 15023, Appendix G, Section XIV, Part a).

The loss of any identifiable fossil that could yield information important to prehistory, or that embodies the distinctive characteristics of a type of organism, environment, period of time, or geographic region, would be a significant environmental impact. Direct impacts to paleontological resources primarily concern the potential destruction of nonrenewable paleontological resources and the loss of information associated with these resources. This includes the unauthorized collection of fossil remains. If potentially fossiliferous bedrock or surficial sediments are disturbed, the disturbance could result in the destruction of paleontological resources and subsequent loss of information (significant impact). At the project-specific level, direct impacts can be mitigated to a less than significant level through the implementation of paleontological mitigation.

The CEQA threshold of significance for a significant impact to paleontological resources is reached when a project is determined to "directly or indirectly destroy a significant paleontological resource or unique geologic feature." In general, for projects that are underlain by paleontologically sensitive geologic units, the greater the amount of ground disturbance, the higher the potential for significant impacts to paleontological resources. For projects that are directly underlain by geologic units with no paleontological sensitivity, there is no potential for

impacts on paleontological resources unless sensitive geologic units which underlie the non-sensitive unit are also affected.

Other state requirements for paleontological resource management are included in PRC Section 5097.5 and Section 30244. These statutes prohibit the removal of any paleontological site or feature from public lands without permission of the jurisdictional agency, define the removal of paleontological sites or features as a misdemeanor, and require reasonable mitigation of adverse impacts to paleontological resources from developments on public (state, county, city, district) lands.

Society of Vertebrate Paleontologists Guidelines: In addition to the state laws, regulations, and policies, the standard practice in analyzing paleontological resources includes using guidance from the Society of Vertebrate Paleontology (SVP). Although not a law or regulation in the legal sense, these guidelines have become the standard in the industry.

The Conformable Impact Mitigation Guidelines Committee of the SVP published Standard Guidelines in response to a recognized need to establish procedures for the investigation, collection, preservation, and cataloguing of fossil bearing sites. The Standard Guidelines are widely accepted among paleontologists, followed by most investigators, and identify the two key phases of paleontological resource protection: (1) assessment and (2) mitigation. Assessment involves identifying the potential for a project site or area to contain significant non-renewable paleontological resources that could be damaged or destroyed by project excavation or construction. Mitigation involves formulating and applying measures to reduce such adverse effects, including pre-project survey and salvage, monitoring and screen washing during excavation to salvage fossils, conservation and inventory, and final reports and specimen curation. The SVP defines the level of potential as one of four sensitivity categories for sedimentary rocks: high, undetermined, low, and no potential as listed below.

- **High Potential.** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rocks units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcaniclastic formations (e.g., ashes or tephras), and some low grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e.g., middle Holocene and older, fine grained fluvial sandstones, argillaceous and carbonate rich paleosols, cross bedded point bar sandstones, fine grained marine sandstones, etc.).

  Paleontological potential consists of both (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and (b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data. Rock units which contain potentially datable organic remains older than late Holocene,[1] including deposits associated with animal nests or middens and rock units

[1] The Holocene is the latest interval of geologic time, covering approximately the last 11,700 years of the Earth's history.

which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.

- **Undetermined Potential.** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

- **Low Potential.** Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections or, based on general scientific consensus, only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e.g., basalt flows or Recent (i.e., Holocene) colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.

- **No Potential.** This designation is assigned to geologic formations that are entirely plutonic (volcanic rocks formed beneath the earth's surface) in origin and therefore have no potential for producing fossil remains.

Local

Los Angeles County Historic Preservation Ordinance: The Los Angeles County Board of Supervisors adopted the County's Historic Preservation Ordinance (HPO) on September 1, 2015 (Los Angeles County Historic Preservation Ordinance, Ord. 2015-0033 § 3, 2015). The HPO establishes criteria for designating landmarks and historic districts and provides protective measures for designated and eligible historic resources. The HPO applies to all privately owned property within the unincorporated territory of the County and all publicly owned landmarks, except properties that were not listed prior to the issuance of a demolition permit or properties affiliated with religious organizations. The HPO defines a landmark as "any property, including any structure, site, place, object, tree, landscape, or natural feature, that is designated as a landmark by the Board of Supervisors." The HPO defines a historic district as, "A contiguous or noncontiguous geographic area containing one or more contributing properties which has been designated as an historic district by the Board of Supervisors." Landmarks and historic districts may be designated if it is fifty years of age and meets one of the following criteria:

1. It is associated with events that have made a significant contribution to the broad patterns of the history of the nation, State, County, or community in which it is located;
2. It is associated with the lives of persons who are significant in the history of the nation, State, County, or community in which it is located;
3. It embodies the distinctive characteristics of a type, architectural style, period, or method of construction, or represents the work of an architect, designer, engineer, or builder whose work is of significance to the nation, State, County, or community in which it is located; or

possesses artistic values of significance to the nation, State, County, or community in which it is located;

4. It has yielded, or may be likely to yield, significant and important information regarding the prehistory or history of the nation, State, County, or community in which it is located;
5. It is listed, or has been formally determined eligible by the United States National Park Service for listing, in the National Register of Historic Places, or is listed, or has been formally determined eligible by the State Historical Resources Commission for listing, on the California Register of Historical Resources;
6. If it is a tree, it is one of the largest or oldest trees of the species located in the County; or
7. If it is a tree, landscape, or other natural land feature, it has historical significance due to an association with an historic event, person, site, street, or structure, or because it is a defining or significant outstanding feature of a neighborhood.

County of Los Angeles General Plan: The Conservation and Natural Resources Element (the Element) of the County's General Plan indicates that "Historic, cultural, and paleontological resources are an important part of Los Angeles County's identity." The Element provides the following goal and policies for the treatment of historic resources:

Goal C/NR 14: Protected historic, cultural, and paleontological resources.

Policy C/NR 14.1: Mitigate all impacts from new development on or adjacent to historic, cultural, and paleontological resources to the greatest extent feasible.

Policy C/NR 14.2: Support an inter-jurisdictional collaborative system that protects and enhances historic, cultural, and paleontological resources.

Policy C/NR 14.3: Support the preservation and rehabilitation of historic buildings.

Policy C/NR 14.5: Promote public awareness of historic, cultural, and paleontological resources.

Policy C/NR 14.6: Ensure proper notification and recovery processes are carried out for development on or near historic, cultural, and paleontological resources.

City of Palmdale General Plan:

GOAL ER7: Protect historical and culturally significant resources which contribute to the community's sense of history.

Objective ER7.1: Promote the identification and preservation of historic structures, historic sites, archaeological sites, and paleontological resources in the City.

Policy ER7.1.1: Identify and recognize historic landmarks from Palmdale's past.

Policy ER7.1.2: Promote maintenance, rehabilitation, and appropriate reuse of identified landmarks where feasible.

Policy ER7.1.3: Require that new development protect significant historic, paleontological, or archaeological resources, or provide for other appropriate mitigation.

Policy ER7.1.4: Develop and maintain a cultural sensitivity map. Require special studies/surveys to be prepared for any development proposals in areas reasonably suspected of containing cultural resources, or as indicated on the sensitivity map.

Policy ER7.1.5: When human remains, suspected to be of Native American origin are discovered, cooperate with the Native American Heritage Commission and any local Native American groups to determine the most appropriate disposition of the human remains and any associated grave goods.

Policy ER7.1.6: Cooperate with private and public entities whose goals are to protect and preserve historic landmarks and important cultural resources.

Policy ER7.1.7: Promote recognition, understanding and enjoyment of unique historical resources within the community by identifying resources through the use of landmark designation plaques, directional signage, self-guided tours, school curriculum, programs and events. (General Plan Amendment 04-01, adopted by City Council April 14, 2004.)

Policy ER7.1.8: Discourage historic landmark properties from being altered in such a manner as to significantly reduce their cultural value to the community. (General Plan Amendment 04-01, adopted by City Council April 14, 2004.)

3.5.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the level of significance of impacts to cultural resources are based on Appendix G of the *CEQA Guidelines*. The proposed project would have a significant impact on cultural resources if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; and/or
- Disturb any human remains, including those interred outside of formal cemeteries.

Methodology

The following describes the methodology used to identify the cultural resources in the project area.

SCCIC Records Search

Records searches for the proposed project were conducted on May 4, 2017 and November 7, 2017 at the California Historical Resources Information System (CHRIS) South Central Coastal Information Center (SCCIC) housed at California State University, Fullerton. For near-term project areas, the records search included a review of all previous studies within a 0.25-mile radius of each near-term project component; a review of all previously recorded archaeological resources within a 1-mile radius of each near-term project area; and a review of previously documented historic architectural resources within or immediately adjacent to each near-term project component. A full records search was not conducted for long-term project areas; however, all archaeological resources within PWD's boundary were mapped to aid in future planning for these projects.

Previous Studies

The records search results indicate that a total of 34 studies have been previously completed within a 0.25-mile radius of near-term projects. Of these, 12 overlap or intersect with near-term project areas, as indicated in the table. The approximate percentage of each near-term project area that has been previously investigated is illustrated in **Table 3.5-1**.

TABLE 3.5-1
PERCENTAGE OF NEAR-TERM PROJECT AREAS PREVIOUSLY SURVEYED

Near-Term Project	Approx. Percentage of Records Search Radius Previously Surveyed	Approx. Percentage of Project Area Previously Surveyed
EB-01	<5%	0%
ES-01	65%	100%
ES-03	25%	5%
FB-01	0%	0%
FB-02	30%	100%
FF-01	<1%	<1%
FF-04	<1%	<1%
FF-05	5%	0%
FF-06	25%	100%
FF-07	<5%	0%
FS-01	90%	100%

Previously Recorded Historic Architectural Resources

The records search results indicate that there is one historic architectural resource that overlaps a near-term project. The Palmdale Ditch (P-19-001534) overlaps the pipeline leading to pump station EB-01 (see Figure 2-2c). The Palmdale Ditch (P-19-001534) is an 8-mile water conveyance feature that was initially documented by Pyramid Archaeology in 1989 (Love 1989). The Palmdale Ditch overlaps this pipeline route. The ditch begins at the Little Rock-Palmdale Dam and continues in a northwesterly direction carrying water from the Littlerock Dam Reservoir

to Lake Palmdale. It consists of both unlined and concrete-lined segments that vary in depth from 3 to 40 feet and in width from 5 to 40 feet (Stringer-Bowsher and Akyüz 2008; Anderson 2009). The Palmdale Ditch has been previously determined eligible for listing in the National Register and is listed in the California Register. This resource is still in use (Anderson 2009).

Previously Recorded Archaeological Resources

The records search results indicate that a total of 166 archaeological resources have been previously recorded within PWD's service area and include: 89 prehistoric archaeological resources (42 sites and 47 isolates), 76 historic-period archaeological resources (69 sites and 7 isolates), and 1 protohistoric/prehistoric archaeological site (**Table 3.5-2**). None of these archaeological resources overlap near-term project components. A total of 33 archaeological resources overlap long-term project components, as indicated by an asterisk in the table. These include 17 historic-period archaeological sites, 9 prehistoric archaeological sites, 6 prehistoric isolates, and 1 protohistoric/prehistoric archaeological site.

TABLE 3.5-2
PREVIOUSLY RECORDED ARCHAEOLOGICAL RESOURCES

Primary Number (P-19-)	Permanent Trinomial (CA-LAN--)	Description
000082*	000082	Prehistoric site: large piece of soapstone showing working
000239	000239	Prehistoric site: numerous artifacts and hammerstone from parking lot fill
000305*	000305	Protohistoric/prehistoric site: beads, projectile point, mano fragments, and pestle
000805	000805	Prehistoric site: scatter of flaking waste (basalt, chert, chalcedony, and jasper)
000827	000827	Prehistoric site: burnt bone, agate, jasper flakes, soapstone pendants, metates, and manos
000878*	000878	Prehistoric site: fragmentary milling stones, chipping waste, broken glass, and midden
001022*	001022	Prehistoric site: scatter lithic debris, rhyolite cores, and flakes
001023	001023	Prehistoric site: small workshop site littered with cores and flakes of rhyolite
001251*	001251	Prehistoric site: bluff site, with low density lithic scatter
001252	001252	Prehistoric site: bluff site, small, low density lithic scatter with pendant
001253	001253	Prehistoric site: bluff site, small, low density lithic scatter
001332	001332	Prehistoric site: white chalcedony core/module with some flaking, granitic mano, and purple rhyolite flake
001367	001367H	Historic site: ceramics, glass, and nails
001419	001419	Prehistoric site: low density lithic scatter with chert, obsidian, chalcedony, quarts, rhyolite
001420	001420	Prehistoric site: bedrock mortar
001528	001528H	Historic site: scatter of 1920s and 1930s cans with church key-opened beer cans
001534*	001534H	Historic site: construction materials

Primary Number (P-19-)	Permanent Trinomial (CA-LAN--)	Description
001553*	001553H	Historic site: homestead structure, cans, glass fragments, dish fragments
001573	001573	Prehistoric site: mano fragments, jasper flake, quartz flake
001574*	001574H	Historic site: abandoned automobile
001587*	001587H	Historic site: cement building foundation, pump stand, stone walkway, trash scatter
001588	001588H	Historic site: cement building foundation, well and windmill mounts, small homestead
001597	001597	Prehistoric site: one flake and one core
001600	001600H	Historic site: trash dump, possible early road
001609	001609H	Historic site: home site, well and pump stands, cement irrigation pipes
001610*	001610H	Historic site: adobe house, cement foundations, trash deposit
001611	001611H	Historic site: possible cabin site
001614	001614H	Historic site: stove masonry BBQ, possible location of a temporary living structure
001623*	001623H	Historic site: trash scatter from 1925-1955
001687	001687H	Historic site: cement slab foundation, well and well house, household debris
001697	001697H	Historic site: chimney, household debris
001709	001709H	Historic site: home site, foundation, pre-1920 scatter
001717	001717H	Historic site: light density scatter solder seam cans, bottles, ceramic plate
001823	001823	Prehistoric site: rhyolite flakes
001840	001840	Prehistoric site: hearth, oyster shell fragment
001850	001850	Prehistoric site: groundstone
001851	001851	Prehistoric site: quarts primary flake, chipped lithic
001853	001853/H	Prehistoric site: quartz blade
001888*	001888	Prehistoric site: rhyolite flakes, cores, scrapers, fragment, and chalcedony flake
001889*	001889	Prehistoric site: ridgetop featuring flakes, trap, felsite, quartzite, chalcedony, chert
001891	001891	Prehistoric site: light lithic scatter
001892	001892	Prehistoric site: hunting blind
001893	001893	Prehistoric site: quarry and associated lithic scatter
001894*	001894	Prehistoric site: rhyolite flakes
001895	001895	Prehistoric site: lithic scatter, triangular projectile points
001896	001896	Prehistoric site: lithic scatter, assemblages of flakes
001897	001897	Prehistoric site: ridge near California Aqueduct, sparse lithic scatter
001898	001898	Prehistoric site: felsite and rhyolite flakes
001899*	001899	Prehistoric site: spare lithic scatter, circular rock alignment, flakes

Primary Number (P-19-)	Permanent Trinomial (CA-LAN--)	Description
001900	001900	Prehistoric site: felsite, quartzite, chert flakes, felsite core and hammerstone
001901	001901	Prehistoric site: lithic scatter, cores, choppers, flakes, mortar
001902	001902	Prehistoric site: lithic scatter, flakes, chert, felsite, quartzite
001903	001903	Prehistoric site: lithic scatter, metate fragments, flakes of chert, felsite, quartzite, cores.
001904	001904	Prehistoric site: sparse lithic scatter
001905	001905H	Historic site: rectangular house foundation, rock wall, mortar, stone, and concrete
001906*	001906H	Historic site: rock pile and purple glass
001907	001907H	Historic site: seamless bottle neck, hole in top cans
001987	001987	Prehistoric site: dense lithic scatter, rhyolite flakes and cores
001988	001988	Prehistoric site: light lithic scatter, rhyolite flakes
001989	001989	Prehistoric site: chalcedony reduced outcrop, no artifacts observed
002001	002001H	Historic site: trash deposit
002194	002194H	Historic site: household trash scatter, white ware, porcelain, broken glass, concrete irrigation pipes
002203*	002203H	Historic site: low density surface scatter, turn-of-century, depression era dump
002371*	002371H	Historic site: moderate density trash scatter, foundation slabs, ceramics, glass
002387	002387H	Historic site: sparse scatter isolated historical discards
002474	002474H	Historic site: bottle dump from 1920s and 1930s
002475	002475H	Historic site: can dump from the 1930s and 1940s
002535	002535H	Historic site: water pipeline – 4 inch diameter
002536	002536H	Historic site: burned building, melted domestic artifacts
002537	002537H	Historic site: scatter of objects from homestead
002772	002772H	Historic site: multi-episode dump, road-side trash
002773	002773	Historic site: multi-episode dump, road-side trash
002774	002774	Historic site: multi-episode dump, road-side trash, mid-20th century
002775	002775H	Historic site: holding bond, tan, ditch segments of an irrigation system
002776	002776H	Historic site: house and garage, dump sites
002808	002808H	Historic site: building foundation, bottle glass, metal, nails
002911	002911H	Historic site: irrigation standpipe, drainage ditch, house foundation
002913*	002913H	Historic site: house foundation and driveway
003258	003258H	Historic site: World War I through 1970s refuse
003343	003343	Prehistoric site: one feature consisting of a bedrock outcrop with 38 cupules and one associated groove
003377	003377H	Historic site: refuse deposit 1900-1925
003384	003384H	Historic site: small scatter of 1930s trash

Primary Number (P-19-)	Permanent Trinomial (CA-LAN--)	Description
003513	003513/H	Multicomponent site: prehistoric lithics and post-1914 trash scatter
003559*	003559	Prehistoric site: sparse lithic scatter of flakes, hammerstones, worked soapstone
003645	003645H	Historic site: refuse, earthen ditch, earthen reservoir
003661	003661H	Historic site: glass and ceramics
003662	003662H	Historic site: trash scatter after World War II
003663*	003663H	Historic site: trash scatter along 47th street
003703	003703H	Historic site: dense deposit of refuse, metal scans, glass bottles, ceramics
003705	003705H	Historic site: burned wood, bricks, metal cans, glass bottles, ceramic tableware
003785	003785H	Historic site: remains of a 1950s residential complex with poultry farm sheds
003786*	003786H	Historic site: single family residential complex in ruins
003815*	003815H	Historic site: dense historic can and bottle dump, and refuse
003861	003861H	Historic site: refuse deposits
003941	-	Historic site: diffuse scatter, trash, foundations, cans
004144	004144H	Historic site: whiteware fragment, solarized clear glass, bottle fragments
004145	004145	Prehistoric site: moderate density lithic scatter, flakes
004146	004146H	Historic site: concrete slab
004160	004160H	Historic site: residence and associated residential debris, concrete slabs, tamarisk tree
004161	004161H	Historic site: two foundations of residential development
004194*	004194H	Historic site: cement and brick foundation, probable residence
004283	004283H	Historic site: sparse scatter of historic debris
004364	004364H	Historic site: habitation complex, four concrete building/structure pads
004365	-	Historic site: refuse scatter, late 1950s and 1960s, irrigation feature
004421	004421H	Historic site: 19th and 20th century trash scatter
004602	004602H	Historic site: historic structure (dry-laid stone foundation), milled lumber wire nails
004603	004603H	Historic site: low-density refuse scatter early 20th century
004604	004604H	Historic site: low-density refuse scatter
004607	004607	Prehistoric site: complex of six prehistoric rock features
004608*	004608H	Historic site: refuse scatter from 1920s and 1930s
004609*	004609H	Historic site: refuse scatter, glass and ceramics from 1920s and 1940s
004610	004610H	Historic site: low-density refuse scatter, ceramics, cans, 1910s to early 1940s
004611	004611H	Historic site: refuse scatter, ironstone and whiteware ceramics, patented colorless drinking glasses

Primary Number (P-19-)	Permanent Trinomial (CA-LAN--)	Description
004612*	004612H	Historic site: refuse scatter, wood post, barbed wire from turn of 20th century through 1940s
100001*	-	Prehistoric isolate: chert flake
100003	-	Prehistoric isolate: large quartzite flake
100004*	-	Prehistoric isolate: low grade jasper flake
100005	-	Prehistoric isolate: massive milky quartz flake
100312	-	Prehistoric isolate: secondary flake of porphyritic andesite
100325*	-	Prehistoric isolate: two chert flakes
100326	-	Historic isolate: glass shards (pre-World War I)
100626	-	Prehistoric isolate: two flakes—quartz and chalcedony
100646*	-	Prehistoric isolate: tufa stone, groundstone bowl fragment
100647	-	Prehistoric isolate: granitic unifacial mano
100648	-	Prehistoric isolate: schist metate fragment
100649	-	Prehistoric isolate: schist metate fragment
100650	-	Prehistoric isolate: schist metate fragment
100651	-	Historic isolate: fragmented 7Up bottle neck
100652	-	Historic isolate: medicinal bottle, metal screw cap
100828	-	Prehistoric isolate: quartz flakes
100829	-	Prehistoric isolate: metavolcanic flake
100830	-	Prehistoric isolate: chert and quartz flake
100831	-	Prehistoric isolate: fine grained quartzite flake
100840	-	Prehistoric isolate: chert flake
100841	-	Prehistoric isolate: two chert flakes
100842	-	Prehistoric isolate: primary felsite flake
100843	-	Prehistoric isolate: primary chert flake
100844	-	Prehistoric isolate: chert flake
100845	-	Prehistoric isolate: primary felsite flake
100846	-	Prehistoric isolate: single quartz, secondary flake
100847	-	Prehistoric isolate: primary felsite flake
100848	-	Prehistoric isolate: secondary quartz flake
100849*	-	Prehistoric isolate: primary flake
100850	-	Prehistoric isolate: two fragments of one granite metate
100851	-	Prehistoric isolate: felsite chopper
100852	-	Prehistoric isolate: bifacially flaked felsite scraper
100853	-	Prehistoric isolate: one felsite secondary flake
100854	-	Prehistoric isolate: one secondary felsite flake
100855	-	Prehistoric isolate: felsite scraper
100856	-	Prehistoric isolate: chert flake, felsite porphyry flake

Primary Number (P-19-)	Permanent Trinomial (CA-LAN--)	Description
100857	-	Prehistoric isolate: secondary felsite flake
100858	-	Prehistoric isolate: felsite bifacially flaked chopper
100859	-	Prehistoric isolate: secondary quartz flake
100860	-	Prehistoric isolate: quartzite core
100861	-	Prehistoric isolate: primary felsite flake
100862	-	Prehistoric isolate: two felsite flakes
100863	-	Prehistoric isolate: two secondary felsite flakes
100864*	-	Prehistoric isolate: felsite secondary flake
100865	-	Prehistoric isolate: felsite core
100866	-	Prehistoric isolate: felsite secondary flake
100867	-	Prehistoric isolate: secondary felsite flake
100868	-	Historic isolate: sun-colored amethyst glass bottle fragment
100869	-	Historic isolate: drilling rig on truck, 1920s
100954	-	Prehistoric isolate: sherd recovered from pedestrian trail
100985	-	Prehistoric isolate: single white chert secondary flake
101034	-	Prehistoric isolate: obsidian projectile point, may be Malaga Cove Leaf type
101204	-	Historic isolate: neck and lop of a square medicine bottle, no seams, with cork
120020	-	Historic isolate: granitic cobble and cement foundation

Cultural Resources Surveys

Cultural resources surveys of the proposed near-term project areas were conducted on July 6-7, 2017, October 20, 2017, and June 28, 2018. Areas with visible ground surface were subject to pedestrian survey using transect intervals spaced no more than 10 meters (approximately 33 feet) apart. Approximately 85 percent of the near-term project areas were surveyed, with the remaining 15 percent unsurveyed due to inaccessibility and/or lack of ground surface visibility due to paved surfaces. Ground surface visibility ranged from 25 percent to 95 percent in the survey areas. Landforms and slope consisted of foothills and valleys, with variable slopes of 0 degrees to 15 degrees. One historic architectural resource (ESA-PWD-001B: Railroad Segment) was documented during survey of ES-03. ESA-PWD-001B consists of a standard gauge railroad line and is part of the former Southern Pacific Railroad. The line is actively in use as part of the Metrolink system (Antelope Valley Line). The railroad crosses the proposed pipeline route to proposed storage tank ES-03. The Palmdale Ditch (P-19-001534), which crosses the pipeline route leading to EB-01, is not visible at this location as it passes underneath the roadway in an underground culvert and thus was not updated during the survey. No archaeological resources were identified as a result of the survey.

Archaeological Sensitivity Assessment

Archaeological sensitivity of each near-term project area was based on a variety of factors in the bulleted list below (Ehringer et al. 2018; Ehringer 2018). Taking into account these factors, along with identification of surface resources, each near-term project component was assigned a high, moderate, or low level of subsurface archaeological sensitivity. Near-term projects assessed as having high sensitivity include storage tank ES-03. Near-term projects assessed as having moderate sensitivity include storage tank FS-01, pipelines FF-01, FF-04, FF-05, FF-06, FF-07, and the pipeline leading to EB-01. Near-term projects assessed as having low sensitivity include storage tank ES-01, and pump stations EB-01, FB-01, and FB-02.

- Number of known prehistoric archaeological resources within a 0.5-mile radius – project areas where a large number of prehistoric resources have been documented within a 0.5-mile radius are considered more sensitive. Project areas where very few prehistoric resources have been documented within a 0.5-mile radius are considered less sensitive (assuming surveys have been conducted in the vicinity).
- Age/type of landform – Holocene-aged alluvium (<10,000 years ago) is generally more likely to contain subsurface evidence of previous human occupation. Pleistocene alluvium (10,000 years ago to 2.5 Mya) may contain subsurface evidence of human occupation dating the Late Pleistocene peopling of North American, but these deposits are sparser. Other landforms that pre-date human occupation of North America may contain surface evidence of human occupation (e.g., mortars/slicks on bedrock outcroppings, rock art), but are less likely to contain subsurface deposits. Based on the results of the paleontological resources assessment (provided below), archaeological sensitivity within Holocene-aged alluvium decreases at depths of 3 feet (the depth at which paleontological discoveries have been recovered from similar sediments in the project vicinity), and while archaeological and paleontological resources can both be recovered from sediments dating to the Late Pleistocene and Middle Holocene, archaeological resources are less commonly associated with these sediments given the that human habitation of California was sparser during these time periods.
- Previous land uses – areas that have never been developed are considered more sensitive for prehistoric archaeological resources. In addition, previous land uses may be indicative of the likelihood for historic-period archaeological resources.
- Proximity of water sources and degree of slope – Meyer et al. (2010:141-151) have previously demonstrated elsewhere in California that the presence of buried archaeological sites is positively correlated with proximity to water as well as gently sloped landforms.
- Degree of surface visibility during survey – visible evidence of archaeological resources would be present in areas where surface deposits are more likely based on age/type of landform.
- Level of previous ground disturbance – areas that have been subject to higher levels of previously ground disturbance are considered less sensitive for archaeological resources, unless depth of proposed ground disturbance would exceed the depth of previous disturbance.
- Level of proposed ground disturbance – typically projects that require little or shallow ground disturbance are considered less likely to encounter subsurface resources, particularly in areas where there was good ground surface visibility during the survey.
- Input received from the San Manuel Band of Mission Indianans

Extended Phase I Investigation

The Phase I Cultural Resources Assessment report (Ehringer et al. 2018) identified near-term storage tank ES-03 as having a high potential for subsurface archaeological deposits based on the following factors: it is underlain by Holocene-age alluvium deposited within the past 10,000 years; it is located in close proximity to a water source; it has a low degree of slope; and it is located within 0.5 miles of 17 previously documented prehistoric archaeological resources. As such, an Extended Phase I Investigation was recommended to determine the presence/absence of archaeological deposits within the ES-03 project area.

The Extended Phase I Investigation was conducted on May 1-3, 2018. A total of 11 Shovel Test Probes (STPs) and three trenches were excavated within the ES-03 footprint and buffer area (200-foot by 200-foot area plus 100 linear feet). The investigation documented one subsurface artifact consisting of a single piece of jasper debitage, located within Stratum I of Trench 1, at a depth no greater than 1 foot deep. The artifact is considered an isolate, which does not qualify as a historical resource pursuant to CEQA due to a lack of data potential. No other archaeological resources were identified as a result of the testing. Based on the results of the testing, near-term storage tank ES-03 is considered to have a low potential for encountering subsurface archaeological resources during construction (Vader 2018).

Historic Resources Assessment

A historic resources survey of PWD headquarters was conducted on April 30, 2018 (see **Appendix HRA**). The historic resources survey identified a grouping of four buildings (Buildings A, B, C, and D) and three garages (Garages A, B, C). Building A and Garage A were constructed in 1962. The two buildings are over currently over 50 years of age and meet the age threshold for consideration as historical resources. Buildings C and D and Garages B and C were constructed after 1981 and Building B was constructed in 1992. These three buildings and garages would not be over 50 years of age at the time of project completion and do not meet the age threshold for consideration as historical resources (Taylor and Winzenried 2018).

Building A and Garage A, constructed in 1962, and are associated with the suburban growth of Palmdale. However, upon further review of the history of Palmdale and its suburban growth following World War II, it was determined that they did not play a significant role in development of the community or reflect important settlement patterns for the area and are not eligible for listing under California Register Criterion 1 (events). Further, they are not associated with any significant personages and are not eligible for listing under California Register Criterion 2 (important persons). They are a simplistic expression of Mid-Century style, which was popular at the time of its construction and is not considered an excellent example of its style or property type, and do not represent the work of a master. Therefore, they are not eligible for listing under California Register Criterion 3 (workmanship). They do not appear to yield significant information that would expand our current knowledge or theories of design, methods of construction, operation, or other information that is not already documented in other primary or secondary source material and are not eligible for listing under California Register Criterion 4 (data potential). Therefore, PWD headquarters is not eligible for listing in the California Register (Taylor and Winzenried 2018).

Paleontological Resources Assessment

A paleontological resources assessment was conducted in August 2017 (Bell 2017). The following section provides the results of the assessment.

Geology

The geology of the project area is highly varied, with granitic and metamorphic rocks dating from the Precambrian [1.2 billion years ago (Bya)] to the Cretaceous [65 million years ago (Mya)] and sedimentary deposits dating from the Oligocene (34 Mya) to the present. The surficial geology of the project area has been mapped by Dibblee (1959, 1960) and Dibblee and Ehrenspeck (1997 2001), and the following geologic unit descriptions are based on these sources.

Artificial Fill (af). Artificial fill consists of sediment and rubble that is the result of human activity. As such, these sediments are not natural and have no chance of preserving fossil resources.

Landslide debris (Qls). Landslide debris consists of eroded material that has collected in lowland areas in recent times. These sediments are limited in the Project area, only occurring in one location in the western Project area north of Lake Palmdale. In general this material has low paleontological sensitivity, however it may overlie older, paleontologically sensitive material.

Holocene alluvium (Qa). Holocene alluvium is a mix of silt, sand, and gravel deposited during the last 10,000 years as a result of erosion of the surrounding mountains. These sediments are unconsolidated and range from 1 to 100 feet thick across Antelope Valley. The northern and northeast portions of the Project area, beyond the San Andreas fault, are covered entirely by Holocene alluvium. Below the fault, areas mapped as Holocene alluvium are found around Lake Palmdale in the southeastern Project area and as scattered branches that correspond to drainage features (stream channels, etc.) across the southern Project area. These sediments are generally too young to preserve fossil resources at the surface, however they increase in age with depth, and may preserve fossil resources in the subsurface. While the specific depth at which these sediments become old enough to preserve fossil resources is difficult to determine, fossil discoveries in the Mojave Desert indicate it is often as shallow as 3 feet below ground surface (see ‘Paleontological Sensitivity Analysis’ below).

Pleistocene older alluvium (Qoa). Pleistocene older alluvium consists of weakly consolidated and poorly sorted cobble-pebble gravel, sand, and silt deposited by streams. This unit dates to the Pleistocene (10,000 years – 2.5 Mya) and ranges from 300 to over 1000 feet thick. Older alluvium is found at the surface scattered throughout the southern and eastern Project area, in the vicinity of the San Andreas Fault. Near the fault this unit consists of around 100 feet of cobble-boulder gravel of granitic detritus that is locally deformed. Older alluvium is also likely present in the subsurface beneath the younger Holocene alluvium throughout the Project area. Nearby in the Juniper Hills quadrangle Late Pleistocene sediments are mapped as the Harold Formation, which can be extended to include the Late Pleistocene alluvial sediments in the Project area in the vicinity of the San Andreas Fault (McLeod, 2017). As discussed below (see ‘Paleontological Sensitivity Analysis’), Pleistocene alluvium has a well-established history of preserving fossil resources throughout Antelope Valley and the Mojave Dessert.

Pleistocene alluvium, elevated (Qos). Elevated Pleistocene alluvium is similar in lithology to the Pleistocene older alluvium (Qoa), but is primarily composed of gravel made of Pelona schist and Mesozoic granitic rocks. These sediments are found in the western portion of the Project area to the north and east of Lake Palmdale. Like the Pleistocene alluvium (Qoa), these sediments may preserve fossil resources.

Anaverde Formation. The Anaverde Formation is a terrestrial fluvial and lacustrine sedimentary sequence deposited during the Pliocene (2.6 – 5.3 Mya) that is around 1500 feet thick. The Anaverde has yielded plant fossils that date to the middle Pliocene. Three facies are recognized within the Anaverde Formation in the Project area:

- **Shale (Tac).** The shale facies of the Anaverde Formation consists of over 100 feet of gray, thin-bedded clay shale with some gypsum present in thin, platy layers around 2 in thick). These sediments were probably deposited in a lake or playa and have limited exposure in the Project area, occurring along the northern side of the San Andreas Fault. It is not known whether the fossils from the Anaverde Formation were preserved in this unit or the sandstone unit, but both are conducive to the preservation of fossils.
- **Sandstone (Tas).** The sandstone facies of the Anaverde Formation consists of yellowish-buff massively to bedded, fine- to medium-grained arkosic sandstone with thin interbeds of gypsiferous shale in the upper portion. This unit is around 500 feet thick and grades into the underlying unit. These sediments are the most widely exposed of the Anaverde Formation in the Project area, cropping out along the northern side of the San Andreas Fault). It is not known whether the fossils from the Anaverde Formation were preserved in this unit or the shale unit, but both are conducive to the preservation of fossils.
- **Sandstone and conglomerate (Tar).** The sandstone and conglomerate facies of the Anaverde Formation consists of tan to pink, massively to vaguely bedded arkosic conglomerate composed of granitic pebbles in a sandy matrix deposited as alluvial outwash from granitic landforms. This unit is over 1000 feet thick, and overlies the granitic basement rocks. These sediments have limited exposure in the Project area, but are found along the northern side of the San Andreas Fault. As conglomerates it is possible, though unlikely, that fossil resources will be preserved in this unit.

Punchbowl Formation. The Punchbowl Formation is made of moderately consolidated terrestrial fluvial, lacustrine, and alluvial fan sediments from the late Miocene (5.3 – 11.6 Mya). The total thickness of the Punchbowl is around 1000 feet. As discussed further below, significant fossils are known from the sandstone and shale members of the Punchbowl Formation (McLeod 2017).

- **Shale (Tpc).** The shale facies of the Punchbowl Formation consists of gray, soft, locally gypsum-rich clay shale. These sediments have limited exposure in the Project area, but are found along the southern side of the San Andreas Fault to the southeast of Lake Palmdale. Sparse vertebrate fossil remains are known from this unit.
- **Sandstone (Tps).** The sandstone facies of the Punchbowl Formation consists of light pinkish-brown to tan arkosic sandstone, with limited interbedded clay shale and pebble conglomerate. These sediments have limited exposure in the Project area, but are found throughout the southeastern portion of the Project area. Like the shale unit, it is possible fossil resources may be preserved in this unit.

- **Conglomerate (Tpcg).** The conglomerate facies of the Punchbowl Formation consists of gray to pinkish-brown cobble conglomerate of andesitic volcanic clasts from the underlying Vasquez Formation and Pelona Schist, as well as other plutonic and metamorphic rocks. These sediments have limited exposure in the Project area, but are found in the southern region, southeast of Lake Palmdale. As conglomerates it is possible, though unlikely, that fossil resources will be preserved in this unit.

Vasquez Formation (Tva, Tvb, Tvt). The Vasquez Formation consists of alternating layers of volvanic and terrestrial sedimentary rocks. The Vasquez dates to the Oligocene (23-34 Mya), with the uppermost portion possibly early Miocene (~20-23 Mya). Within the Project area, only the volcanic units are present: andesitic volanics (Tva), basaltic-andesitic volcanics (Tvb), and tuff-breccia (Tvt). These rocks are present in the south and southeastern Project area. While the sedimentary units of the Vasquez Formation can contain significant fossil resources (McLeod 2017), none of those units are mapped in the Project area. Rather, all of the units of the Vasquez Formation that occur in the Project area are volcanic rocks that formed from cooled lava and ash, and thus have no paleontological sensitivity.

Pelona Schist (ps). The Pelona Schist formed as a result of moderate metamorphism of clastic and pyroclastic sediments during the Mesozoic. This unit has limited exposure in the westernmost Project area. Due to the extremely high temperatures and pressures that occur during metamorphism, these rocks will not preserve fossil resources and have no paleontological sensitivity.

Plutonic igneous rocks (di, lgdb, qd, qm, gr, sy). A number of igneous plutonic rocks are found in the Project area. South of the San Andreas Fault hornblende diorite (di), syenite (sy), and Lowe granodiorite (lgdb) occurs, while north of the fault are quartz diorite (qd), quartz monzonite (qm), and granite (gr). With the exception of the syenite, which dates to the Precambrian (1.2 Bya), these rocks formed as intrusions of magma into the deep subsurface during the Cetaceous (65-145 Mya), which then cooled and crystallized into igneous rocks. As such, these units have no paleontological sensitivity.

LACM Records Search

A database search for records of fossil localities in the project area was conducted by the Natural History Museum of Los Angeles County (LACM) on May 3, 2017. The purpose of the museum records search was to: (1) determine whether any previously recorded fossil localities occur in the Project area, (2) assess the potential for disturbance of these localities during construction, and (3) evaluate the paleontological sensitivity in the project area. The records search returned four localities within the project area, with additional vertebrate fossils known from similar sedimentary deposits in the vicinity (McLeod 2017).

The Holocene alluvium, while too young to preserve fossil resources at the surface, does increase in age with depth. The LACM has a record of several fossil localities in the subsurface of these sediments, just east of the project area (McLeod, 2017). These localities have yielded a wide range of small vertebrates such as gopher snake (*Pituophis*), kingsnake (*Lampropeltis*), leopard lizard (*Gambelia wislizenii*), cottontail rabbit (*Sylvilagus*), pocket mouse (*Chaetodipus*), kangaroo rat (*Dipodomys*), and pocket gopher (*Thomomys*) (McLeod, 2017). To the north of the western

Ppoject area, a fossil camel (*Camelops hesternus*) was discovered only 4 feet below ground surface. Further north-northeast of the camel locality, numerous vertebrate fossils were recovered from screening sediment matrix collected at a depth of 3 feet (McLeod, 2017). These fossils included specimens of smelts (Osmeridae), whipsnake (*Masticophis*), leaf-nosed snake (*Phyllorhynchus*), lyre snake (*Trimorphodon biscutatus*), desert iguana (*Dipsosaurus dorsalis*), alligator lizard (*Elgaria*), desert spiny lizard (*Sceloporus magister*), side-blotched lizard (*Uta stansburiana*), horned lizard (*Phrynosomatidae*), skink (*Plestiodon*), western whiptail (*Aspidoscelis tigris*), desert night lizard (*Xantusia vigilis*), rabbit (*Sylvilagus audubonii*), wood rat (*Neotoma*), deer mouse (*Peromyscus*), pocket gopher (*Thomomys bottae*), kangaroo rat (*Dipodomys*), pocket mouse (*Perognathus*), ground squirrel (*Ammospermophilus leucurus*), and camel (*Camelops*).

Four fossil localities are known from the Late Pleistocene alluvium (Qoa, Qos), also known as the Harold Formation, within the project area (McLeod 2017). All four localities are located in the southeastern Project area, and preserved fossils of mastodon (*Mammut*), horse (*Equus*), rabbits (*Lepus, Sylvilagus*), rodents (*Reithrodontomys, Peromyscu, Neotoma*), and numerous birds and carnivores.

The sandstone and shale facies of the Punchbowl Formation have yielded two fossil localities southeast of the Project area (McLeod 2017). At these localities fossils of an undetermined relative of weasels (Mustelidae) and two primitive horses (*Merychippus* and *Cormohipparion*) were recovered (McLeod 2017; Woodburne 2005, 2007).

Paleontological Sensitivity Analysis

In addition to the records search of the LACM, a rich history of fossil resources has been published from Pleistocene alluvial sediments in the Mojave Desert, including Antelope Valley (e.g., Miller 1971; Jefferson 1991a,b; Scott 2010; Scott and Cox 2008) as well as from the Anaverde Formation (Barrows 1987; Wallace 1949) and Punchbowl Formation (Barrows 1987). A search of the online collections database of the University of California Museum of Paleontology (UCMP) reveals further fossil specimens from Los Angeles County found in geologic units mapped in the project area. The UCMP has records of around 40 specimens of plants from the Anaverde Formation (UCMP 2017). These fossil specimens have been identified as belonging to the magnolia (Magnoliopsida) and pine (Pinopsida) families (UCMP 2017).

The records search of the LACM, the UCMP online collections database, and the review of scientific literature presented here have been used to assign paleontological sensitivities to the geologic units mapped in the project area, following the guidelines of the SVP (2010) (**Table 3.5-3**). The following units have high paleontological sensitivity: Pleistocene older alluvium (Qoa, Qos), shale and sandstone facies of the Anaverde Formation (Tac, Tas), and the shale and sandstone facies of the Punchbowl Formation (Tpc, Tps). Holocene alluvium (Qa) is assigned low-to-high sensitivity, increasing with depth. On the basis of fossil sites the LACM has recorded in this unit in the vicinity of the project area (McLeod 2017), it is likely that this transition to high sensitivity occurs at around 3 feet below ground surface, in areas mapped as Qa. The conglomerate facies of the Anaverde (Tar) and Punchbowl (Tpcg) formations as well as the landslide debris (Qls) are assigned low sensitivity, due to the lower likelihood of conglomerates

preserving fossil resources (McLeod 2017). Due to the inability of igneous and metamorphic rocks such as those in the Project area to preserve fossil resources, the following units have no paleontological sensitivity: Vasquez Formation (Tva, Tvb, Tvt), Pelona Schist (ps), hornblende diorite (di), quartz diorite (qd), quartz monzonite (qm), granite (gr), syenite (sy), and Lowe granodiorite (lgdb).

TABLE 3.5-3
PALEONTOLOGICAL SENSITIVITY OF GEOLOGIC UNITS WITHIN THE PROJECT AREA.

Formation	Age	Paleontological Sensitivity	Occurrence in Project Area
Artificial fill (af)	Recent	None	Southeast area
Holocene alluvium (Qa)	Holocene	Low-to-High, increasing with depth	All of northern and northeastern area, around Lake Palmdale
Landslide debris (Qls)	Holocene	Low	Eastern area
Pleistocene older alluvium* (Qoa, Qos)	Pleistocene	High	Central and southern area, in vicinity of San Andreas Fault
Anaverde Formation, shale & sandstone (Tac, Tas)	Pliocene	High	Northern side of San Andreas Fault
Anaverde Formation, sandstone conglomerate (Tar)	Pliocene	Low	Northern side of San Andreas Fault
Punchbowl Formation, shale & sandstone (Tpc, Tps)	Late Miocene	High	Southern & southeastern area
Punchbowl Formation, conglomerate (Tpcg)	Late Miocene	Low	Southern area
Vasquez Formation Volcanics (Tva, Tvb, Tvt)	Oligocene - Miocene	None	Southern & southeastern area
Pelona Schist (ps)	Mesozoic	None	Southernmost area
Plutonic igneous rocks (di, lgdb, qd, qm, gr, sy)	Precambrian, Mesozoic	None	Vicinity of San Andreas Fault, sporadic throughout southern area

Geologic units underlying the near-term project components include: Holocene alluvium (Qa), Pleistocene older alluvium (Qoa), the Anaverde Formation (Tac, Tas), the Punchbowl Formation (Tps), Pelona schist (ps), Hornblende diorite (di), Granite (gr), and Quartz diorite (qd). **Table 3.5-4** illustrates the geologic unit underlying each near-term project component and its paleontological sensitivity.

TABLE 3.5-4
GEOLOGIC UNITS UNDERLYING NEAR-TERM PROJECTS

Near-Term Project	Geological Unit	Sensitivity
EB-01	Qa: Holocene alluvium	Low-to-High, increasing with depth
ES-01	di: Hornblende diorite	None
	gr: Granite	None
ES-03	Qa: Holocene alluvium	Low-to-High, increasing with depth
	Tps: Punchbowl Formation, shale	High
FB-01	di: Hornblende diorite	None
FB-02	Qoa: Pleistocene alluvium	High
FF-01	Qa: Holocene alluvium	Low-to-High, increasing with depth
FF-04	Qa: Holocene alluvium	Low-to-High, increasing with depth
FF-05	Qa: Holocene alluvium	Low-to-High, increasing with depth
FF-06	Qa: Holocene alluvium	Low-to-High, increasing with depth
FF-07	Qa: Holocene alluvium	Low-to-High, increasing with depth
	gr: Granite	None
FS-01	ps: Pelona schist	None
Pipeline leading to EB-01	Qa: Holocene alluvium	Low-to-High, increasing with depth
	Qoa: Pleistocene alluvium	High
	Tac: Anaverde Formation, shale	High
	Tas: Anaverde Formation, sandstone	High
	Tps: Punchbowl Formation, shale	High
	qd: Quartz diorite	None

Summary

The surficial geology of the Project area is highly varied, with geologic units ranging in paleontological sensitivity from none to high. A review of the scientific literature and the online collections database of the UCMP, as well as a records search from LACM, establishes the following rock units as having high paleontological sensitivity: Pleistocene older alluvium (Qoa, Qos), shale and sandstone facies of the Anaverde Formation (Tac, Tas), and the shale and sandstone facies of the Punchbowl Formation (Tpc, Tps). While Holocene alluvium (Qoa) is identified as having low paleontological sensitivity at the surface, the age and sensitivity of this unit increases with depth, such that excavations exceeding 3 feet will likely encounter sediments of high paleontological sensitivity. The conglomerate facies of the Anaverde (Tar) and Punchbowl (Tpcg) formations as well as landslide debris (Qls) are assigned low sensitivity, due to the lower likelihood of conglomerates preserving fossil resources (McLeod 2017). The remainder of the geologic units in the Project area have no paleontological sensitivity and are not expected to preserve fossil resources.

Impacts Discussion

Historical Resources

Impact 3.5-1: The Project could cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.

The following discussion focuses on historic architectural resources. Archaeological resources, including archaeological resources that are potentially historical resources according to CEQA Guidelines Section 15064.5, are addressed under Impact CUL-2.

Storage Tanks (Near-Term)

One historic architectural resource, ESA-PWD-001B (railroad segment), is located with the proposed pipeline route to storage tank ES-03. It has not been previously evaluated for listing in the California Register, but is being treated as eligible for the purposes of this project and is considered a historical resource under CEQA Guidelines Section 15064.5(a)(4). This resource is actively in use as part of the Metrolink system and would be avoided by project design through the use of jack-and-bore or directional drilling construction methods. Therefore, the project would have no impact on this resource.

Storage Tanks (Long-Term)

A total of 16 storage tanks could be constructed over the WSMP's long-term planning period. The location of the proposed long-term storage tanks can be seen on Figure 2-2; however, these locations are subject to change in the future. There could be as-yet-unidentified historic architectural resources that could qualify as historical resources under CEQA within or near long-term storage tank project areas. Implementation of **Mitigation Measure CUL-1** would require PWD to conduct a Historical Resources Assessment, as necessary, for future long-term components to be implemented as part of the WSMP. With implementation of this mitigation measure, the impact would be reduced to a less than significant level.

Pumps (Near-Term)

No historic architectural resources are within the pump station project areas, and construction of the pumps would have no impact on historical resources.

Pumps (Long-Term)

The proposed project includes four new pumps at five existing pump stations, as well as six new pump stations within the project area. There could be as-yet-unidentified historic architectural resources that could qualify as historical resources under CEQA within or near long-term storage tank project areas. Implementation of Mitigation Measure CUL-1 would require PWD to conduct a Historical Resources Assessment, as necessary, for future long-term components to be implemented as part of the WSMP. With implementation of this mitigation measure, the impact would be reduced to a less than significant level.

Pipelines (Near-Term)

One historic architectural resource, P-19-001534 (Palmdale Ditch), is located with the proposed pipeline route leading to/from pump station EB-01. It was previously determined eligible for the National Register and is listed in the California Register, and is therefore a historical resource under CEQA Guidelines Section 15064.5(a)(1). This resource is still in use as a water conveyance system and would be avoided by project design through the use of jack-and-bore or directional drilling construction methods. Therefore, the project would have no impact on this resource.

Pipelines (Long-Term)

The proposed long-term pipelines would be installed primarily within existing roadway right-of-ways, and are not anticipated to impact historic architectural resources. However, the pipelines could cross linear features that could qualify as historical resources. Implementation of Mitigation Measure CUL-1 would require PWD to conduct a Historical Resources Assessment, as necessary, for future long-term components to be implemented as part of the WSMP. With implementation of this mitigation measure, the impact would be reduced to a less than significant level.

Wells (Long-Term)

The proposed wells would be located in the northern and eastern portion of the PWD service area, in undeveloped areas near industrial facilities and the Palmdale Regional Airport (north) and just east of developed land containing a high school and residential land uses (east) (Figure 2-2). These areas are unlikely to contain historic architectural resources, and construction of the wells is not anticipated to impact historical resources. However, implementation of Mitigation Measure CUL-1 would require PWD to consider whether historic resources would be affected by development of wells and if necessary conduct a Historical Resources Assessment. With implementation of this mitigation measure, the impact would be reduced to a less than significant level.

Headquarters Expansion (Long-Term)

PWD is proposing a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street. The headquarter expansion would consist of demolition of existing buildings at the corner of E. Avenue Q and 20th Street in Palmdale and construction of a 21,000 square foot building. The building to be constructed would be one story in height and would be constructed on land currently owned by PWD. PWD headquarters was evaluated for listing in the California Register under Criteria 1-4 and found to be ineligible. As such, it does not qualify as a historical resource under CEQA. Construction of the headquarters expansion would have no impact on historical resources.

Mitigation Measures

CUL-1: **Future Study – Historic Resources.** Prior to development of long-term WSMP components that could potentially affect historic resources, PWD shall retain a Qualified Architectural Historian, defined as meeting the Secretary of the Interior's Professional Qualification Standards for architectural history (codified in 36 CFR Part 61; 48 FR 44738-44739), to conduct a historic resources assessment including: a records search at the South Central Coastal Information Center; a review of pertinent archives and sources; a pedestrian field survey;

recordation of all identified historic resources on California Department of Parks and Recreation 523 forms; and preparation of a technical report documenting the methods and results of the assessment. All identified historic resources shall be assessed for the project's potential to result in direct and/or indirect effects to those resources and any historic resource that may be affected shall be evaluated for its potential significance prior to PWD's approval of project plans and publication of subsequent CEQA documents. The Qualified Architectural Historian shall provide recommendations regarding additional work or treatment for significant resources that will be affected by the project prior to their demolition or alteration.

Significance Determination: Less than Significant with Mitigation.

Archaeological Resources

Impact 3.5-2: The Project could cause a substantial adverse change in the significance of an archaeological resource, including those determined to be a historical resource defined in Section 15064.5 or a unique archaeological resource defined in PRC 21083.2.

This section discusses archaeological resources that are potentially historical resources according to CEQA Guidelines Section 15064.5 as well as unique archaeological resources defined in Section 21083.2(g).

Storage Tanks (Near-Term)

No archaeological resources were identified in the three near-term storage tank locations. Near-term storage tanks ES-01 and ES-03 were assessed as having a low sensitivity for subsurface archaeological resources. Construction of storage tanks ES-01 and ES-03 is not anticipated to impact archaeological resources. However, given that construction of near-term storage tanks ES-01 and ES-03 includes ground-disturbing activities, there remains a potential, albeit low, to encounter archaeological resources. Implementation of **Mitigation Measures CUL-2, CUL-3, and CUL-5** would ensure that archaeological resources are identified and any discoveries are mitigated. With the implementation of these measures, impacts related to construction of storage tanks ES-01 and ES-03 would be reduced to a less than significant level.

Near-term storage tank FS-01 was assessed as having a moderate sensitivity for subsurface archaeological resources. It is possible that the construction of these two storage tanks could impact archaeological resources. Implementation of **Mitigation Measures CUL-2 through CUL-5** would ensure that archaeological resources are identified and any discoveries are mitigated. With the implementation of these measures, impacts related to construction of storage tank FS-01 would be reduced to a less than significant level.

Storage Tanks (Long-Term)

A total of 16 storage tanks could be constructed over the program's long-term planning period. The location of the proposed long-term storage tanks can be seen on Figure 2-2; however, these locations are subject to change in the future. It is possible that the construction of the storage

tanks could impact archaeological resources. Implementation of **Mitigation Measures CUL-2 through CUL-6** would ensure that archaeological resources are identified, construction activities are appropriately monitored, and any discoveries are mitigated. With the implementation of these measures, impacts would be reduced to a less than significant level.

Pumps (Near-Term)

All three proposed near-term pumps would be implemented within existing pump stations that are developed. No archaeological resources were identified in the near-term pump station locations, and the near-term pump stations were assessed as having a low sensitivity for subsurface archaeological resources. Construction of the near-term pumps is not anticipated to impact archaeological resources. However, given that construction of the near-term pump stations includes ground-disturbing activities, there remains a potential, albeit low, to encounter archaeological resources. Implementation of Mitigation Measures CUL-2, CUL-3, and CUL-5 would ensure that archaeological resources are identified and any discoveries are mitigated. With the implementation of these measures, impacts would be reduced to a less than significant level.

Pumps (Long-Term)

The proposed project includes four new pumps at five existing pump stations, as well as six new pump stations within the project area. Locations are preliminary in nature and it is possible that the construction of the pump stations could impact archaeological resources. Implementation of Mitigation Measures CUL-2 through CUL-6 would ensure that archaeological resources are identified, construction activities are appropriately monitored, and any discoveries are mitigated. With the implementation of these measures, impacts would be reduced to a less than significant level.

Pipelines (Near-Term)

The majority of the proposed near-term pipelines are sited within or adjacent to existing roads, and no archaeological resources were identified in the near-term pipeline locations. However, the near-term pipeline locations were assessed as having a moderate sensitivity for subsurface archaeological resources and there is the potential to impact unknown buried archaeological resources during trenching the proposed near-term pipelines. Archaeological sensitivity within Holocene alluvium (which underlies all of the near-term pipelines) decreases at depths of 3 feet, the depth at which paleontological discoveries have been recovered from similar sediments in the project vicinity. While archaeological and paleontological resources can both be recovered from sediments dating to the Late Pleistocene and Middle Holocene, archaeological resources are less commonly associated with these sediments given the that human habitation of California was sparser during these time periods. Trenching for pipeline installation would be 5 feet in depth, and has the potential to encounter intact subsurface archaeological resources that may have been capped and preserved under paved roadways, although as noted sensitivity decreases below 3 feet. Implementation of Mitigation Measures CUL-2 through CUL-5 would ensure that archaeological resources are identified, construction activities are appropriately monitored, and any discoveries are mitigated. With implementation of mitigation, impacts would be reduced to a less than significant level.

Pipelines (Long-Term)

Construction of long-term pipelines has the potential to impact archaeological resources. Implementation of Mitigation Measures CUL-2 through CUL-6 would ensure that archaeological resources are identified, construction activities are appropriately monitored, and any discoveries are mitigated. With the implementation of these measures, impacts would be reduced to a less than significant level.

Wells (Long-Term)

The proposed wells would be located in the northern and eastern portion of the PWD service area, in undeveloped areas near industrial facilities and the Palmdale Regional Airport (north) and just east of developed land containing a high school and residential land uses (east) (Figure 2-2). Construction of the wells could impact archaeological resources. Implementation of Mitigation Measures CUL-2 through CUL-6 would ensure that archaeological resources are identified, construction activities are appropriately monitored, and any discoveries are mitigated. With the implementation of these measures, impacts would be reduced to a less than significant level.

Headquarters Expansion (Long-Term)

No known archaeological resources are on file at the SCCIC are within the proposed headquarters expansion location; however, an archaeological resources survey was not conducted since the headquarters expansion is a long-term project. The depth of excavation for the headquarters expansion is currently unknown, but could impact buried archaeological resources. Implementation of Mitigation Measures CUL-2 through CUL-6 would ensure that archaeological resources are identified, construction activities are appropriately monitored, and any discoveries are mitigated. With the implementation of these measures, impacts would be reduced to a less than significant level.

Mitigation Measures

CUL-2: **Retention of a Qualified Archaeologist.** Prior to start of any ground-disturbing activities for all near-term and long-term projects (i.e., demolition, pavement removal, pot-holing or auguring, boring, drilling, grubbing, vegetation removal, brush clearance, weed abatement, grading, excavation, trenching, or any other activity that has potential to disturb soil), PWD shall retain a Qualified Archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (codified in 36 CFR Part 61; 48 FR 44738-44739) to oversee and ensure that all mitigation measures related to archaeological resources are carried out.

CUL-3: **Construction Worker Cultural Resource Sensitivity Training:** Prior to the start of any ground-disturbing activity for all near-term and long-term projects, the Qualified Archaeologist shall conduct cultural resources sensitivity training for all construction personnel. Construction personnel shall be informed of the types of archaeological resources that may be encountered, and of the proper procedures to be enacted in the event of an inadvertent discovery of archaeological resources or human remains. PWD shall ensure that construction personnel are made available for and attend the training and retain documentation demonstrating attendance.

CUL-4: **Archaeological Monitoring.** Archaeological resources monitoring shall be conducted as follows:

- During ground disturbance related to construction of near-term pipelines FF-01, FF-04, FF-05, FF-06, and FF-07 and the pipeline leading to pump station EB-01 to a depth of 3 feet (depth at which archaeological sensitivity decreases and paleontological sensitivity increases)

- During ground disturbance related to construction of near-term storage tank FS-01 to the terminal depth of excavation or until bedrock is reached

- During ground disturbance related to construction of any and all long-term project components that the Qualified Archaeologist determines to have a moderate-to-high archaeological sensitivity (to depths to be determined by the Qualified Archaeologist) (see Mitigation Measure CUL-6)

CUL-5: **Inadvertent Discovery of Archaeological Resources.** For all near-term and long-term projects, in the event of the unanticipated discovery of archaeological materials, regardless of location, PWD shall immediately cease all work activities in the area (within approximately 100 feet) of the discovery until it can be evaluated by the Qualified Archaeologist. Construction shall not resume until the Qualified Archaeologist has conferred with PWD on the significance of the resource.

If it is determined that the discovered archaeological resource constitutes a historical resource or unique archaeological resource pursuant to CEQA, avoidance and preservation in place shall be the preferred manner of mitigation. Preservation in place maintains the important relationship between artifacts and their archaeological context and also serves to avoid conflict with traditional and religious values of groups who may ascribe meaning to the resource. Preservation in place may be accomplished by, but is not limited to, avoidance, incorporating the resource into open space, capping, or deeding the site into a permanent conservation easement. In the event that preservation in place is determined to be infeasible and data recovery through excavation is the only feasible mitigation available, an Archaeological Resources Research Design and Treatment Plan shall be prepared and implemented by the Qualified Archaeologist in consultation with PWD that provides for the adequate recovery of the scientifically consequential information contained in the archaeological resource. PWD shall consult with interested tribal groups in determining treatment for prehistoric or Native American resources to ensure cultural values ascribed to the resource, beyond those that are scientifically important, are considered.

The Qualified Archaeologist shall also determine the level of archaeological monitoring that is warranted during future ground disturbance in the area, and if work may proceed in other parts of the project area while treatment for archaeological resources is being carried out.

CUL-6: **Future Study – Archaeological Resources:** Prior to development of all long-term WSMP components that involve ground disturbance, PWD shall retain a Qualified Archaeologist, defined as meeting the Secretary of the Interior's Professional Qualification Standards for archaeology (codified in 36 CFR Part 61; 48 FR 44738-44739), to conduct an archaeological resources assessment

including: a records search update at the South Central Coastal Information Center; a Sacred Lands File search at the Native American Heritage Commission; a pedestrian field survey, where deemed appropriate by the Qualified Archaeologist; recordation of all identified archaeological resources on California Department of Parks and Recreation 523 forms; and preparation of a technical report documenting the methods and results of the study, and providing an assessment of the project area's archaeological sensitivity and the potential to encounter subsurface archaeological resources and human remains. All identified archaeological resources shall be assessed for the project's potential to result in direct and/or indirect effects to those resources and any archaeological resource that cannot be avoided shall be evaluated for its potential significance prior to PWD's approval of project plans and publication of subsequent CEQA documents. The Qualified Archaeologist shall provide recommendations regarding archaeological monitoring to be conducted in accordance with Mitigation Measure CUL-4, protection of avoided resources and/or recommendations for additional work or treatment of significant resources that will be affected by the project.

Significance Determination: Less than Significant with Mitigation.

Paleontological Resources

Impact 3.5-3: The Project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Storage Tanks (Near-Term)

Storage tank locations ES-01and FS-01 are underlain by geologic units with no paleontological sensitivity and construction of these two tanks would not impact paleontological resources.

Storage tank location ES-03 is underlain by the Punchbowl Formation (tps), which has a high paleontological sensitivity, and Holocene alluvium (Qa), which has low-to-high paleontological sensitivity, increasing with depth below 3 feet, and construction of storage tank ES-03, which will extend up to 10 feet in depth, has the potential to impact paleontological resources. Implementation of **Mitigation Measures CUL-7 through CUL-9** would ensure that paleontological resources are identified, construction activities are appropriately monitored, and any discoveries are mitigated. With the implementation of these measures, impacts would be reduced to a less than significant level.

Storage Tanks (Long-Term)

A total of 16 storage tanks could be constructed over the program's long-term planning period. The location of the proposed long-term storage tanks can be seen on Figure 2-2; however, these locations are subject to change in the future. Multiple storage tanks would be located within areas of paleontological sensitivity; therefore, it is possible that the construction of the storage tanks could impact paleontological resources. Implementation of Mitigation Measures CUL-7 through CUL-9 would ensure that paleontological resources are identified, construction activities are

appropriately monitored, and any discoveries are mitigated. With the implementation of these measures, impacts would be reduced to a less than significant level.

Pumps (Near-Term)

Pump station location FB-01 is underlain by a geologic unit with no paleontological sensitivity and construction of this pump would not impact paleontological resources.

Pump station location EB-01 is underlain by Holocene alluvium (Qa), which has low-to-high paleontological sensitivity, increasing with depth below 3 feet, and pump station location FB-02 is underlain by Pleistocene alluvium (Qoa), which has high paleontological sensitivity. The pipeline leading to EB-01 is underlain by Holocene alluvium (Qa), which has low-to-high paleontological sensitivity, increasing with depth below 3 feet, as well as Pleistocene alluvium, the Anaverde Formation, and the Punchbowl Formation, all of which have high paleontological sensitivity. Construction of these two pumps will extend up to 10 feet in depth and has the potential to impact paleontological resources. Implementation of Mitigation Measures CUL-7 through CUL-9 would ensure that paleontological resources are identified, construction activities are appropriately monitored, and any discoveries are mitigated. With the implementation of these measures, impacts related to construction of EB-01 and FB-02 would be reduced to a less than significant level.

Pumps (Long-Term)

The proposed project includes four new pumps at five existing pump stations, as well as six new pump stations within the project area. Although locations are preliminary in nature, the new pump stations may be located in areas of paleontological sensitivity; therefore, it is possible that the construction of the pump stations could impact paleontological resources. Implementation of Mitigation Measures CUL-7 through CUL-9 would ensure that paleontological resources are identified, construction activities are appropriately monitored, and any discoveries are mitigated. With the implementation of these measures, impacts would be reduced to a less than significant level.

Pipelines (Near-Term)

The near-term pipelines are all underlain by Holocene alluvium (Qa), which has low-to-high paleontological sensitivity, increasing with depth below 3 feet. Construction of the pipelines, which would extend up to 5 feet in depth, has the potential to impact paleontological resources. Implementation of Mitigation Measures CUL-7 through CUL-9 would ensure that paleontological resources are identified, construction activities are appropriately monitored, and any discoveries are mitigated. With the implementation of these measures, impacts would be reduced to a less than significant level.

Pipelines (Long-Term)

The proposed long-term pipelines would be installed primarily within existing roadway right-of-ways, but may be located in areas of paleontological sensitivity. Construction of the pipelines, which would extend up to 5 feet in depth, has the potential to impact paleontological resources. Implementation of Mitigation Measures CUL-7 through CUL-9 would ensure that paleontological

resources are identified, construction activities are appropriately monitored, and any discoveries are mitigated. With the implementation of these measures, impacts would be reduced to a less than significant level.

Wells (Long-Term)

The proposed wells would be located in the northern and eastern portion of the PWD service area, in undeveloped areas near industrial facilities and the Palmdale Regional Airport (north) and just east of developed land containing a high school and residential land uses (east) (Figure 2-2). These areas are primarily underlain by Holocene alluvium (Qa), which has low-to-high paleontological sensitivity, increasing with depth below 3 feet. Construction of the wells has the potential to impact paleontological resources. Implementation of Mitigation Measures CUL-7 through CUL-9 would ensure that paleontological resources are identified, construction activities are appropriately monitored, and any discoveries are mitigated. With the implementation of these measures, impacts would be reduced to a less than significant level.

Headquarters Expansion (Long-Term)

The headquarter expansion location is underlain by Holocene alluvium (Qa), which has low-to-high paleontological sensitivity, increasing with depth below 3 feet. The depth of excavation for the headquarters expansion is currently unknown, but could extend below 3 feet in depth with the potential to impact paleontological resources. Implementation of Mitigation Measures CUL-7 through CUL-9 would ensure that paleontological resources are identified, construction activities are appropriately monitored, and any discoveries are mitigated. With the implementation of these measures, impacts would be reduced to a less than significant level.

Mitigation Measures

CUL-7: **Retention of a Qualified Paleontologist.** Prior to start of any ground-disturbing activities for all near-term and long-term projects (i.e., demolition, pavement removal, pot-holing or auguring, boring, drilling, grubbing, vegetation removal, brush clearance, weed abatement, grading, excavation, trenching, or any other activity that has potential to disturb soil), PWD shall retain a Qualified Paleontologist meeting the Society of Vertebrate Paleontology standards (SVP, 2010). The Qualified Paleontologist shall conduct construction worker paleontological resources sensitivity training for all construction personnel. The training session shall focus on the recognition of the types of paleontological resources that could be encountered within the project area and the procedures to be followed if they are found. PWD shall retain documentation demonstrating that construction personnel attended the training.

CUL-8: **Paleontological Monitoring.** Full-time paleontological resources monitoring for near-term and long-term projects shall be performed by a qualified paleontological monitor under the direction of the Qualified Paleontologist (SVP, 2010). Monitors shall have the authority to temporarily halt or divert work away from exposed fossils, in a radius of at least 50 feet, in order to recover the fossil specimens. Any significant fossils collected during project-related excavations shall be prepared to the point of identification and curated into an accredited repository with retrievable storage. Monitors shall prepare daily logs detailing the types of activities and soils observed, and any discoveries. The Qualified

Paleontologist shall prepare a final monitoring and mitigation report to be submitted to PWD. Paleontological resources monitoring shall be conducted as follows:

a. In sediments mapped as **low-to-high paleontological sensitivity** [i.e., Holocene alluvium (Qa)] all ground-disturbing activities that exceed 3 feet in depth (depth at which paleontological sensitivity increases) and occur in areas that have not been previously disturbed shall receive full-time paleontological monitoring. This depth is an estimate based on the recovery of fossils from the vicinity of the project area. The Qualified Paleontologist may reevaluate monitoring levels as construction progresses if the paleontological sensitivity of the area proves to be lower than anticipated.

b. In sediments mapped as **high paleontological sensitivity** [i.e., Pleistocene alluvium (Qoa, Qos), shale and sandstone of the Anaverde Formation (Tac, Tas), and the shale and sandstone of the Punchbowl Formation (Tpc, Tps)], all ground-disturbing activities that occur in areas that have not been previously disturbed shall be receive full-time paleontological monitoring, at all excavation depths. The Qualified Paleontologist may reevaluate monitoring levels as construction progresses if the paleontological sensitivity of the area proves to be lower than anticipated.

CUL-9: **Inadvertent Discovery of Paleontological Resources.** For all near-term and long-term projects, if construction or other project personnel discover any potential fossils during construction, regardless of the depth of work or location, work at the discovery location shall cease in a 50-foot radius of the discovery until the Qualified Paleontologist has assessed the discovery and made recommendations as to the appropriate treatment. If the find is deemed significant, it shall be salvaged following the standards of the SVP (2010) and curated with a certified repository. Following a discovery, the Qualified Paleontologist shall also provide PWD with recommendations regarding future paleontological monitoring, if deemed warranted.

Significance Determination: Less than Significant with Mitigation.

Human Remains

Impact 3.5-4: The Project could disturb any human remains, including those interred outside of formal cemeteries.

Storage Tanks (Near-Term)

There are no cemeteries or known human remains in the vicinity of the near-term storage tanks. Given the low to moderate archaeological sensitivity of the near-term storage tanks, construction of the storage tanks is not anticipated to impact human remains. However, given that construction of the near-term storage tanks includes ground-disturbing activities, there nonetheless remains a potential to encounter human remains. Implementation of **Mitigation Measure CUL-10,** which

includes provisions for the unanticipated discovery of human remains, would reduce impacts to a less than significant level.

Storage Tanks (Long-Term)

A total of 16 storage tanks could be constructed over the program's long-term planning period. The location of the proposed long-term storage tanks can be seen on Figure 2-2; however, these locations are subject to change in the future. It is possible that the construction of the storage tanks could impact human remains. Implementation of Mitigation Measure CUL-10, which includes provisions for the unanticipated discovery of human remains, would reduce impacts to a less than significant level.

Pumps (Near-Term)

All three proposed near-term pumps would be implemented within existing pump stations that are developed. No cemeteries or known human remains are in the vicinity of the near-term pump station locations. Given the low archaeological sensitivity of the near-term storage tanks, construction of the storage tanks is not anticipated to impact human remains. However, given that construction of the near-term pumps includes ground-disturbing activities, there remains a potential, albeit low, to encounter human remains. Implementation of Mitigation Measure CUL-10, which includes provisions for the unanticipated discovery of human remains, would reduce impacts to a less than significant level.

Pumps (Long-Term)

The proposed project includes four new pumps at five existing pump stations, as well as six new pump stations within the project area. Locations are preliminary in nature and it is possible that the construction of the pump stations could impact human remains. Implementation of Mitigation Measure CUL-10, which includes provisions for the unanticipated discovery of human remains, would reduce impacts to a less than significant level.

Pipelines (Near-Term)

The majority of the proposed near-term pipelines are sited within or adjacent to existing roads, and no cemeteries or known human remains are within the near-term pipeline locations. However, the near-term pipeline locations were assessed as having a moderate sensitivity for subsurface archaeological resources, which could contain human remains. Trenching for pipeline installation would be 5 feet in depth, and has the potential to encounter intact subsurface archaeological resources with human remains that may have been capped and preserved under paved roadways. Implementation of Mitigation Measure CUL-10, which includes provisions for the unanticipated discovery of human remains, would reduce impacts to a less than significant level.

Pipelines (Long-Term)

Similar to near-term pipelines, construction of long-term pipelines has the potential to impact human remains. Implementation of Mitigation Measure CUL-10, which includes provisions for the unanticipated discovery of human remains, would reduce impacts to a less than significant level.

Wells (Long-Term)

The proposed wells would be located in the northern and eastern portion of the PWD service area, in undeveloped areas near industrial facilities and the Palmdale Regional Airport (north) and just east of developed land containing a high school and residential land uses (east) (Figure 2-2). Construction of the wells could impact archaeological resources containing human remains. Implementation of Mitigation Measure CUL-10, which includes provisions for the unanticipated discovery of human remains, would reduce impacts to a less than significant level.

Headquarters Expansion (Long-Term)

There are no cemeteries or known human remains in the vicinity of the headquarters expansion. The depth of excavation for the headquarters expansion is currently unknown, but has the potential to encounter intact subsurface archaeological resources with human remains. Implementation of Mitigation Measure CUL-10, which includes provisions for the unanticipated discovery of human remains, would reduce impacts to a less than significant level.

CUL-10: **Inadvertent Discovery of Human Remains**: If human remains are encountered, then PWD shall halt work in the vicinity (within 100 feet) of the discovery and contact the County Coroner in accordance with Public Resources Code section 5097.98 and Health and Safety Code section 7050.5. If the County Coroner determines the remains are Native American, then the Coroner shall notify the California Native American Heritage Commission in accordance with Health and Safety Code subdivision 7050.5(c), and Public Resources Code section 5097.98. The California Native American Heritage Commission shall designate a Most Likely Descendant for the remains per Public Resources Code section 5097.98. Until the landowner has conferred with the Most Likely Descendant, the contractor shall ensure the immediate vicinity where the discovery occurred is not disturbed by further activity, is adequately protected according to generally accepted cultural or archaeological standards or practices, and that further activities take into account the possibility of multiple burials.

Significance Determination: Less than Significant Impact with Mitigation.

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3.6 Geology, Soils, Seismicity and Mineral Resources

This section addresses the geologic and mineral impacts associated with implementation of the proposed 2016 Water System Master Plan (WSMP or proposed project), which would include the construction and operation of new facilities and upgrades to existing facilities throughout the Palmdale Water District (PWD) service area and vicinity. These facilities include pipelines, storage tanks, pump stations and groundwater wells to be constructed in the near-term (before 2020) and long-term (after 2020). Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). This section describes local geology, soils, seismicity, and mineral resources. This section also evaluates the proposed project's potential impacts on geology, soils, and minerals in the project area, and describes mitigation measures that would reduce impacts to a less than significant level.

3.6.1 Environmental Setting

Local Geology

Topography

The project area is located in the Antelope Valley in the western portion of the Mojave Desert, north of the San Gabriel Mountains. The topography of the project area varies from relatively flat with occasional drainages and sand dunes on the valley floor to steep foothill and mountain areas in the south portion of the project area. Elevations range from approximately 2,600 feet above mean sea level (amsl) on the valley floor to 3,000 feet amsl in the foothills. The San Andreas Fault crosses the southernmost portion of the project area, parallel to and just north of the San Gabriel Mountains. Natural drainage channels including the Amargosa Creek, Anaverde Creek and Little Rock and Big Rock Washes run generally north and northeast across the project area toward the Rosamond and Rogers dry lakes (City of Palmdale 1993a).

Soil Types and Expansiveness

Many types of soil are located within the project area. The soil series found in the project area include: Adelanto, Amargosa, Cajon, Castaic, Chino, Gaviota, Greenfield, Hanford, Hesperia, Los Posas, Ramona, Rosamond, Sorrento, Vernalis, Vista, and Wyman. The Ramona soil series comprises the largest percent of the project area (16.9%), followed by Hesperia (14.2%) and then Rosamond (10.4%). The other series represent relatively small proportions of the areas soil makeup (NRCS 2017).

Soil expansiveness depends on the type and amount of clay in the soil; soils with certain types of clay swell or expand when water content is increased. These soils also shrink disproportionately when dry. Highly expansive soils can cause structural damage to structural foundations and roads. The project area contains generally-designated areas of low, medium and high soil expansion potential; some of the proposed facilities would be located in areas with moderate and high soil expansion potential (City of Palmdale 1993b).

Seismic and Geologic Hazards

Fault Rupture and Ground-Shaking

The project area is considered a seismically active region. The San Andreas Fault is the dominant seismic feature in the area. The locations of proposed facilities in relation to the Alquist-Priolo fault zone associated with the San Andreas Fault are shown in **Figure 3.6-1**. (Alquist-Priolo fault zones are explained in more detail in Section 3.6.2, "Regulatory Framework," below). Several fault traces branch off from this fault in the project area. The San Andreas Fault and its fault traces are active; movement on the San Andreas Fault may activate one or all of these trace faults. Other principal faults that could produce damaging earthquakes in the Palmdale area are the Sierra Madre-San Fernando, Garlock, Owens Valley, and White Wolf faults (City of Palmdale 1993b).

Landslides

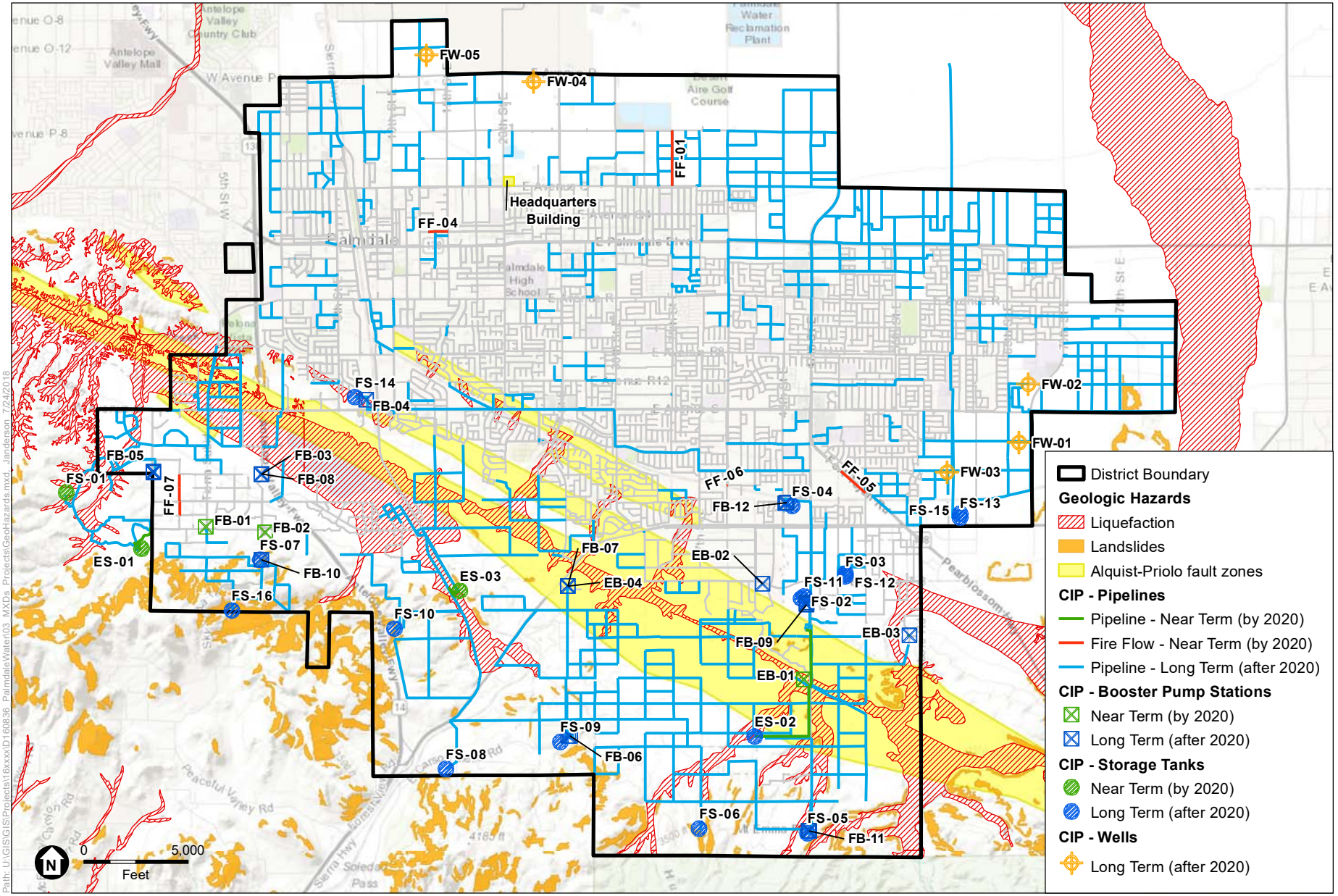
Landslides are movements of a mass of rock, debris, or earth down a slope (USGS 2016). The City of Palmdale General Plan identifies its hillsides as having landslide risks (City of Palmdale 1993b). Some of the proposed facilities in the San Gabriel Mountain foothills would be located in County-designated Hillside Management Areas, which are at risk for landslides (County of Los Angeles 2014a). Further, some project facilities are located in a State-identified landslide hazard zone (CGS 2003) (See Figure 3.6-1).

Liquefaction

Liquefaction occurs when water-saturated granular soils transform from a solid to a liquid state during strong ground shaking (County of Los Angeles 2015). Liquefaction potential of a site is determined based on soil type and distance to groundwater (City of Palmdale 1993b). Some of the proposed project facilities would be located within a State-identified liquefaction hazard zone (CGS 2003). Figure 3.6-1 shows areas at risk for liquefaction within the project area.

Subsidence

Subsidence (or gradual sinking) of the ground is caused by decreasing subsurface pressure from substantial loss of ground fluid, which creates a vacuum. Subsidence is often caused by pumping of groundwater, natural gas, or oil, and may cause damage to development, underground utility lines (City of Palmdale 1993b), pipelines and wells (USGS 2017). Some portions of the project area have "low-moderate" potential for subsidence according to the City (about 0.1-0.5 foot). A large portion of the project area has not been mapped by State or federal agencies for subsidence; however, this does not mean a subsidence risk is not present (City of Palmdale 1993b).



SOURCE: Palmdale Water 2017; California Geological Survey; California Department of Conservation

Palmdale Water District

Figure 3.6-1
Geologic Hazards

ESA

Collapse and Settlement

Collapsible soils are low density, fine-grained, granular soils containing minute pores and voids. When saturated, the grains of these soils rearrange and become cemented, causing collapse of the soil structure and differential settlement at the surface. Collapsible soils are extremely sensitive to increased moisture caused by irrigation or a rise in the groundwater table. Collapsible soils are found in areas where deposited materials have not had enough contact with moisture to form a compact soil. Water channels and alluvium fans are especially susceptible to collapsible soils in the Antelope Valley; however, all desert soil can be considered collapsible in the first few feet below ground surface because the alluvium is so dry that it causes settlement when wetted. Although not always associated with earthquakes, repeated ground movement from earthquake and grading will cause more settlement in areas with granular soils than in other places (City of Palmdale 1993b).

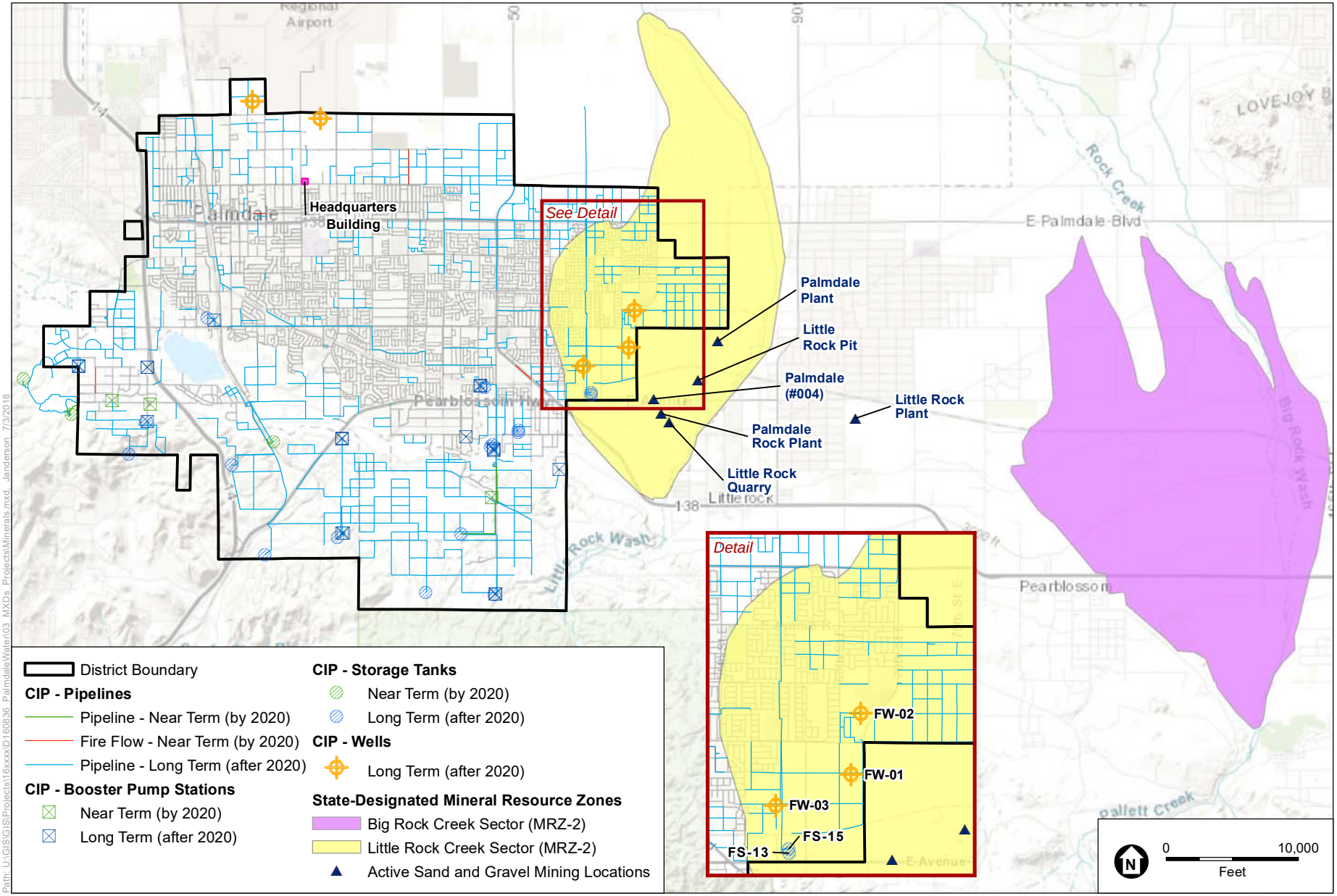
Mineral Resources

Known and potential major deposits of sand and gravel, crushed rock, clay, limestone and dolomite used primarily for construction have been identified in the project area; certain sand and gravel deposits in floodplains and stream channels in the Little Rock and Big Rock Wash areas have been identified as "Mineral Resource Zones 2" (MRZ-2). Areas with an MRZ-2 designation are areas where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence. (Section 3.6.2, "Regulatory Framework," below discusses mineral resource zones in more detail). The Little Rock Wash MRZ-2 is located in the eastern portion of the project area adjacent to residential land uses on the south but primarily within open space. The Big Rock Wash MRZ-2 is located within open space land uses and lies entirely outside of the project area, east of the Little Rock Wash MRZ-2 (City of Palmdale 1993a). There are six active sand and gravel mining locations to the east of the project area (USGS 2017). **Figure 3.6-2** shows the MRZs and mining activities relative to the locations of the proposed facilities.

3.6.2 Regulatory Framework

Federal

American Water Works Association and American National Standards Institute Guidelines for Water Pipelines: The American Water Works Association (AWWA) provides requirements for design, installation, performance, and manufacturing of products used in the water industry, including pipe, chemicals, storage facilities, valves, meters, and other appurtenances. Pipe installation, disinfection of facilities, lining application, and utility management practices are also covered. For pipelines, AWWA provides minimum requirements for design, materials and dimensions, fabrication and manufacture, marking and delivery, installation, and verification/testing/inspection. AWWA is an American National Standards Institute (ANSI)-approved standards developing organization for the water industry. PWD requires that its contractors install pipelines in accordance with the AWWA/ANSI standards.



SOURCE: Palmdale Water 2017; Palmdale General Plan 1993; USGS Mineral Resources

Palmdale Water District

Figure 3.6-2
Mineral Resources

ESA

State

Alquist-Priolo Earthquake Fault Zoning Act: The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act) was signed into law in December of 1972 and requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the hazard of potential fault rupture and to prohibit the location of most structures for human occupancy across these traces. Cities and counties must regulate certain development projects within the zones, which includes withholding permits until geologic investigations demonstrate that development sites are not threatened by future surface displacement (Bryant and Hart 1997). Some of the project facilities would be located within an Alquist-Priolo Earthquake Fault Zone as shown in Figure 3.6-1.

California Building Code: The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress to facilities (entering and exiting), and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2016 edition of the CBC is based on the 2015 International Building Code (IBC) published by the International Code Council, which replaced the Uniform Building Code. Seismic design provisions of the building code generally prescribe minimum lateral forces applied statically to the structure, combined with the gravity forces of the dead and live loads of the structure, which the structure then must be designed to withstand. The prescribed lateral forces are generally smaller than the actual peak forces that would be associated with a major earthquake. Consequently, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse, but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake. However, it is reasonable to expect that a structure designed in-accordance with the seismic requirements of the CBC should not collapse in a major earthquake.

The designs of the proposed facilities are required to comply with CBC requirements, which would make the proposed project consistent with the CBC.

California Well Standards: In June of 1991, the California Department of Water resources published well standards to ensure groundwater quality is protected. These include surface construction features, sealing, casing, and rehabilitation and repair standards (DWR 1991).

Surface Mining and Reclamation Act (SMARA): The Surface Mining and Reclamation Act of 1975 (Public Resources Code Sections 2710-2796) provides a comprehensive surface mining and reclamation policy and regulates surface mining operations to minimize adverse environmental impacts and reclamation of mined lands to a usable condition. SMARA also encourages the production, conservation, and protection of the state's mineral resources (CDOC 2017a). The California Geological Survey (CGS) classifies the regional significance of the State's mineral resources in accordance with the Act to indicate the significance of mineral deposits based on geologic appraisal of the mineral resource potential of the land. The CGS MRZ categories are as follows (CDOC 2017b):

MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present or where it is judge that little likelihood exists for their presence.

MRZ-2: Areas where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence.

MRZ-3: Areas where available information is inadequate for assignment to any other MRZ.

Local

County of Los Angeles Well Permit: The County of Los Angeles Drinking Water Program requires completion of an application for both production (residential drinking water, public/municipal, irrigation) and non-production (monitoring, injection, water extraction) wells. The application requires submittal of a well site plan, pertinent geologic features, and drawing of sources of contamination within 200 feet from the well site. According to permit requirements, all wells must comply with the California Well Standards, and all field work must be conducted under the supervision of a professional geologist (County of Los Angeles 2012).

County of Los Angeles Manual for Preparation of Geotechnical Reports: Since many grading and building plan submittals in the County require geology and/or soils engineering reports, the County of Los Angeles Manual for Preparation of Geotechnical Reports presents geotechnical work requirements for development projects. According to the Manual, a geologic investigation is required when a proposed building is within 50 feet of the assumed location of a known active earthquake fault. Geotechnical reports should identify adverse geologic conditions based on data and records, and should include recommendations for remediation methods and incorporate corrective measures into development plans. Geotechnical reports must be prepared by a civil engineer, licensed in the State of California, experienced in the field of soil mechanics, or a geotechnical engineer licensed in the State of California (County of Los Angeles 2013).

County of Los Angeles Administrative Manual for Geotechnical Review of Liquefaction and Lateral Spread: The County issued the Administrative Manual for Geotechnical Review of Liquefaction and Lateral Spread to address the geotechnical review of projects in areas State-designated liquefaction areas. According to the Manual, if a liquefaction hazard cannot be proved absent, an engineering geology and/or soils engineering report that addresses the potential for liquefaction and associated settlement and lateral spreading is required. The report shall recommend mitigation measures in the form of structural mitigation and/or ground modification to avoid or lessen potential impacts related to liquefaction (County of Los Angeles 2014b).

County of Los Angeles Guidelines for Analyzing and Mitigating Landslide Hazards in California: The County Guidelines for Analyzing and Mitigating Landslide Hazards in California are more definitive than landslide-related guidelines specified in California Department of Conservation Special Publication 117. According to the Guidelines, landslide hazard areas require static and seismic slope stability analyses. The Guidelines provide common methods for these analyses and mitigation techniques useful to geotechnical engineers when addressing landslide hazards (ASCE 2000).

County of Los Angeles Local Storm Water Pollution Prevention Plans and Wet Weather Erosion Control Plans: Regardless of whether construction projects qualify for coverage under the Construction General Permit, Los Angeles County requires the preparation of a Local Storm Water Pollution Prevention Plan (LSWPPP) for all projects disturbing greater than an acre. LSWPPPs include year-round best management practices (BMPs) that must be incorporated into construction activities. All BMPs must be detailed on the LSWPPP or reference standard details found in the "California Storm Water BMP Construction Handbook." The LSWPPP plan must include appropriate BMPs for: general site management, construction materials and waste management, and erosion and sediment controls. To control site erosion and sediment during the rainy season, a Wet Weather Erosion Control Plan (WWECP) must be submitted or revised every year for all construction sites, regardless of their disturbance footprint size, to reflect site conditions at the start of the rainy season October 15. Grading and building plans that will have construction work occurring during the rainy season, will not be permitted until WWECP are submitted and approved. The LSWPPP and WWECP can be submitted together or as separate plans (County of Los Angeles 2005).

County of Los Angeles General Plan: The County of Los Angeles General Plan recently underwent a comprehensive update; the latest Plan version was approved in October 2015 (County of Los Angeles 2015). The General Plan contains a Safety Element that identifies and assesses various threats to public health and safety, including geologic and seismic hazards. The section identifies goals, and outlines corresponding policies and management actions to support the various goals, which are identified below.

Safety Element

Goal S 1: An effective regulatory system that prevents or minimizes personal injury, loss of life and property damage due to seismic and geotechnical hazards.

> **Policy S 1.1:** Discourage development in Seismic Hazard and Alquist-Priolo Earthquake Fault Zones.
>
> **Policy S 1.3:** Require developments to mitigate geotechnical hazards, such as soil instability and landsliding, in Hillside Management Areas through siting and development standards.
>
> **Policy S 1.4:** Support the retrofitting of unreinforced masonry structures to help reduce the risk of structural and human loss due to seismic hazards (County of Los Angeles 2015).

City of Palmdale General Plan: The City of Palmdale General Plan contains a Safety Element that addresses seismic hazards, as well as an Environmental Resources element that addresses the conservation and protection of local resources, including mineral resources. The relevant goals and policies from these elements are identified below.

Safety Element

Goal S1: Minimize danger and damage to public health, safety, and welfare from natural hazards.

Objective S1.1: Review development within or adjacent to geologic hazards, to ensure adequate provisions for public safety.

Policy S1.1.1: Provide copies of geotechnical reports for projects located within the seismic hazard zone, as shown on latest California Department of Conservation Seismic Hazard Zones Map, to the State Division of Mines and Geology. (General Plan Amendment 04-01, adopted by City Council April 14, 2004)

Policy S1.1.3: Require geotechnical studies, to be reviewed and approved by the City's geologist, for development proposals in areas where geotechnical hazards may be present, and implement the recommendations of those reports as deemed necessary by the City.

Policy S1.1.4: Require appropriate structural setbacks from active fault rupture traces in accordance with Alquist-Priolo standards and as required by the City, based on geotechnical analysis.

Policy S1.1.5: Require structural setbacks or special foundations for structures within potentially active fault zones as determined by the City, based on geotechnical analysis.

Policy S1.1.6: Require special foundations within inactive fault zones if determined necessary by the City.

Policy S1.1.7: Restrict location of utility lines, whether above or below ground, within an appropriate distance from active fault traces, as determined by geotechnical investigation and approved by the City. Utility lines crossing active fault traces should be specifically designed to withstand the expected movement of the earth in these locations. Utility lines as defined here would include, but not be limited to, electricity, water, natural gas and sewer.

Policy S1.1.8: Require that all structures should meet or exceed state required earthquake resistant design standards.

Policy S1.1.9: Review development proposals located in or immediately adjacent to areas of soil instability, liquefaction areas, and steep slopes to determine if a significant constraint exists and to determine appropriate land use or hazard mitigation methods, and require compliance with any such measures identified.

Environmental Resources

Goal ER6: Ensure an adequate supply of mineral resources to meet long-term regional construction needs.

Objective ER6.1: Recognize the regional importance of the classified and designated mineral deposits within Palmdale's Planning Area and discourage encroachment of incompatible land uses which could threaten the long-term viability of sand and gravel mining and processing operations in the Littlerock Wash area.

Policy ER6.1.1: Establish a Mineral Resource Extraction (MRE) designation. Permitted uses within the MRE designation shall consist of mineral resource extraction (quarrying) and quarry related uses. Non-quarry related uses shall be permitted within the MRE area only when the Planning Commission has made the following findings:

1. The proposed use is compatible with and will not be detrimental to existing and future quarrying operations;
2. Long-term regional aggregate needs have been evaluated and valuable resources will remain adequate to meet the future needs of the market region.

Policy ER6.1.2: Prohibit incompatible land uses within the MRE designation. Example of incompatible land uses include, but are not limited to, residential, some public facilities, intensive industrial and commercial.

City Soil Investigation Requirements

The City of Palmdale General Plan states that soil investigations should be performed prior to any construction activity to determine the presence of collapsible soils. The City also states that areas with collapsible soils should not be developed unless the hazard is remedied through acceptable engineering practices for achieving soil stability (City of Palmdale 1993b).

3.6.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to geology, soils, seismicity, and minerals are based on Appendix G of the *CEQA Guidelines*. The proposed project would result in a significant impact to geology, soils, seismicity, and minerals if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction; or
  - Landslides;
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on-site or offsite landslide, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative reclaimed water disposal systems where sewers are not available for the disposal of reclaimed water;
- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or

- Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

Methodology

The WSMP would develop PWD's potable water system over the next 25 years in order to meet the water quantity, water quality, system pressure, and reliability requirements of customers. Implementation of actions under this Plan would require the construction of various aboveground facilities and support infrastructure including storage tanks, pump stations, pipelines and wells. Additionally, PWD is proposing a headquarters building expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to be constructed as part of the long-term facilities. Projects to be implemented by 2020 are considered near-term project components and are analyzed at site-specific level. Projects addressed after 2020 are considered long-term projects. Preliminary locations for the long-term facilities have been established (see Figure 2-2), although locations are subject to change based on the need of facilities in the future. As such, these long-term facilities are therefore evaluated generally and broadly.

Impact Discussion

Fault Rupture and Ground Shaking

Impact 3.6-1: The proposed project could expose people or structures to adverse geologic effects, including the risk of loss, injury or death involving rupture of a known earthquake fault.

Storage Tanks (Near-Term and Long-Term)

None of the proposed three near-term or 16 long-term storage tanks would be located within an Alquist-Priolo fault zone as shown on Figure 3.6-1 and are thus not located adjacent to a fault. However, the entire project area is considered a seismically active region and therefore storage tanks would likely be exposed to groundshaking throughout their operation. Storage tanks would be constructed in accordance with the California Building Code, which includes seismic design provisions to reduce the negative effects of groundshaking on structures. Impacts would be less than significant related to fault rupture and ground shaking.

Pumps (Near-Term)

The three proposed near-term pumps (EB-01, FB-01, and FB-02) would be installed at existing pump stations. One of these existing pump stations (EB-01) is located within the Alquist-Priolo fault zone associated with the San Andreas fault. Therefore, the near-term pumps installed at this pump station could be subject to fault rupture similar to already existing pumps at this location. Further, all of the proposed near-term pumps would likely be exposed to strong seismic groundshaking given the highly seismic project area. However, the proposed near-term pumps would be constructed according to California Building Code requirements, including implementation of seismic design provisions designed to reduce fault rupture and ground shaking effects on the structures. Impacts would be less than significant related to fault rupture and ground shaking for near-term pumps.

Pumps (Long-Term)

The WSMP includes implementation of seven new pumps at five existing pump stations, and six new pump stations as part of the long-term scenario. Two new pumps (EB-04 and FB-07) would be installed at an existing pump station that is located within an Alquist-Priolo fault zone; therefore, these new pumps could be subject to fault rupture similar to already existing pumps at this location. None of the proposed long-term new pump stations would be located within an Alquist-Priolo fault zone. All new pumps and pump stations would be constructed according to California Building Code requirements, including provisions geared towards reducing fault rupture and ground shaking effects on structures. Impacts would be less than significant related to fault rupture and ground shaking for long-term pumps and pump stations.

Pipelines (Near-Term and Long-Term)

Sections of both near-term and long-term pipelines would be located within an Alquist-Priolo fault zone as shown in Figure 3.6-1. Pipelines both within and outside of the Alquist-Priolo fault zone would still be subject to ground shaking due to the area's high seismicity. All pipelines would be designed in accordance with the AWWA/ANSI standards and PWD's Engineering Standards and Specifications, which would help ensure structural resiliency should an earthquake occur. Impacts would be less than significant related to fault rupture and ground shaking for near-term and long-term pipelines.

Wells (Long-Term)

None of the proposed groundwater wells would be located within an Alquist-Priolo fault zone and would thus not be subject to fault rupture, yet wells would likely be subject to ground shaking since the project area is a seismically-active region. However, the proposed wells would be constructed in accordance with the Department of Water Resources California Well Standards, which includes provisions pertaining to well sealing and casing to prevent corrosion and leaks. These provisions would also help secure the well in the event of ground shaking. The wells would also be required to obtain well permits prior to construction from the County of Los Angeles that require the review of well site plan prior to permit approval to ensure well structural stability to the maximum extent possible. Impacts would be less than significant related to fault rupture and ground shaking for wells.

Headquarters Expansion (Long Term)

The PWD headquarters expansion building would consist of demolition of existing buildings at the corner of E. Avenue Q and 20th Street in Palmdale and construction of a 21,000 square foot addition to the headquarters building. The proposed location for the headquarters expansion is not located within an Alquist-Priolo fault zone as shown on Figure 3.6-1 and is thus not located adjacent to a fault. However, the entire project area is considered a seismically active region and therefore the headquarters building would likely be exposed to groundshaking throughout its operation. The headquarters expansion building would be constructed in accordance with the California Building Code, which includes seismic design provisions to reduce the negative effects of groundshaking on structures. Impacts would be less than significant related to fault rupture and ground shaking.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Soil Erosion or Topsoil Loss

Impact 3.6-2: The proposed project could result in substantial soil erosion or the loss of topsoil.

Storage Tanks (Near-Term and Long-Term)

The storage tanks to be constructed would all be located in undeveloped areas. Construction of near-term and long-term storage tanks would require site preparation and clearing, excavation, grading, tank erection and painting, and site restoration, which would disturb soils and potentially expose them to erosion or topsoil loss. **Mitigation Measure GEO-1** would ensure topsoil materials excavated during construction are reused and maintained onsite to the extent feasible, and that all topsoil stockpiles are wetted, thereby minimizing topsoil loss. The storage tanks would range in size from 3,421 to 18,627 square feet in size. One acre of disturbance is 43,560 square feet, and thus with ancillary construction space, construction could result in disturbance of one acre of ground surface. As described in Section 3.8, *Hydrology and Water Quality*, a LSWPPP that includes year-round erosion and sediment control BMPs would be implemented for all construction activities disturbing more than one acre per County requirements. All construction activities regardless of disturbance size must implement a WWECP that would include temporary erosion and sediment control BMPs for the rainy season when erosion and sediment loss potential tends to be highest. To further prevent erosion and topsoil loss, **Mitigation Measure HYD-1** requires preservation of existing vegetation to the maximum extent possible as well as compaction of any unvegetated areas post-construction (See Section 3.8, *Hydrology and Water Quality*). Operation of storage tanks would not result in any soil disturbance. Therefore, impacts related erosion and topsoil loss during storage tank construction and operation would be less than significant with implementation of mitigation.

Pumps at Existing Pump Stations (Near-Term and Long-Term)

Construction of near-term and long-term pumps at existing pump stations would require minimal construction activities for pump and motor installation. Near-term and long-term pumps installed at existing pump stations would be installed within the existing pump station footprint and would not substantially disturb topsoil. However, according to County requirements, any grading or earth disturbing construction activity must include a WWECP that provides temporary erosion and sediment control measures during the rainy season. Impacts during construction and operation would be less than significant.

New Pump Stations (Long-Term)

Construction of six new long-term pump stations as part of the WSMP would involve installation of piping and electrical equipment, excavation and structural foundation installation, pump house construction, pump and motor installation, and final site restoration. These construction activities would expose soil and thus potentially result in erosion and/or topsoil loss. Including laydown

areas, the construction of new pump stations could potentially result in one acre of ground disturbance. A LSWPPP that includes year-round erosion and sediment control BMPs would be implemented for all construction activities disturbing more than an acre per County requirements. Preparation of a WWECP detailing erosion and sediment control BMPs for the rainy season is required by the County regardless of the construction disturbance size. Further, Mitigation Measure GEO-1 would ensure all excavated topsoil remains onsite and all stockpiled topsoil is wetted to avoid loss by wind erosion. Mitigation Measure HYD-1 requires stabilization of soil prior to operation by the preservation of existing vegetation and/or compaction of unvegetated areas. Therefore, new pump stations would result in less than significant impacts related to erosion and topsoil loss during construction and operation with implementation of mitigation measures.

Pipelines (Near-Term and Long-Term)

Construction of proposed potable or recycled water pipelines would involve trenching using a conventional cut and cover technique, jack-and-bore or directional drilling techniques where necessary to avoid sensitive land features or roadway intersections. Dewatering may be required depending on the location. Over 700,000 feet of pipeline is proposed as part of the project; various lengths of pipeline would be constructed at different time periods. In accordance with County requirements, pipeline construction activities that would disturb more than one acre require implementation of a LSWPPP that includes year-round erosion and sediment control BMPs. All construction activities regardless of disturbance size would implement a WWECP that includes temporary erosion and sediment control BMPs for the rainy season. Mitigation Measure GEO-1 would ensure all excavated topsoil regardless of the construction footprint size is backfilled onsite to the maximum extent practicable, and all stockpiled topsoil is wetted to avoid loss by wind erosion. Mitigation Measure HYD-1 requires compaction of unvegetated areas post-construction to stabilize soils prior to operation. Pipeline operation would not disturb any soils. Therefore, construction and operation of near-term and long-term pipelines would have less than significant impacts related to erosion and topsoil loss following implementation of mitigation.

Wells (Long-Term)

Construction of wells would include site preparation, mobilization of equipment to the well site, well drilling, water quality testing, installation of the well casing, gravel packing and finishing with a cement seal. Although wells would be relatively small facilities, their construction disturbance footprint could amount to one acre or more. In accordance with County requirements, pipeline construction activities that would disturb more than one acre would require implementation of a LSWPPP that includes year-round erosion and sediment control BMPs. A WWECP including temporary erosion and sediment control BMPs for the rainy season is required for all construction activities. Mitigation Measure GEO-1 would ensure all excavated topsoil remains onsite and all stockpiled topsoil is wetted to avoid loss by wind erosion. Mitigation Measure HYD-1 would ensure stabilization of well site soils by implementing post-construction BMPs prior to pipeline operation. Well operation would not disturb topsoil. Therefore, well construction and operation would have less than significant impacts related to erosion and topsoil loss following implementation of mitigation.

Headquarters Expansion (Long Term)

Construction of the headquarters building expansion would involve excavation and structural foundation installation, building construction, installation of piping and electrical equipment, and final site restoration. These construction activities would expose soil and thus potentially result in erosion and/or topsoil loss. Construction of addition to the headquarters building would be 21,000 square feet, which would not trigger the one acre (43,560 square feet) threshold for a LSWPPP. However, preparation of a WWECP detailing erosion and sediment control BMPs for the rainy season is required by the County regardless of the construction disturbance size. Further, Mitigation Measure GEO-1 would ensure all excavated topsoil remains onsite and all stockpiled topsoil is wetted to avoid loss by wind erosion. Therefore, the expanded headquarters building would result in less than significant impacts related to erosion and topsoil loss during construction and operation with implementation of mitigation measures.

Mitigation Measures

GEO-1: **Topsoil Preservation.** All topsoil stripped from the ground surface during construction shall be used, to the extent feasible, for construction of other project elements and not hauled offsite. Any temporary stockpiles shall be managed through the use of best management practices, which shall include but not be limited to wetting and/or covering stockpiles to prevent wind erosion.

Implement **Mitigation Measures HYD-1.**

Significance Determination: Less than Significant with Mitigation

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Geologic Instability

Impact 3.6-3: The proposed project could be located on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed project and potentially result in on-or off-site landslide, subsidence, liquefaction or collapse.

Storage Tanks (Near-Term)

None of the near-term storage tanks would be located within a landslide hazard zone; however, two of the proposed near-term storage tanks (FS-01 and ES-03) would be located within a liquefaction hazard zone (see Figure 3.6-1). **Mitigation Measure GEO-2** requires preparation of a geotechnical report that addresses site-specific potential for liquefaction-associated settlement and lateral spreading in accordance with applicable County or City regulations. Structural mitigation and/or ground modification as recommended by the report would be implemented into storage tank design to avoid or lessen impacts related to liquefaction and collapse. Although the near-term storage tank locations have not yet been mapped for subsidence risk by State or federal agencies, all desert soils have the potential to collapse. Therefore, the near-term storage tanks could experience subsidence. Mitigation Measure GEO-2 also requires geotechnical reports for all facilities to analyze potential subsidence risk and recommend mitigation to avoid associated impacts to storage tanks. With implementation of mitigation measures, impacts associated with geologic instability would be less than significant for near-term storage tanks.

Storage Tanks (Long-Term)

Four of the long-term storage tanks (FS-06, FS-07, FS-16 and FS-10) would be located in an area mapped as having potential landslide risk (see Figure 3.6-1). In accordance with Mitigation Measure GEO-2, a geotechnical analysis assessing slope stability and providing appropriate measures to mitigate landslide risk would be prepared for these storage tanks in accordance with applicable local regulations. One of the long-term storage tanks (ES-02) would be located in an area at risk for liquefaction. Per Mitigation Measure GEO-2, this storage tanks' geotechnical report would address the potential for liquefaction in accordance with applicable local regulations pertaining to geotechnical reports. Long-term storage tanks FS-04, FB-12, FS-13 and FS-15 are in an areas mapped as having low to moderate risk of subsidence. Although the locations of the remaining long-term storage tanks have not been mapped, all desert soils are capable of collapse. Mitigation Measure GEO-2 also requires geotechnical reports to be prepared for all facilities that analyze potential subsidence and collapse risk on a site-specific basis and recommend appropriate mitigation to avoid associated impacts to storage tanks. With implementation of mitigation measures, impacts associated with geologic instability would be less than significant for long-term storage tanks.

Pumps (Near-Term)

None of the proposed near-term pumps to be located at existing pump stations would be located in a landslide hazard area (see Figure 3.6-1). One of the proposed near-term pumps (EB-01) would be located at an existing pump station which is in a liquefaction hazard area. The other pump stations at which the near-term pumps would be installed could also experience subsidence or collapse. However, construction of pumps at existing pump stations would require minimal construction activities for pump and motor installation. Since all near-term pumps would be installed at existing pump stations, they would not increase the potential risks associated with liquefaction, subsidence or collapse at these pump stations. Impacts associated with geologic instability would be less than significant for near-term pumps.

Pumps (Long-Term)

None of the proposed long-term pumps to be installed at existing pump stations would be located in a landslide or liquefaction hazard area. One of the proposed new long-term pump stations (FB-10) would be within a landslide hazard area, and one of the new long-term pump stations (FB-04) would be located within a liquefaction hazard area. However, Mitigation Measure GEO-2 would require preparation of a geotechnical report that would assess and recommend mitigation for potential risks associated with landslide or liquefaction for these long-term pump stations (respectively) in accordance with applicable regulations; mitigation would be incorporated into long-term pump station design to avoid impacts associated with landslide or liquefaction. Also in accordance with Mitigation GEO-2, all new long-term pump stations would be analyzed for potential subsidence, recommended mitigation would be incorporated into long-term pump station design to increase structural resiliency in the event of a subsidence event. With implementation of mitigation, geologic instability impacts would be less than significant for long-term pump stations.

Pipelines (Near-Term and Long-Term)

Sections of both near-term and long-term pipelines would be located within landslide and liquefaction hazard areas. However, pipelines would be designed in accordance with ALA Seismic Guidelines for Water Pipelines, which assess the potential for landslide and liquefaction and provide design recommendations for pipelines based on these risks, thereby increasing the pipelines' structural resiliency in the event of a seismic event including landslide and liquefaction. The pipelines also have the ability to be damaged by subsidence. However, in accordance with Mitigation Measure GEO-2, the geotechnical report for all pipelines would also contain a subsidence and assessment and mitigation would be applied to pipeline design as recommended by the report to avoid or reduce associated impacts. With implementation of mitigation, geologic instability impacts would be less than significant for near-term and long-term pipelines.

Wells (Long-Term)

The proposed wells would not be located in a landslide or liquefaction hazard area, but could have the ability to be damaged by subsidence. However, in accordance with Mitigation Measure GEO-2, the geotechnical report for all wells would include a subsidence risk assessment that would recommend appropriate mitigation to avoid or reduce potential impacts associated with subsidence, which would be implemented into well design prior to construction. With implementation of mitigation, geologic instability impacts would be less than significant for long-term wells.

Headquarters Expansion (Long-Term)

The headquarters building expansion would not be located in a landslide or liquefaction hazard area as shown on Figure 3.6-1. However, the 21,000 square foot building expansion could have the ability to be damaged by subsidence. In accordance with Mitigation Measure GEO-2, the geotechnical report for the headquarters expansion would include a subsidence risk assessment that would recommend appropriate mitigation to avoid or reduce potential impacts associated with subsidence, which would be implemented into well design prior to construction. With implementation of mitigation, geologic instability impacts would be less than significant.

Mitigation Measures

GEO-2: A geotechnical report shall be prepared by a certified engineer for all facilities involving substantial ground disturbance or excavation. The report shall assess subsidence, liquefaction, landslide, expansive soil potential and collapsible soil potential of each facility site. Structural mitigation recommendations provided in the geotechnical report shall be incorporated into the design of the facility prior to construction.

The contents of the geotechnical report shall vary depending on the jurisdiction and risks associated with each facility's location.

Significance Determination: Less than Significant with Mitigation

Expansive Soil

Impact 3.6-4: The proposed project could be located on expansive soils as defined in 24 CCR 1803.5.3 of the California Building Code (2016), creating substantial risks to life or property.

All Facilities (Near-Term and Long-Term)

The proposed facilities have the ability to be located on expansive soils; expansion of soils beneath the storage tank structures, wells and pump stations, headquarters building expansion, as well as around pipelines, could damage these structures. Although the City of Palmdale 1993 General Plan generally outlined areas of low, medium and high soil expansion potential within the project area, soil expansiveness could vary on a site-specific basis. Per Mitigation Measure GEO-2, the geotechnical report prepared for near-term and long-term storage facilities would include an analysis of soil type and expansion potential, and recommendations from the report would be incorporated into facility design. Impacts related to expansive soil would be less than significant.

Mitigation Measures

Implement **Mitigation Measure GEO-2**.

Significance Determination: Less than Significant with Mitigation

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Wastewater Disposal Systems

Impact 3.6-5: The proposed project would not be located on soils incapable of adequately supporting the use of septic tanks or alternative reclaimed water disposal systems where sewers are not available for the disposal of reclaimed water.

All Facilities (Near-Term and Long-Term)

The proposed facilities would not require the use of septic tanks or alternative reclaimed water disposal systems. During construction of the project components, portable toilet facilities would be provided if necessary, and waste would be collected by a certified waste hauler and appropriately disposed of for treatment. The facilities would not require onsite employees that would generate wastewater, nor would the facilities themselves generate wastewater during operation—therefore, no waste disposal facilities are needed. There would be no impact related to soils being incapable of adequately supporting septic tanks or alternative reclaimed water disposal systems.

Mitigation Measures

None required.

Significance Determination: No Impact

Loss of Known Mineral Resources or Mineral Resource Recovery Site

Impact 3.6-6: The proposed project could result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state, or result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

Storage Tanks (Near-Term)

None of the proposed near-term storage tanks would be located in a State-designated mineral resource area or locally important mineral resource recovery site as demonstrated in Figure 3.6-2. There would be no impact related to the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

Storage Tanks (Long-Term)

Two of the proposed long-term storage tanks (FS-13 and FS-15) would be located within State-designated MRZ-2 that is also identified within the City of Palmdale General Plan associated with Little Rock Wash. Based on its State designation, Little Rock Wash MRZ-2 is an area where adequate information indicates significant mineral deposits are present, or where it is judged that a high likelihood exists for their presence. However, all six existing and active sand and gravel mining locations in the project area are located east of the storage tanks; therefore, the storage tanks would not impede active mining operations. Further, the surface areas of the storage tanks are minimal (i.e. they would range from 2.4 MG to 5.5 MG capacity) compared to the size of the Little Rock Wash MRZ-2, and would thus not substantially impede future mineral resource extraction in this area. These storage tanks would be located on vacant land adjacent to a parcel containing storage facilities and across from a residential parcel; therefore, future mining in this location is not likely given its proximity to other existing non-mining land uses. Impacts would be less than significant related to the loss of availability of a State or locally-valuable mineral resource.

Pumps (Near-Term and Long-Term)

None of the proposed pumps or new pump stations would be located within a State-designated mineral resource area or locally-important mineral resource recovery site. There would be no impact related to the loss of availability of a known mineral resource that would be of value to State and local residents.

Pipelines (Near-Term)

None of the proposed near-term pipelines would be located within a State-designated mineral resource area or locally-important mineral resource recovery site. There would be no impact related to the loss of availability of a known mineral resource that would be of value to State and local residents.

Pipelines (Long-Term)

Several of the proposed long-term pipelines would pass through Little Rock Wash MRZ-2, which is both a State-designated mineral resource zone and identified locally in the City of Palmdale General Plan. However, pipelines would not disrupt existing mining operations since active sand and gravel mining areas are located east and south of the long-term pipeline locations. The

majority of long-term pipelines would be located in already developed areas and within rights of way in the Little Rock Wash MRZ-2, which are areas that would not be easily excavated for mineral resources extraction in the future. Undeveloped areas rendered inaccessible for mineral resource extraction by pipeline installation would be small relative to the size of the Little Rock Wash MRZ-2. Impacts would be less than significant related to the loss of availability of a known mineral resource that would be of value to the State and local residents.

Wells (Long-Term)

Three out of the five long-term wells would be located within the State-designated and locally-identified Little Rock Wash MRZ-2. However, the wells would not be located in any currently active mining areas in Little Rock Wash MRZ-2, and given their proximity to development, the well locations would not likely be excavated for mineral resources in the future. Further, well footprints would cover a very small surface area relative to the size of the Little Rock Wash MRZ-2; the vertical space taken up by the wells would be small relative to the size of the mineral resource zones. The remaining two wells in the northern portion of the project area are not located in a MRZ. Impacts would be less than significant related to the loss of availability of a known mineral resource that would be of value to State and local residents.

Headquarters Expansion (Long-Term)

The headquarters building expansion would not be located within a State-designated mineral resource area or locally-important mineral resource recovery site. There would be no impact related to the loss of availability of a known mineral resource that would be of value to State and local residents.

Mitigation Measures

None required.

Significance Determination: Less than Significant

3.6.4 References

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3.7 Hazards and Hazardous Materials

This section addresses the hazards and hazardous materials impacts associated with implementation of the proposed 2016 Water System Master Plan (WSMP or proposed project), which would include the construction and operation of new facilities and upgrades to existing facilities throughout the Palmdale Water District (PWD) service area and vicinity. These facilities include pipelines, storage tanks, pump stations and groundwater wells to be constructed in the near-term (before 2020) and long-term (after 2020). Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). This section also evaluates the proposed project's potential impacts due to hazards and hazardous materials in the project area, and describes mitigation measures that would reduce impacts to a less than significant level.

Definition of Hazardous Materials

A "hazardous material" is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment (State of California Health and Safety Code Chapter 6.95, Section 25501(p)). The term "hazardous materials" refers to both hazardous substances and hazardous wastes. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such or if it is toxic (causes adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases) (22 California Code of Regulations (CCR) 66261.21 to 66261.24).

In some cases, past industrial or commercial activities on a site could have resulted in spills or leaks of hazardous materials to the ground, resulting in soil and/or groundwater contamination. Hazardous materials may also be present in building materials and released during building demolition activities. If improperly handled, hazardous materials can cause health hazards when released to the soil, groundwater, or air. Individuals are typically exposed to hazardous materials through inhalation or bodily contact. Exposure can come as a result of an accidental release during transportation, storage, or handling of hazardous materials. Disturbance of subsurface soil during construction can also lead to exposure of workers or the public from stockpiling, handling, or transportation of soils contaminated by hazardous materials from previous spills or leaks.

3.7.1 Environmental Setting

The following sections describe the environmental setting for hazards and hazardous materials within the project area, which is located almost entirely within the City of Palmdale, but also includes portions of land within unincorporated Los Angeles County. The project area includes the PWD service area plus areas adjacent to the service area where proposed facilities are located.

Hazardous Materials in Soil and Groundwater

To assess the potential for contamination in soil and groundwater within the project area, an environmental database review was conducted to identify environmental cases,[1] permitted hazardous materials uses,[2] and spill sites[3]. California Government Code Section 65962.5 requires state and local agencies to compile and update, at least annually, lists of hazardous waste sites and facilities. While Government Code Section 65962.5 makes reference to a "list", commonly referred to as the Cortese List, this information is currently available from the following online data resources (California Environmental Protection Agency [CalEPA] 2017):

- State Water Resources Control Board (SWRCB) GeoTracker database, and
- California Department of Toxic Substances Control (DTSC) EnviroStor database.

The records search revealed multiple listed and active sites just north of the project area and only one active DTSC Clean-Up site within the project area. The active sites north of the project area are associated with the United States Air Force Plant (AFP) 42 site, which is on the Cortese List – a list of hazardous waste facilities subject to corrective action (DTSC 2017a).

Hazardous Materials Sites

The project area is primarily located within the City of Palmdale, which contains a mix of residential, commercial, industrial, and public facilities as described further in Section 3.8, *Land Use, Planning and Recreation*. The AFP 42 site and Palmdale Regional Airport properties, which include industrial and aerospace uses, are located just north of the project area.

Active Sites

The SWRCB GeoTracker database notes that there is one active DTSC Cleanup Site (Gateway Cleaners) within the project area, which is currently under evaluation by a local agency. However, this site is not listed on the Cortese List; so it is not currently subject to corrective action. The DTSC EnviroStor database lists one site, AFP 42, as an active site. This site is listed on the Cortese List and is currently subject to corrective action. Detailed information regarding this hazardous waste site is provided below.

United States Air Force Plant 42

AFP 42 is a government-owned, contractor-operated research and development facility that is 5,832 acres in size and is located within the City of Palmdale, approximately 1.5 miles north of the PWD service area. This site has multiple contaminated areas, including twenty-nine potentially contaminated areas and three areas of concern in the initial assessment phase. Contaminants that may be present on this site include fuels, oils, solvents, paint, soil sludges, acids, heavy metals, and polychlorinated biphenyls (PCBs). Potential contaminants of concern on the project site include dioxin, metals, organochlorine pesticides, petroleum, PCBs, polynuclear

[1] Environmental cases are those sites that are suspected of releasing hazardous substances or have had cause for hazardous substances investigations and are identified on regulatory agency lists.

[2] Permitted hazardous materials uses are facilities that use hazardous materials or handle hazardous wastes that operate under appropriate permits and comply with current hazardous materials and hazardous waste regulations.

[3] Spill sites are locations where a spill has been reported to the State or federal regulatory agencies. Such spills do not always involve a release of hazardous materials.

aromatic hydrocarbons (PAHs), semi-volatile organic compounds, and volatile organic compounds (VOCs). The site contains a day care center, but no other sensitive receptors including schools, hospitals, nursing homes, or other day care facilities are located within a half-mile radius of AFP 42 (U.S. Air Force 2004). In addition, the United States Air Force has included substantial outreach efforts as part of their cleanup activities, including the creation of a Community Involvement Plan, which was approved by the DTSC in February 2008 (DTSC 2017b).

Cleanup activities for AFP 42 began in 1995, with the creation of a Public Participation Plan/Community Relations Plan for the entire site. Since that time, remedial activities have been performed from 1997 through 2008. The U.S. Air Force has determined that the objective of remedial actions at AFP 42 is to, "prevent exposure through ingestion, inhalation, and direct contact with soil and groundwater that presents an unacceptable health risk while minimizing interference with operations at AFP 42." The U.S. Air Force, in conjunction with the DTSC, is working to establish remedial actions that will meet the aforementioned objective across the entire AFP 42 site (DTSC 2017b).

Groundwater investigations have been conducted across the AFP 42 site, and have focused on VOCs, including trichloroethylene (TCE), which has been detected within groundwater at AFP 42. A thorough site investigation indicated that there is a plume of TCE affecting the northwestern portion of AFP 42, portions of which are undergoing specific remediation action and being evaluated for a potential cumulative groundwater risk. U.S. Air Force reports indicate that testing results show that TCE remains within the vadose zone and could potentially impact local groundwater. However, this research also indicated that the plume is confined to an approximate 200-foot radius located entirely within AFP 42 property. In 2010, the U.S. Air Force constructed and installed a groundwater treatment system to extract, treat, and inject impacted groundwater. These actions are anticipated to reduce the TCE plume located at AFP 42, which is expected to reduce in size and concentration over time (DTSC 2017b).

Sensitive Receptors

Preschools, schools, daycare centers, nursing homes, and hospitals are considered sensitive receptors for hazardous material issues because children and the elderly are more susceptible than adults to the effects of many hazardous materials. There are numerous sensitive receptors throughout the project area and there is the potential for many sensitive receptors to be within 0.25 miles of existing and proposed facilities.

Schools

There are 27 schools within the project area. The names of the schools are listed below. Proximity of near-term project components to these sensitive receptors are described below.

- Yucca Elementary
- Palm Tree Hill Elementary
- Tumbleweed Elementary
- Chaparral Elementary
- Buena Vista Elementary
- Cimarron Elementary
- Shadow Hills Intermediate
- Knight High School
- Los Amigos School

- Cactus Intermediate
- Quail Valley Elementary
- Palmdale High School
- Tamarisk Elementary
- Golden Poppy Elementary
- Palmdale Learning Plaza
- Manzanita Elementary
- Barrel Springs Elementary
- R. Rex Parris High School
- Wildflower Elementary
- Joshua Hills Elementary
- Antelope Valley Regional Occupation Program
- Desert Rose Elementary
- The Guidance Charter School
- Desert Sands Charter High School
- Mesquite Elementary
- Desert Willow Intermediate
- St. Mary's School

Storage Tanks

The WSMP calls for construction of up to 19 storage tanks, with three tanks to be constructed by 2020, and 16 tanks to be constructed after 2020. None of the near-term tanks to be constructed by 2020, ES-01, FS-01, or ES-03, are located within 0.25 miles of a school.

Pump Stations

The WSMP calls for the construction of seven new pumps at five existing pump stations and six new pump stations. Three pumps at existing pump stations are to be constructed by 2020, while the remaining four pumps at existing pump stations and six new pump stations would be constructed after 2020. None of the near-term pumps to be constructed by 2020, (FB-01, FB-02, EB-01) are located within 0.25 miles of a school.

Pipelines

Multiple segments of transmission pipelines would be constructed throughout the project area. Pipelines to be constructed after 2020 would primarily be located within the ROW of existing roadways throughout the project area, although some pipelines would be implemented within undeveloped land or open areas with no existing roadways. Pipelines to be constructed by 2020 include fire flow projects, age-based pipeline improvements, and pipeline expansion projects are located in the vicinity of schools as indicated below:

Fire Flow Projects

- The FF-01 pipeline replacement is located within vacant, undeveloped land, which also surrounds the proposed pipeline to the north, east and west. To the south is East Avenue Q Frontage Road and residential development. This portion of the project area is located approximately 550 feet north of Manzanita Elementary School.
- The FF-04 pipeline area is located within vacant, undeveloped land, which also surrounds the proposed pipeline to the north, south and west. 15th Street East separates the project site and residential development. This portion of the project area is located approximately 900 feet northeast of the Guidance Charter School.
- The FF-05 pipeline would run parallel to Fort Tejon Road amongst vacant, undeveloped land. This portion of the project area is located approximately 1,320 feet south of Buena Vista Elementary School.
- The FF-06 pipeline area is located in and surrounded by vacant, undeveloped land to the east, south and west and residential development just north. Just east of the pipeline is the public ROW, 40th St East. This portion of the project area is not located within 0.25 miles of a school.

- The FF-07 pipeline area is surrounded on all sides by vacant land with low-density residential community lots. This pipeline would be construction within the public ROW, Camares Drive. This portion of the project area is not located within 0.25 miles of a school.

Pipeline Improvements and Expansion

- The pipeline along 47th Street East is surrounded by open land. This portion of the project area is not located within 0.25 miles of a school.
- The pipeline along Sierra Highway is surrounded by open land with one residential lot to the northeast and a trailer park community approximately 350 feet west. This portion of the project area is not located within 0.25 miles of a school.
- Pipeline west of Lakeview Drive through undeveloped land connecting to the proposed storage tank ES-01. This portion of the project area is not located within 0.25 miles of a school.

Groundwater Wells

The WSMP calls for the construction of five new wells under the long-term scenario to be located in the northern and eastern portion of the project area. The eastern wells would be located within vacant land approximately 900 feet east of Knight High School and 1,100 feet east of Los Amigos School. The two northern wells would not be located in the vicinity of a school.

Headquarters Expansion

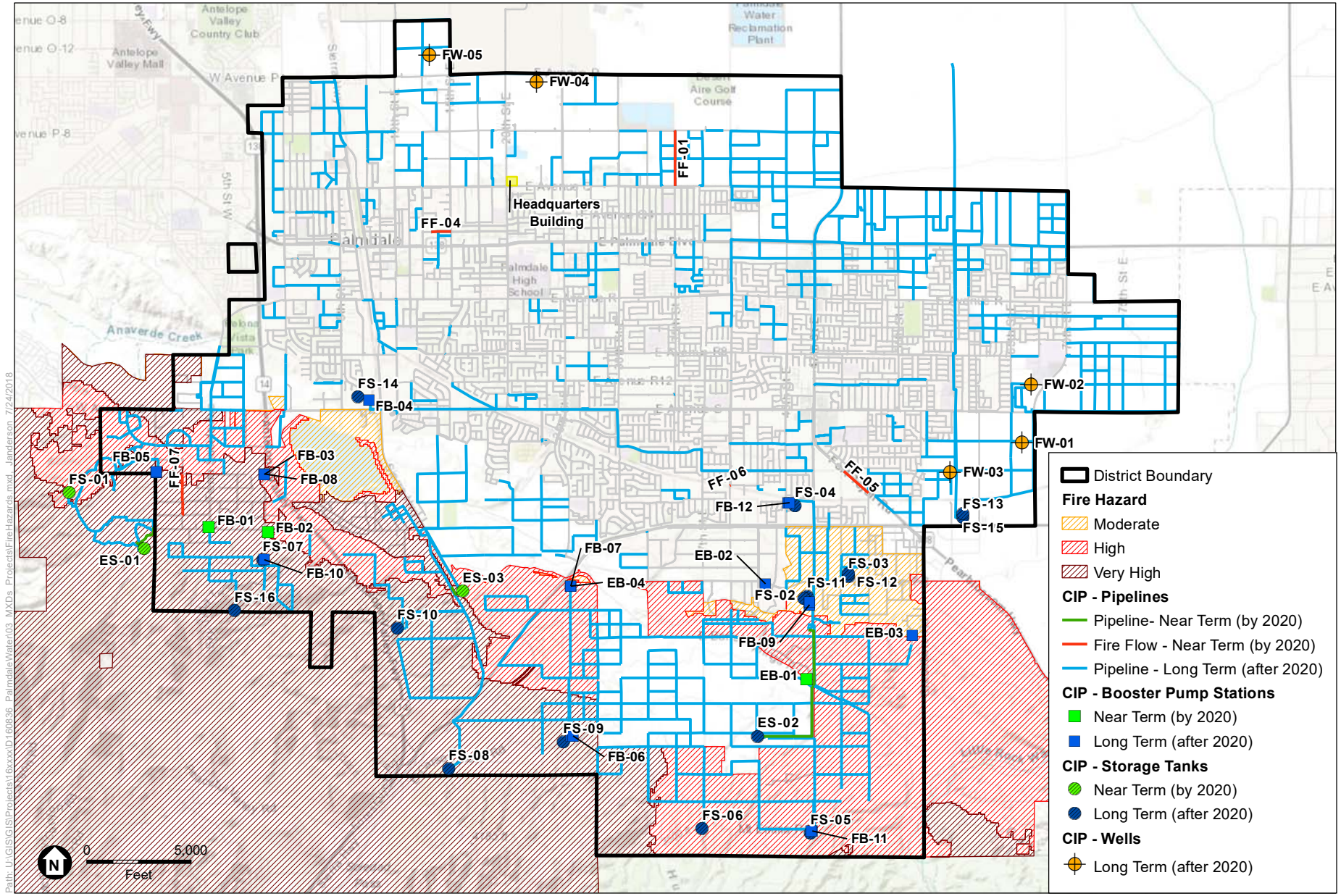
PWD is proposing to expand the existing headquarters located at East Avenue Q and 20th Street East. All construction would be located on PWD-owned property that is developed. The proposed headquarters expansion is located approximately 1,000 feet north of Tamarisk Elementary School.

Wildland Fire Hazards

California Department of Forestry and Fire Protection (CAL FIRE) maps the Fire Hazard Severity Zones (FHSZ) for the project area. The FHSZ are based on an evaluation of fuels, topography, dwelling density, weather, infrastructure, building materials, brush clearance, and fire history (CAL FIRE 2012). According to the Los Angeles County FHSZ State Responsibility Area (SRA) and Local Responsibility Area (LRA) maps, a large majority of the project area is defined as a Non-very high fire hazard severity zones (VHFHZ); however, there are moderate, high, and VHFHSZs within the southern portion of the project area (CAL FIRE 2007; CAL FIRE 2011a; CAL FIRE 2011b). There are various short-term and long-term project facilities that would be located within these FHSZs (**Figure 3.7-1**).

Airports

The Palmdale Regional Airport is located just north of the project area. The Los Angeles County Airport Land Use Commission established an airport influence area (AIA) surrounding the airport; long-term wells FW-04 and FW-05, multiple segments of long-term pipelines, and one segment of short-term pipelines (FF-01) would be located within the AIA for the Palmdale Regional Airport (see Figure 3.9-3).



SOURCE: Palmdale Water 2017; Calfire

Palmdale Water District

Figure 3.7-1
Fire Hazard Severity Zones

ESA

3.7.2 Regulatory Framework

Hazards and hazardous materials are subject to numerous federal, state, and local laws and regulations intended to protect health, safety, and the environment. The U.S. Environmental Protection Agency (USEPA), DTSC, RWQCB, and County of Los Angeles are the primary agencies enforcing these regulations. Local regulatory agencies enforce many federal and State regulations through the Certified Unified Program Agency (CUPA) program. The Los Angeles County Fire Department (LACFD) are the lead agencies for the investigation and cleanup of leaking underground storage tank sites. The RWQCB is the lead agency for other groundwater cases. The DTSC can be the lead agency for cases with no groundwater issues and is the lead agency for investigation and remediation of the hazardous sites discussed above.

Federal

Federal agencies with responsibility for hazardous materials management include the USEPA, Department of Labor (Federal Occupational Health and Safety Administration [OSHA]), and Department of Transportation (US DOT). Major federal laws and issue areas include the following statutes and regulations:

Resources Conservation and Recovery Act (RCRA) 42 USC 6901 et seq.: RCRA is the principal law governing the management and disposal of hazardous materials. RCRA is considered a "cradle to grave" statute for hazardous wastes in that it addresses all aspects of hazardous materials from creation to disposal. RCRA applies to this project because RCRA is used to define hazardous materials, offsite disposal facilities and the wastes each may accept are regulated under RCRA.

Emergency Planning and Community Right-to-Know Act (EPCRA from SARA Title III): EPCRA improved community access to information regarding chemical hazards and facilitated the development of business chemical inventories and emergency response plans. EPCRA also established reporting obligations for facilities that store or manage specified chemicals. EPCRA applies to this program because contractors use hazardous materials (e.g., fuels, paints and thinners, solvents, etc.) would be required to prepare and implement written emergency response plans to properly manage hazardous materials and respond to accidental spills.

US DOT Hazardous Materials Transportation Act of 1975 (49 USC 5101): US DOT, in conjunction with the USEPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to safe storage and transportation of hazardous materials. The Code of Federal Regulations (CFR) 49, 171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials.

The Federal Motor Carrier Safety Administration (49 CFR Part 383-397): The Federal Motor Carrier Safety Administration, a part of the US DOT, issues regulations concerning highway transportation of hazardous materials, the hazardous materials endorsement for a commercial driver's license, highway hazardous material safety permits, and financial responsibility requirements for motor carriers of hazardous materials.

Occupational Safety and Health Administration (OSHA; 29 USC 15): OSHA is the federal agency responsible for ensuring worker safety. These regulations provide standards for safe workplaces and work practices, including those relating to hazardous materials handling.

Hazardous Materials Transport Act (49 USC 5101): The U.S. DOT, in conjunction with the USEPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to transportation of hazardous materials. The Hazardous Materials Transportation Act of 1974 directs the U.S.DOT to establish criteria and regulations regarding the safe storage and transportation of hazardous materials. Code of Federal Regulations (CFR) 49, 171–180, regulates the transportation of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials.

Federal Regulation 49 Code of Federal Regulation Part 77: The Federal Aviation Administration (FAA) is the federal agency that identifies potential impacts related to air traffic and related safety hazards. The Federal Regulation 49 Code of Federal Regulation (CFR) Part 77 establishes standards and notification requirements for objects affecting navigable airspace. This notification serves as the basis for:

- Evaluating the effect of the proposed construction or alteration on operating procedures,
- Determining the potential hazardous effect of the proposed construction on air navigation,
- Identifying mitigating measures to enhance safe air navigation, and
- Charting of new objects.

FAA FAR Part 77 includes the establishment of imaginary surfaces (airspace that provides clearance of obstacles for runway operation) that allows the FAA to identify potential aeronautical hazards in advance, thus preventing or minimizing adverse impacts to the safe and efficient use of navigable airspace. The regulations identify three-dimensional imaginary surfaces through which no object should penetrate. Section 77.17 (Obstruction Standards) also states that an object would be an obstruction to air navigation if it is higher than 200 feet above ground level. Exceedance of 200 feet above ground level or the 100:1 imaginary surface requires notification to FAA (per FAR Part 77). An object that would be constructed or altered within the height restriction or imaginary surface area of the airport is not necessarily incompatible but would be subject to FAA notification and an FAA aeronautical study to determine whether the proposed structures would constitute a hazard to air navigation.

Various proposed pipelines would be implemented within the Palmdale Regional Airport's immediate vicinity. The proposed project would be required to follow the FAA's 7460 process; which requires that the appropriate entity (PWD) file a "Notice of Proposed Construction or Alternation" Form. Construction plans within the Palmdale Regional Airport Influence Area (AIA) would need to be approved before any construction commences.

State

The primary state agencies with jurisdiction over hazardous chemical materials management are the DTSC and the Lahontan RWQCB. Other state agencies involved in hazardous materials management are the Department of Industrial Relations (State OSHA implementation), State Office of Emergency Services (OES)—California Accidental Release Prevention (CalARP) implementation, California Air Resources Board (CARB), California Department of Transportation (Caltrans), State Office of Environmental Health Hazard Assessment (OEHHA—Proposition 65 implementation) and California Integrated Waste Management Board (CIWMB). Hazardous materials management laws in California include the following statutes and regulations promulgated thereunder:

Hazardous Waste Control Act (HWCA; California Health and Safety Code, Section 25100 et seq.): The HWCA is the state equivalent of RCRA and regulates the generation, treatment, storage, and disposal of hazardous waste. This act implements the RCRA "cradle-to-grave" waste management system in California but is more stringent in its regulation of non-RCRA wastes, spent lubricating oil, small-quantity generators, transportation and permitting requirements, as well as in its penalties for violations.

California Accidental Release Prevention Program (CalARP): The purpose of the CalARP is to prevent accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to satisfy community right-to-know laws. This is accomplished by requiring businesses that handle more than a threshold quantity of a regulated substance listed in the regulations to develop a Risk Management Plan (RMP). An RMP is a detailed engineering analysis of the potential accident factors present at a business and the mitigation measures that can be implemented to reduce this accident potential. The RMP contains safety information, hazards review, operating procedures, training requirements, maintenance requirements, compliance audits, and incident investigation procedures (CalOES 2016).

California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act): The Business Plan Act requires preparation of hazardous materials business plans and disclosure of hazardous materials inventories, including an inventory of hazardous materials handled, plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). Statewide, DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state. Local agencies are responsible for administering these regulations.

Several state agencies regulate the transportation and use of hazardous materials to minimize potential risks to public health and safety, including the California Environmental Protection Agency (CalEPA) and the California Emergency Management Agency. The California Highway Patrol and Caltrans enforce regulations specifically related to the transport of hazardous materials. Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roadways.

Health and Safety Code, Section 2550 et seq.: This code and the related regulations in 19 California Code of Regulations (CCR) 2620, et seq., require local governments to regulate local business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. Those using and storing hazardous materials are required to submit a Hazardous Materials Business Plan (HMBP) to their local CUPA and to report releases to their CUPA and the State Office of Emergency Services.

California Division of Occupational Safety and Health (Cal/OSHA): Cal/OSHA is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OSHA requires many entities to prepare injury and illness prevention plans and chemical hygiene plans, and provides specific regulations to limit exposure of construction workers to lead. OSHA applies to this program because contractors will be required to comply with its handling and use requirements that would increase worker safety and reduce the possibility of spills, and to prepare an emergency response plan to respond to accidental spills.

California Code of Regulations and California Government Code Utility Notification Requirements: Title 8, Section 1541 of the CCR requires excavators to determine the approximate locations of subsurface utility installations (e.g., sewer, telephone, fuel, electric, water lines, or any other subsurface installations that may reasonably be encountered during excavation work) prior to opening an excavation. The California Government Code (CGC) (Section 4216 et seq.) requires owners and operators of underground utilities to become members of and participate in a regional notification center. According to Section 4216.1, operators of subsurface installations who are members or participate and share in the costs of a regional notification center are in compliance with this section of the code. Underground Services Alert of Southern California (known as DigAlert) receives planned excavation reports from public and private excavators and transmits those reports to all participating members of DigAlert that may have underground facilities at the location of excavation. Members will mark or stake their facilities, provide information, or give clearance to dig (DigAlert 2016). This requirement would apply to this program because any excavation would be required to identify underground utilities before excavation.

Los Angeles County Operational Area Emergency Response Plan: The County of Los Angeles adopted the Los Angeles County Operational Area Emergency Response Plan, which provides emergency planning for the Los Angeles County Operational Area, an area that includes the project area. The purpose of this plan is to increase cooperation and coordination between relevant government agencies and jurisdictions, in order to increase efficiency and minimize losses in the event of an emergency or disaster within the Operational Area (Los Angeles County 2011).

Los Angeles County Fire Department Wildfire Action Plan: The City of Palmdale receives fire and emergency response services from the LACFD. In 2009, the LACFD adopted a Wildfire Action Plan, which contains guidelines that recommend fire prevention measures such as creating defensible space and completing fire-resistive retrofits in homes (LACFD 2009). In addition, this

plan provides residents with information regarding emergency preparedness and planning in the event of a wildfire.

Hazardous Materials Fire Code Requirements: The Los Angeles County Fire Department are designated as the Certified Unified Program Agency (CUPA) responsible for enforcing hazardous waste and storage requirements. The laws and regulations that established these programs require that businesses that use or store certain quantities of hazardous materials and submit a HMBP that describes the hazardous materials usage, storage, and disposal to the CUPA. As the CUPA, the LACFD enforces the hazardous materials-related standards of the California Fire Code, including requirements for signage of hazardous materials storage areas, storage of flammable materials, secondary containment for storage containers, and separation of incompatible chemicals.

Local

City of Palmdale General Plan: The City of Palmdale General Plan Safety Element (City of Palmdale 1993) includes goals and objectives relevant to hazards and hazardous materials. Specifically, the General Plan addresses Fire Hazards (S-34), Aircraft Accident Potential (S-37), and Hazardous Materials/Wastes (S-48). The General Plan contains the following policies addressing the aforementioned hazards:

Policy S1.3.1: Ensure that structural setbacks from fire-prone vegetation for buildings near the National Forest are maintained in accordance with the standards and regulations established by the National Forest Service. Require that all necessary fire clearances be provided on private (not public) land.

Policy S1.3.2: Encourage dual access, particularly in mountainous and high fire risk areas, on approved all-weather surface roadways.

Policy S1.3.8: Coordinate fire prevention and protection service needs and facility planning with Los Angeles County Fire District.

Policy S2.2.1: Require all development to be consistent with Department of Defense regulations as outlined in the Air Force Plant 42 Air Installation Compatibility Use Zone (AICUZ) Report and to comply with applicable FAA regulations which affect development in the Accident Potential Zones.

Policy S2.2.2: Through the design review process, ensure that new buildings are located in a manner which will promote clear linear corridors through the developed area within any Accident Potential Zones, to create potential pilot options in the event of an aircraft emergency.

Policy S2.3.3: Require that soils containing toxic or hazardous substances be cleaned up to the satisfaction of the agency having jurisdiction, prior to the granting of any permits for new development.

Policy S2.3.4: Restrict or prohibit land uses and activities that generate excessive amounts of hazardous materials or wastes that cannot be properly maintained or disposed.

Policy S2.3.5: Promote the routing of vehicles carrying potentially hazardous materials along transportation corridors that reduce the risk to the public and sensitive environmental areas. Cooperate with regional agencies in developing such routing systems.

Policy S2.3.7: Review proposed development in proximity to any existing or proposed hazardous waste facility, to ensure that future development and land use decisions consider and incorporate site design, setbacks and buffering techniques appropriate for the site and provide adequate mitigation of any potential adverse impacts to such development from hazardous waste facilities.

3.7.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to hazards and hazardous materials are based on Appendix G of the *CEQA Guidelines*. The proposed project would result in a significant impact with respect to hazards or hazardous materials if the project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area.
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Methodology

The WSMP would develop PWD's potable water system over the next 25 years in order meet the water quantity, water quality, system pressure, and reliability requirements of customers. Implementation of actions under this Plan would require the construction of various aboveground facilities and support infrastructure including storage tanks, pump stations, pipelines and wells. Additionally, PWD is proposing a headquarters building expansion at its current headquarters

located at the corner of E. Avenue Q and 20th Street to be constructed as part of the long-term facilities. Projects to be implemented by 2020 are considered near-term project components and are analyzed at site-specific level. Projects addressed after 2020 are considered long-term projects.

This analysis focuses on the potential to encounter hazardous substances in soil and groundwater during construction and is based on regulatory database searches. The analysis also addresses the potential for the proposed projects to release hazardous materials during construction and operation, interfere with an adopted emergency response plan or emergency evacuation plan, and create fire hazards. Each potential impact is assessed in terms of the applicable regulatory requirements, and mitigation measures are identified as appropriate.

Impacts Discussion

Routine Use

Impact 3.7-1: The proposed project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

All Facilities (Near-Term and Long-Term)

Construction activities required for implementation of the proposed facilities would involve drilling, trenching, excavation, grading, and other ground-disturbing activities. Construction activities would be required for the installation of new facilities throughout the project area, including installation of new storage tanks, pump stations, pipelines, groundwater wells, and a headquarters building expansion. The anticipated construction activities described above would temporarily require the transport, use, and disposal of hazardous materials including gasoline, diesel fuel, hydraulic fluids, paint, and other similarly related materials. Construction activities would require the use of heavy equipment that would contain oil, gasoline, or other fluids, and would likely be stored on and transported to the various project locations during the construction period.

Accidental release of these materials could occur during routine transport, disposal, or use, and could potentially injure construction workers, contaminate soil, and/or affect nearby groundwater or surface water bodies. Impacts associated with accidental release, although likely localized, could potentially create a significant hazard to the public or the environment. PWD is required to comply with all relevant and applicable federal, State and local laws and regulations that pertain to the transport, storage, use, and disposal of hazardous materials and waste during construction of proposed facilities. Compliance with all applicable federal, State and local regulations regarding the handling, storage, transportation, and disposal of hazardous materials would reduce potential impacts to the public or the environment related to the transport, use, or disposal of hazardous materials to less than significant.

Operation of the proposed projects would consist of facilities designed to store and transport water. Therefore, hazardous materials would not be associated with the regular operation of the facilities. As a result, operational impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Accident Conditions

Impact 3.7-2: The proposed project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

All Facilities (Near-Term and Long-Term)

Construction activities associated with implementation of the proposed facilities could create hazards to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials. The construction activities would involve the use of adhesives, solvents, paints, thinners, and other chemicals. Construction equipment necessary for facility implementation (such as trucks, cranes, bulldozers, excavators) would require the use of fuels (gasoline or diesel) and lubricants (hydraulic fluids, oils and greases). Cal/OSHA regulations provide for the proper labeling, storage, and handling of hazardous materials to reduce the potential harmful health effects that could result from worker exposure to hazardous materials. If not properly handled; however, accidental release of these substances could expose construction workers, degrade soils, or become entrained in stormwater runoff, resulting in adverse effects on the public or the environment. PWD is required to comply with all relevant and applicable federal, State and local laws and regulations that pertain to the accidental release of hazardous materials during construction of proposed facilities such as Health and Safety Code, Section 2550 et seq. Compliance with all applicable federal, State and local regulations would reduce potential impacts to the public or the environment regarding accidental release of hazardous materials to less than significant.

Operation of the proposed facilities would consist of facilities designed to store and transport water. The use of chemicals or other hazardous materials are not anticipated; however, operation of the proposed long-term wells could require routine transport and use of chemicals for purposes of treatment of potable water. PWD is required to comply with all relevant and applicable federal, State and local laws and regulations that pertain to the transport, storage, and use of hazardous materials during operation of proposed facilities. Compliance with these laws would minimize the potential hazard to the public or environment due to transport, storage, and use of hazardous materials. Impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Schools

Impact 3.7-3: The proposed project could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

All Facilities (Near-Term and Long-Term)

There are no schools within 0.25 mile of the proposed short-term storage tanks or pump stations. However, short term pipelines FF-01, FF-04, and FF-05 would be located within 0.25 mile (1,320 feet) of a school. Further, various long-term pipelines, proposed groundwater wells, long-term storage tanks, long-term pump stations, and the headquarters building expansion have the potential to be located within 0.25 mile of a school.

Construction activities would use limited quantities of hazardous materials such as gasoline and diesel fuel. Additionally, PWD is required to comply with all relevant and applicable federal, State and local laws and regulations that pertain to the release of hazardous materials during construction of proposed facilities. Compliance with all applicable federal, State and local regulations would reduce potential impacts to the public or the environment regarding hazardous waste emissions within 0.25 mile of a school. Impacts would be less than significant.

Operation of the proposed projects would consist of facilities designed to store and transport water. Therefore, hazardous materials would not be associated with the regular operation of the facilities, and no hazardous materials would be emitted or handled within 0.25 mile of a school. As a result, impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Hazardous Materials Site Listing

Impact 3.7-4: The proposed project could be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, could create significant and cumulatively considerable hazard impacts to the public or the environment.

All Facilities (Near-Term and Long-Term)

The hazardous sites analysis undertaken for this project, including records search on the SWRCB GeoTracker and the DTSC EnviroStor databases, revealed one active site within the project area that is not listed as a site with corrective action. The AFP 42 is listed as an active State response site on a list of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code (the "Cortese List"). AFP 42 is not within the project area; however, construction of various long-term pipelines and long-term wells FW-4 and FW-5 would

occur within one mile of the area, which is located at the existing Palmdale Regional Airport. U.S Air Force reports indicated that the groundwater contamination plume is confined to an approximate 200-foot radius. While the long-term pipelines are not expected to be constructed within this radius, the two groundwater production wells could interact with contamination at AFP 42. Since 2010, however, the U.S Air Force constructed and installed a groundwater treatment system to extract, treat, and inject impacted groundwater. These actions are anticipated to reduce the TCE plume located at AFP 42, which is expected to reduce in size and concentration over time. While it is not anticipated that contaminated soil and/or groundwater would be encountered during excavation of the proposed pipelines, PWD would be required to coordinate with the U.S. Air Force, SWRCB, and DTSC prior to construction of the production wells to ensure no contamination interference would occur. As a result, impacts to the public or the environmental relation to hazardous materials sites would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Airports

Impact 3.7-5: The proposed project could be located within an airport land use plan or within two miles of a public airport, public use airport, or private airstrip, which could result in significant safety hazards for people residing or working in the project area.

All Facilities (Near-Term and Long-Term)

The proposed project is not located within the vicinity of a private airstrip. As a result, no impacts would occur and no mitigation is required.

The Palmdale Regional Airport is located 1.5 miles north of the project area. Construction and operation of several long-term pipelines, short-term pipeline FF-01, and the two northern groundwater production wells FW-04 and FW-05 would occur within the AIA for the Palmdale Regional Airport. Construction of these proposed pipelines and wells could be in close proximity to the Palmdale Regional Airport and have the potential to disrupt airport operations. All other proposed facilities would be located outside of the AIA. The presence of construction equipment, particularly cranes, could pose temporary safety hazards to aviation within the AIA. To prevent potential intrusions to navigable airspaces, **Mitigation Measure LU-1** and **Mitigation Measure LU-2** would require that PWD coordinate directly with the County of Los Angeles Airport Land Use Commission (ALUC) and prepare an airport construction safety plan that would identify best management practices to be used before project construction.

Further, **Mitigation Measure LU-3** would require PWD to notify the airport of proposed construction activities in advance and participate in the FAA's 7460 process to ensure that the proposed construction equipment does not pose hazards to aviation. In addition to FAA airspace review, throughout the long-term construction of pipelines and wells, ongoing coordination with

the airport would be required to ensure that proposed construction activities do not disrupt airport operations and that appropriate notice is provided to aviators using the airport. Implementation of Mitigation Measure LU-1 through Mitigation Measure LU-3 would reduce potential impacts associated with airport operations in terms of flight patterns, safety, light, navigation, or communications between aircraft and the control tower. As a result, impacts associated with safety hazards for people working or residing in the project area would be reduced to less than significant.

Mitigation Measures

Implementation of **Mitigation Measures LU-1**, **LU-2**, and **LU-3**.

Significance Determination: Less than Significant with Mitigation

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Emergency Plans

Impact 3.7-6: The proposed project could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Storage Tanks, Pump Stations, Wells, and Headquarters Expansion (Near-Term and Long-Term)

The proposed facilities would not impair implementation of or physically interfere with adopted emergency response plans or emergency evacuation plans. There would be no installation of storage tanks, pumps, pump stations, or the headquarters expansion within public ROWs and no possibility of interfering with evacuation routes. During construction, truck haul trips would transport construction and debris materials to and from project sites; however, these trips would not impact the roadway in a way that would impede emergency evacuations. The truck trips would not require closure of any roadways and would only temporary slow traffic near the project sites. Project-related vehicles would not block existing street access to the sites. Therefore, no impacts related to an emergency evacuation plan would occur.

Operation of the proposed facilities would not impair or physically interfere with an adopted emergency response plan or emergency evacuation plan. The facilities all consist of water storage and transport infrastructure which, during operation, would not interfere with traffic flows. However, aboveground facilities would require periodic maintenance. Maintenance activities would be random and require minimal trips that would not significantly impact the surrounding roadways. Impacts related to an adopted emergency plan would be considered less than significant during operation.

Pipelines (Near-Term and Long-Term)

The majority of proposed pipelines would be constructed within public ROWs. This construction activity, and other anticipated construction activity associated with conveyance systems, could potentially block access to roadways and driveways for emergency vehicles. The construction-related impacts, although temporary, could potentially impair implementation of or physically

interfere with an adopted emergency response plan or emergency evacuation plan. However, the implementation of **Mitigation Measure HAZ-1** would require the preparation of a Traffic Control Plan with comprehensive strategies to reduce disruption to emergency access. Therefore, with implementation of mitigation measures, potential significant impacts to emergency access would be reduced to less than significant levels.

Following construction, operation of the pipelines would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan as they would be located underground. Impacts related to an adopted emergency plan would be less than significant during operation.

Mitigation Measures

HAZ-1: In conjunction with **Mitigation Measure TR-1,** prior to initiating construction of pipelines within roadway rights-of-way, PWD shall prepare and implement a Traffic Control Plan that contains comprehensive strategies for maintaining emergency access. Strategies shall include, but are not limited to, maintaining steel trench plates at the construction sites to restore access across open trenches and identification of alternate routing around construction zones. In addition, police, fire, and other emergency service providers shall be notified of the timing, location, and duration of the construction activities and the location of detours and lane closures. The PWD shall ensure that the Traffic Control Plan and other construction activities are consistent with the Los Angeles County Operational Area Emergency Response Plan.

Significance Determination: Less than Significant with Mitigation

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Wildland Fires

Impact 3.7-7: The proposed project could expose people or structures to significant risk of loss, injury, or death involving wildland fire.

All Facilities (Near-Term and Long-Term)

Lands adjacent to all proposed facilities are both urbanized and undeveloped desert lands. CAL FIRE designates the project area as a non-very high fire hazard severity zone; however, there are moderate, high, and very high fire hazards severity zones within the southern portion of the project area. As indicated by Figure 3.6-1, various short-term facilities such as storage tank FS-01 and long-term facilities such as pump station FB-11 would be located in such areas with high risks of wildland fires. The use of spark-producing construction machinery within these fire risk areas could create hazardous fire conditions and expose construction workers to wildfire risks. The implementation of **Mitigation Measure HAZ-2** would ensure fire hazard reduction measures are conducted during construction in areas designated as very high fire hazard severity zones to reduce the potential for wildfire impacts on people or structures to less than significant levels.

Mitigation Measures

HAZ-2: **Implement Fire Hazard Reduction Measures.** During construction of facilities located in areas designated as moderate, high, or very high fire hazard severity zone by CAL FIRE, PWD shall require that all staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other material that could ignite. Any construction equipment that includes a spark arrestor shall be equipped with a spark arrestor in good working order. During the construction of the WSMP facilities, contractors shall require all vehicles and crews to have access to functional fire extinguishers at all times. In addition, construction crews shall have a spotter during welding activities to look out for potentially dangerous situations, including accidental sparks.

Significance Determination: Less than Significant with Mitigation

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3.7.5 References

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3.8 Hydrology and Water Quality

This section addresses the hydrology and water quality impacts associated with implementation of the proposed 2016 Water System Master Plan (WSMP or proposed project), which would include the construction and operation of new facilities and upgrades to existing facilities throughout the Palmdale Water District (PWD) service area and vicinity. These facilities include pipelines, storage tanks, pump stations and groundwater wells to be constructed in the near-term (before 2020) and long-term (after 2020). Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). This section describes existing surface water and groundwater resources within the project area and discusses applicable, federal, state and local regulations pertaining to hydrology and water quality. This section also evaluates the proposed project's potential impacts on hydrology and water quality in the project area and describes mitigation measures necessary to reduce these impacts to less-than-significant levels.

3.8.1 Environmental Setting

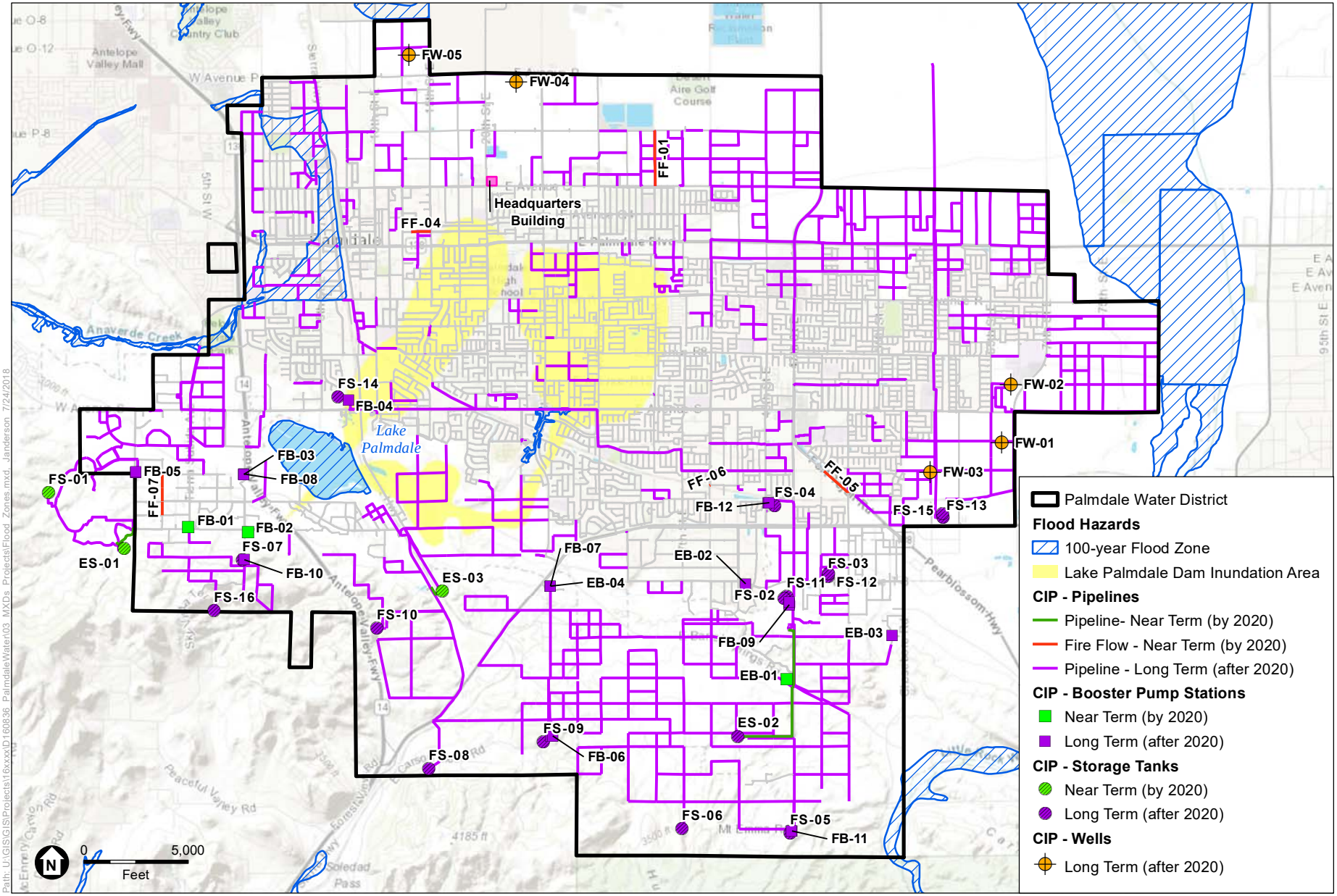
Surface Water

The entire project area is located within the Antelope Valley Watershed, which contains many smaller watersheds within its boundaries. These watersheds contain numerous ephemeral streams that are sourced in the Antelope Valley's surrounding mountains and flow across alluvial fans onto the Antelope Valley floor. Flows within the Antelope Valley watershed either percolate into the ground as groundwater or pond and evaporate in dry lake beds on the Antelope Valley floor (AVRWMG 2013).

Natural drainage channels including the Amargosa Creek, Anaverde Creek and Little Rock and Big Rock Washes run generally north and northeast across the project area toward the Rosamond and Rogers dry lakes (City of Palmdale 1993a). These creeks receive stormwater flows in the winter months and are typically dry during the summer months. Both creeks ultimately discharge to the Rosamond Dry Lake bed. The City of Palmdale's storm drainage system consists of numerous localized drainage systems located around developments; these local drainage systems connect to either earthen channels or drain to local retention basins (City of Palmdale 2014). Lake Palmdale is an artificial lake located in the project area.

Flooding

The Federal Emergency Management Agency (FEMA) identifies flood hazard areas that have various percent chances of being inundated by floods. According to FEMA flood maps (FIRM Nos. 06037C0670F and06037C0700F) a 100-year flood zone (or area having 1-percent chance of flooding annually) passes through the project area (FEMA 2008a; FEMA 2008b). **Figure 3.8-1** shows the location of the near-term and long-term facilities in relation to 100-year flood zones; some of the long-term pipelines would be located within a 100-year flood zone.



SOURCE: Palmdale Water 2017; FEMA

Note: Dam inundation area has been adapted from Exhibit 5-6 of The 1993 Palmdale General Plan

Palmdale Water District

Figure 3.8-1
Flood Hazards

ESA

Dams and Levees

Construction of the Palmdale Dam in 1895 formed Palmdale Lake; the Littlerock Dam and Reservoir were completed in 1924 (PWD 2017). Areas that are expected to be inundated in the event of dam failure have been mapped by the City as inundation areas. Some of the proposed long-term pipelines would be located within the Palmdale Dam inundation area (PWD 2008); Figure 3.8-1 depicts this general inundation area relative to proposed facilities. Neither near-term nor long-term project facilities would be located within the Littlerock Dam inundation area (City of Palmdale 2008a). The Sheriff's Department is responsible for coordinating notification efforts and local evacuation in the event of dam failure (City of Palmdale 1993b).

Groundwater

The Antelope Valley Watershed is underlain by the Antelope Valley Groundwater Basin, which is principally recharged by precipitation and runoff from surrounding mountains and is also recharged via imported water return flows from agricultural, and urban irrigation and artificial recharge. The Basin consists of three primary aquifers: an upper, middle and lower aquifer. The majority of the project area is underlain by the Lancaster sub-basin, which is the largest of the Basin's 12 sub-basins in both geographical size and water use. Groundwater flows to several pumping depressions (LADPW et al. 2014). Pumping depressions, or "cones of depression" are areas where the water table aquifer has been lowered by pumping from a well. Groundwater flows towards wells and into cones of depression, which can change the natural direction of groundwater flow within the area of influence around the well (OSU 2017). Groundwater also flows partially towards Rosamond and Rogers dry lakes. Due to agricultural, urban, and industrial water uses, depth to water varies widely in the Lancaster sub-basin, but in general is greatest in the south and west. (LADPW et al. 2014).

Groundwater extractions have exceeded the Basin's natural recharge since the 1920s causing the Basin to be in a state of overdraft and declining groundwater levels by more than 200 feet in some areas. In response to overdraft conditions, the Basin underwent an adjudication process to define groundwater rights for the Basin's users to equal the safe or sustainable yield of the Basin (LADPW et al. 2014). On December 23, 2015, a Stipulated Judgement was approved by the judge presiding on the Antelope Valley Groundwater Adjudication cases. This Judgment includes the creation of a five-member Watermaster Board of Directors. Its first action included acting unanimously to appoint the Antelope Valley Watermaster Engineer with the responsibility of monitoring the groundwater basin to ensure groundwater pumping is appropriately sustained by groundwater recharge and the Basin does not go back into a state of overdraft (AV Times 2015). The adjudicated PWD portion of the Antelope Valley Groundwater Basin native yield is 2,770 AFY, although PWD will receive approximately 5,000 AFY of return flow credits for imported water used (MWH 2016). The Judgement also provides for return flow rights from imported water use and sharing of any unused Federal Reserved groundwater rights. These two types of groundwater rights are anticipated to provide 5,000 AFY (MWH 2016) and 1,370 AFY respectively for PWD.

Water Quality

The Lahontan Regional Water Control Board (LRWQCB) Basin Plan designates beneficial uses for water bodies within the region that must be maintained, as well as water quality objectives (or characteristics/pollutant limits) designed to protect those beneficial uses (LRWQCB 2014b). The beneficial uses for the receiving surface waters and groundwater in project area are included in **Table 3.8-1**. The USEPA does not recognize any water quality impairments in the project area's surface waters (USEPA 2011). There are no known water quality exceedances in the Basin; levels of arsenic, born, nitrate, and chromium are all within acceptable concentrations (LADWP et al. 2014).

TABLE 3.8-1
BENEFICIAL USES OF WATERS IN THE PROJECT AREA

	Surface Waters				Groundwater
Beneficial Uses	**Littlerock Creek**	**Amargosa Creek (above LACSD)**	**Amargosa Creek (below LACSD)**	**Lake Palmdale**	**Antelope Valley**
Municipal and Domestic Supply (MUN)	X	X		X	X
Agricultural Supply (AGR)	--	X	X	X	X
(PRO)					
Industrial Service Supply (IND)	--			--	X
Groundwater Recharge (GWR)	X	X	X	X	--
Freshwater Replenishment (FRSH)	--	X	X	--	X
Contact Water Recreation (REC-1)	X	X			--
Non-contact Water Recreation (REC-2)	X	X	X	X	--
Commercial and Sportfishing (COMM)	X	X		X	--
Warm Freshwater Habitat (WARM)	--	X	X	--	--
Cold Freshwater Habitat (COLD)	X	X		X	--
Wildlife Habitat (WILD)	X	X	X	X	--
Spawning, Reproduction, and Development (SPWN)	--			--	--

SOURCE: LRWQCB 2014b.

3.8.2 Regulatory Framework

Federal

Clean Water Act: The Clean Water Act (CWA) is administered in California by the USEPA, the State Water Resources Control Board (SWRCB), and the regional water quality control boards (RWQCBs). The CWA serves as the primary federal law protecting the quality of waters of the United States (U.S.), including lakes, rivers, and coastal wetlands. Waters of the U.S. are defined

as "All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide." Amargosa Creek, Littlerock Creek, Big Rock Creek, and other dry washes in the Antelope Valley are not considered waters of the U.S. because they flow to a closed internal dry lake basin that is wholly within the State of California.

The Clean Water Act includes the National Pollutant Discharge Elimination System (NPDES) Program (Section 402), which regulates storm water discharges to surface waters. In California, the USEPA authorizes the SWRCB to oversee the NPDES program through the RWQCBs. The RWQCBs, under the guidance of the USEPA, issue NPDES permits to any construction project over one acre that are not covered by an individual NPDES permit.

National Flood Insurance Program: The National Flood Insurance Program is implemented by FEMA and aims to reduce flooding impacts on private and public structures. This is achieved by encouraging adoption and enforcement of floodplain management regulations in communities and providing affordable insurance to property owners (FEMA 2017).

State

Porter-Cologne Water Quality Control Act: The Porter-Cologne Water Quality Control Act (Water Code Sections 13000 et seq.), passed in 1969, requires protection of water quality by appropriate designing, sizing, and construction of erosion and sediment controls. The Porter-Cologne Act established the SWRCB and divided California into nine regions, each overseen by a RWQCB. The SWRCB is the primary State agency responsible for protecting the quality of the State's surface and groundwater supplies and has delegated primary implementation authority to the nine RWQCBs. The Porter-Cologne Act assigns responsibility for implementing the Clean Water Act Sections 401 through 402 and 303(d) to the SWRCB and the nine RWQCBs.

The Porter-Cologne Act requires the development and periodic review of water quality control plans (basin plans) that designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters, provide the technical basis for determining waste discharge requirements, identify enforcement actions, and evaluate clean water grant proposals. The basin plans are updated every three years. Compliance with basin plans is primarily achieved through implementation of the National Pollutant Discharge Elimination System (NPDES), which regulates waste discharges as discussed above.

The Porter-Cologne Water Quality Control Act requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, which could affect the quality of the "waters of the State," file a report of waste discharge (ROWD). Absent a potential effect on the quality of "waters of the State," no notification is required. However, the RWQCB encourages implementation of best management practices (BMPs) similar to those required for NPDES storm water permits to protect the water quality objectives and beneficial uses of local surface waters as provided in the Lahontan Region Water Quality Control Plan (Basin Plan) (RWQCB, 2015).

Construction General Permit Inapplicability (County of Los Angeles and City of Palmdale): The Construction General Permit represents the State of California's compliance with the federal National Pollutant Discharge Elimination System (NPDES) stormwater program, which requires permits for discharges from construction activities that disturb one or more acres (USEPA 2017). The Construction General Permit applies to projects within the State that disturb more than an acre of ground during construction and requires preparation of a Stormwater Pollution Prevention Plan (SWPPP) that includes best management practices (BMPs) to avoid or minimize impacts to stormwater quality.

In a January 18, 2005 letter to the City of Palmdale, City of Lancaster, and Los Angeles County, the LRWQCB stated that it did not intend to regulate the City of Palmdale, City of Lancaster or unincorporated portions of the Los Angeles County within its jurisdiction under the Construction General Permit, citing the reason that these municipalities did not discharge to waters of the United States (SWRCB 2011).

MS4 Permit Inapplicability (City of Palmdale and Non-Coastal Los Angeles County): Many jurisdictions have general permits that pertain to municipal separate storm sewer systems (MS4s), which are facilities that commonly convey and discharge stormwater runoff to local water bodies (USEPA 2017). Lahontan Regional Water Quality Control Board does not have a Municipal Separate Storm Sewer System (MS4) permit pertaining stormwater discharges within the Antelope Valley Watershed (LRWQCB 2016). The Los Angeles Regional Water Quality Control Board does have an MS4 Permit pertaining to unincorporated areas of Los Angeles County; however, this Los Angeles Regional Water Quality Control Board MS4 Permit only applies to Los Angeles County's coastal watersheds. Since the portions of the County of Los Angeles in the project area are not coastal, they are not covered under this permit. Further, Los Angeles County states specifically that the City of Palmdale was excluded from issuance of the Permit (LADPW 2017).

California Stormwater Quality Association Construction BMP Online Handbook: The California Stormwater Quality Association (CASQA) Construction BMP Online Handbook provides information needed to stay in compliance with California stormwater regulations for construction. The BMP Handbook includes detailed information about specific BMPs implemented on construction sites to protect water quality. The Handbook was last updated in 2015 (CASQA 2017).

Local

Lahontan Regional Water Quality Control Board Basin Plan: The Water Quality Control Plan for the Lahontan Region: North and South Basins (Basin Plan) is published by the Lahontan Regional Water Quality Control Board (LRWQCB) and provides the basis for the LRWQCB's regulatory program by setting forth water quality standards for surface waters and groundwater within the Lahontan region. Water quality standards include designated beneficial uses, along with water quality objectives that must be maintained to protect those uses (LRWQCB 2014a; LRWQCB 2014b).

All surface waters, including wetlands, must comply with water quality objectives for the following contaminants: ammonia, bacteria, biostimulatory substances, chemical constituents, chlorine, color, dissolved oxygen, floating materials, oil and grease, pH, radioactivity, sediment, settleable materials, suspended materials, taste and odor, temperature, toxicity and turbidity (LRWQCB 2014c).

The Basin Plan also lists water quality objectives for groundwater designated as having MUN (municipal) and AGR (agricultural) uses; as shown in Table 3.8-1 above, the Antelope Valley Groundwater Basin has both of these designated beneficial uses. These water quality objectives apply to the following constituents: arsenic, total chromium, fluoride, nitrate, total dissolved solids, chloride and boron (LADPW et al. 2014). These water quality objectives have been adopted as the water quality management goals for the Antelope Valley Salt and Nutrient Management Plan (see more information under "Antelope Valley Salt and Nutrient Management Plan" below).

Lahontan Regional Water Quality Control Board Limited Threat Discharges Permit: The LRWQCB issued an update in 2014 to their Waste Discharge Requirements and General Permit for Limited Threat Discharges to Surface Waters (Limited Threat Discharges General Permit) for discharges like dewatering and well construction that are expected to be low-level threats to water quality. Despite being considered low-level threats, constituents of concern for discharges from well construction include sediments and total dissolved solids, and constituents of concern for construction dewatering include sediments, turbidity, construction materials, total petroleum hydrocarbons. The Permit requires that discharges do not violate any water quality objectives or affect beneficial uses for water as specified in the Basin Plan. To be covered under this Permit, the discharger must designate a disposal site, prepare a BMP Plan to control the discharge, and conduct monitoring and reporting. In the event the discharge violates of Permit requirements, the discharger must notify the LRWQCB and cease the discharge until permission is given to resume from the LRWQCB (LRWQCB 2014d).

Antelope Valley Salt and Nutrient Management Plan: As part of compliance with the SWRCB's statewide Recycled Water Policy, a Salt and Nutrient Management Plan (SNMP) was prepared for the Antelope Valley Groundwater Basin to manage salts and nutrients from sources to sustain water quality objectives and protect beneficial uses of the Basin. The SNMP provides a summary of existing Basin groundwater quality, examines various scenarios of future groundwater quality based on actions taken, and proposes a monitoring plan to measure groundwater quality that determines whether measures must be implemented to protect water quality. Water quality management goals for the Basin were based on water quality standards included in the Basin Plan (see "Lahontan Regional Water Quality Control Board Basin Plan" above). The SNMP's overall conclusion was that overall groundwater quality in the basin is stable and below the water quality management goals. Some sub-basins have water quality exceedances of naturally occurring substances (i.e.., arsenic, boron, fluoride and TDS) where there are no current or projected projects in these areas (LADPW et al. 2014).

County of Los Angeles Local Storm Water Pollution Prevention Plans and Wet Weather Erosion Control Plans: Regardless of whether construction projects qualify for coverage under the Construction General Permit, Los Angeles County requires the preparation of a Local Storm Water Pollution Prevention Plan (LSWPPP) for all projects disturbing greater than an acre. LSWPPPs include year-round BMPs that must be incorporated into construction activities. All BMPs must be detailed on the LSWPPP or reference standard details found in the "California Storm Water BMP Construction Handbook." The LSWPPP plan must include appropriate BMPs for: general site management, construction materials and waste management, and erosion and sediment controls. To control site erosion and sediment during the rainy season, a Wet Weather Erosion Control Plan (WWECP) must be submitted or revised every year for all construction sites, regardless of their disturbance footprint size, to reflect site conditions at the start of the rainy season October 15. Grading and building plans that will have construction work occurring during the rainy season, will not be permitted until WWECP are submitted and approved. The LSWPPP and WWECP can be submitted together or as separate plans (County of Los Angeles 2005).

County of Los Angeles General Plan: The County of Los Angeles General Plan (County of Los Angeles 2015) recently underwent a comprehensive update; the latest General Plan version was approved in October 2015. The General Plan includes a Conservation and Natural Resources Element, which includes goals and policies related to local water resources, as well as a Safety Element, which includes goals and policies related to flood hazards.

Conservation and Natural Resources

Goal C/NR 5: Protected and useable local surface water resources.

Policy C/NR 5.1: Support the LID philosophy, which seeks to plan and design public and private development with hydrologic sensitivity, including limits to straightening and channelizing natural flow paths, removal of vegetative cover, compaction of soils, and distribution of naturalistic BMPs at regional, neighborhood, and parcel-level scales.

Policy C/NR 5.6: Minimize point and non-point source water pollution.

Goal C/NR 6: Protected and usable local groundwater resources

Policy C/NR 6.2: Protect natural groundwater recharge areas and regional spreading grounds.

Safety Element

Goal S 2: An effective regulatory system that prevents or minimizes personal injury, loss of life, and property damage due to flood and inundation hazards.

Policy S 2.1: Discourage development in the County's Flood Hazard Zones.

Policy S 2.4: Ensure that developments located within the County's Flood Hazard Zones are sited and designed to avoid isolation from essential services and facilities in the event of flooding.

Policy S 2.6: Work cooperatively with public agencies with responsibility for flood protection, and with stakeholders in planning for flood and inundation hazards.

Policy S 2.7: Locate essential public facilities, such as hospitals and fire stations, outside of Flood Hazard Zones, where feasible.

City of Palmdale Emergency Operations Plan and Emergency Shelters: This City of Palmdale Emergency Operations Plan addresses the City of Palmdale's response and short-term recovery to extraordinary emergency/disaster situations associated with natural disasters (such as flooding and severe weather conditions), technological incidents, and national security emergencies. The Plan provides basic planning information from which City departments prepare standard operating procedures related to internal operations under emergency and disaster conditions. The goals of the Plan are to provide effective life safety measures, reduce property loss and protect the environment, provide for the rapid resumption of impacted businesses and community services and provide accurate documentation and records required for cost recovery efforts (City of Palmdale 2012).

City of Palmdale General Plan: The City of Palmdale's General Plan (City of Palmdale 1993a) includes goals, objectives and policies that pertain to hydrology and soil erosion in Chapter 5 (Environmental Resources) of the Plan. These pertinent regulations are described below.

Environmental Resources

Goal ER4: Protect the quality and quantity of local water resources.

Policy ER4.1.2: Restrict building coverage and total impervious area in the vicinity of natural recharge areas.

Objective ER4.2: Minimize the impacts of urban development on groundwater supplies.

Policy ER4.2.1: Promote water conserving landscape techniques, through the use of native and drought tolerant plant species and landscape design standards.

Policy ER4.2.4: Coordinate with local water agencies to monitor ground water levels, State water allocations and development approvals, to assure that development does not outpace long-term water availability. In the event applicable water agencies notify the City that ground water levels and State water allocations are insufficient to serve existing development or projected development, the City will determine whether it is appropriate to reevaluate this General Plan and take other appropriate actions, as permitted by law.

Objective ER4.3: Maintain and further the City's commitment to long-term water management within the Antelope Valley by promoting and encouraging planning for the conservation and managed use of water resources, including groundwater, imported water, and reclaimed water.

3.8.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to hydrology and water quality are based on Appendix G of the *CEQA Guidelines*. The proposed program would result in a significant impact to hydrology or water quality if it would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on-or off-site (refer to Impact 3.8-3);
- Substantially alter the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site (refer to Impact 3.8-3);
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff (refer to Impact 3.8-3);
- Otherwise substantially degrade water quality (refer to Impact 3.8-1);
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam;
- Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

Methodology

The WSMP would develop PWD's potable water system over the next 25 years in order to meet the water quantity, water quality, system pressure, and reliability requirements of customers. Implementation of actions under this Plan would require the construction of various aboveground facilities and support infrastructure including storage tanks, pump stations, pipelines and wells. Additionally, PWD is proposing a headquarters building expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to be constructed as part of the long-term facilities. Projects to be implemented by 2020 are considered near-term project components and are analyzed at site-specific level. Projects addressed after 2020 are considered long-term projects. Preliminary locations for the long-term facilities have been established (see Figure 2-2),

although locations are subject to change based on the need of facilities in the future. As such, these long-term facilities are therefore evaluated generally and broadly.

Impacts Discussion

Water Quality Standards and Waste Discharge Requirements

Impact 3.8-1: The proposed project could violate water quality standards or waste discharge requirements, or otherwise substantially degrade water quality (including groundwater quality).

Storage Tanks (Near-Term and Long-Term)

Construction of storage tanks would require site preparation and clearing, excavation, grading, tank erection and painting, and site restoration; these construction activities would expose and disturb soils and require the use of fuels, lubricants and other chemicals onsite. Although temporary, introduction of sediment and chemicals to stormwater and site runoff could potentially violate water quality standards within or downstream of the project area, consequentially degrading water quality. Surface water quality and groundwater quality are inherently connected, and the introduction of contaminants to surface waters could also contaminate groundwater following percolation of surface water into the ground. The storage tanks would range in size from 3,421 to 18,627 square feet in size. An acre of disturbance is 43,560 square feet, and thus with ancillary construction space, construction could result in disturbance of an acre of ground surface. Per County requirements, all construction activities that disturb more than one acre are required to implement a LSWPPP that would include year-round BMPs designed to prevent mixing of stormwater with sediment and chemicals during storage tank construction. BMPs shall include but are not limited to: erosion control, sediment control, and waste management. Further, all construction activities regardless of disturbance size must implement a WWECP that includes temporary erosion and sediment control BMPs for the rainy season when erosion and sediment potential is highest. With implementation of mitigation measures, impacts to water quality during storage tank construction would be less than significant.

Once operational, the storage tanks would hold millions of gallons of water to serve various pressure zones throughout the project area. Although regular operation of the storage tanks would not pose a threat to water quality, the tanks would require periodic maintenance including inspection of storage tank structures and potential replacement of non-operational machinery; these activities could impact the quality of stormwater runoff on storage tank sites by introducing sediment or chemicals to runoff. As stated above in Section 3.8.2, “Regulatory Setting,” the project area is not covered by an MS4 Permit, which are the permits typically responsible for protecting water quality during facility operation. However, **Mitigation Measure HYD-1** would ensure vegetation is preserved to the maximum extent possible, and unvegetated sites would be compacted to stabilize soil following construction. Vegetation would then help stabilize soil during operation, thereby preventing the introduction of sediment into stormwater and trapping sediment and pollutants potentially introduced onsite by maintenance activities. **Mitigation Measure HYD-2** would require implementation of source control BMPs on tank sites during maintenance activities to prevent mixing of stormwater with maintenance-related chemicals. With implementation of mitigation, impacts to water quality during storage tank operation would be less than significant.

Pumps at Existing Pump Stations (Near-Term and Long Term)

Construction of near-term and long-term pumps at existing pump stations would occur within the footprints of existing pump stations. Should construction involve earth-disturbing activities, a WWECP must be implemented that specifies erosion and sediment control BMPs for the rainy season, regardless of disturbance footprint size. The operation of additional near-term and long-term pumps at existing pump stations would not alter the maintenance rates at the existing pump stations. Therefore, additional pumps would not increase the pump stations' impacts to water quality compared to existing conditions. With County requirement compliance, water quality impacts from construction and operation of near-term and long-term pumps at existing pump stations would be less than significant.

New Pump Stations (Long-Term)

Construction of new long-term pump stations would involve installation of piping and electrical equipment, excavation and structural foundation installation, pump house construction, pump and motor installation, and final site restoration. These construction activities have the potential to degrade water quality by introducing sediment and pollutants to receiving waters. Including laydown areas, the construction of new pump stations could potentially result in one acre of ground disturbance. The County requires preparation of a LSWPPP that would implement year-round BMPs for construction that would disturb greater than one acre. A WWECP would be implemented for all construction sites that would include temporary erosion and sediment control BMPs for the rainy season. Therefore, County requirements would help reduce potential impacts to water quality during pump station construction. Following construction, Mitigation Measure HYD-1 would ensure any onsite vegetation is preserved to the maximum extent practicable, and unvegetated sites would be compacted to achieve stabilization. Vegetation would help stabilize soil, thereby preventing the introduction of sediment into stormwater and trapping sediment and pollutants potentially introduced onsite by maintenance activities. With implementation of mitigation, water quality impacts from construction and operation of new long-term pump stations would be less than significant.

Pipelines (Near-Term and Long-Term)

Construction of proposed pipelines would involve trenching using a conventional cut and cover technique, jack-and-bore or directional drilling techniques where necessary to avoid sensitive land features or roadway intersections; dewatering may be required depending on location. These construction activities could introduce sediment and chemicals to runoff. Over 700,000 feet of pipeline is proposed as part of the project; various lengths of pipeline would be constructed at different time periods. The County requires that a LSWPPP is prepared for all construction activities disturbing greater than one acre, which includes year-round BMPs designed to prevent impacts to water quality. A WWECP is required for all construction activities regardless of their disturbance footprint size to implement temporary erosion and sediment control BMPs for the rainy season. Although discharging dewatered groundwater elsewhere could impact the discharge site's water quality, all dewatering activities would require compliance with the LRWQCB Limited Threat Discharges Permit. Compliance includes designation of a discharge disposal site, implementation of BMPs to control discharges, and monitoring and reporting to ensure discharges do not contribute to an exceedance in water quality objectives in receiving waters.

With implementation of mitigation, water quality impacts from construction of pipelines would be less than significant.

Following construction, Mitigation Measure HYD-1 would require that disturbed area is restored to pre-construction conditions. During operation, pipelines would be belowground and are not anticipated to require routine maintenance activities Therefore, pipelines are not expected to impact water quality on a regular or periodic basis.

Wells (Long-Term)

Construction of production wells would include site preparation, mobilization of equipment to the well site, well drilling, water quality testing, installation of the well casing, gravel packing and finishing with a cement seal. These construction activities could introduce sediment and chemicals to runoff and consequently degrade water quality. Although wells would be relatively small facilities compared to pump stations and storage tanks, their construction disturbance footprint could amount to one acre or more. A LSWPPP is required by the County for all construction activities that would disturb greater than an acre of ground surface that would include year-round BMPs to prevent impacts to water quality. A WWECP is required for all construction activities regardless of their disturbance footprint size to implement temporary erosion and sediment control BMPs for the rainy season. Although discharging dewatered groundwater during well construction could impact the discharge site's water quality, well construction activities require compliance with the LRWQCB Limited Threat Discharges Permit. Compliance includes designation of a discharge disposal site, implementation of BMPs to control discharges, and monitoring and reporting to ensure discharges do not contribute to an exceedance in water quality objectives in receiving waters. With implementation of mitigation, water quality impacts from construction of pipelines would be less than significant.

During operation, extracted groundwater will be used to meet water demand in PWD's service area. As discussed in Section 3.7, *Hazards and Hazardous Materials*, two of the groundwater production wells to be implemented as part of the long-term project components could interact with contamination at AFP 42. PWD would be required to coordinate with the U.S. Air Force, SWRCB, and DTSC prior to construction of the extraction wells to ensure no contamination interference would occur. Based on water quality, extracted groundwater may require blending or treatment to meet drinking water standards. In addition, maintenance activities associated with wells could require the use of substances that would degrade surface water quality if found in stormwater runoff. Mitigation Measure HYD-2 would ensure source control BMPs are implemented during well maintenance to prevent introduction of sediment and chemicals to runoff during well operation. With implementation of mitigation, water quality impacts from construction of wells would be less than significant.

Headquarters Expansion (Long-Term)

Construction of the headquarters building expansion would involve excavation and structural foundation installation, building construction (approximately 21,000 square feet), installation of piping and electrical equipment, and final site restoration. These construction activities have the potential to degrade water quality by introducing sediment and pollutants to receiving waters. Including laydown areas, the construction of the headquarters building could potentially result in

one acre of ground disturbance. The County requires preparation of a LSWPPP that would implement year-round BMPs for construction that would disturb greater than one acre. A WWECP would be implemented for all construction sites that would include temporary erosion and sediment control BMPs for the rainy season. Therefore, County requirements would help reduce potential impacts to water quality during headquarters construction. Following construction, Mitigation Measure HYD-2 would require implementation of source control BMPs s during maintenance activities to prevent mixing of stormwater with maintenance-related chemicals. With implementation of mitigation, water quality impacts from construction and operation of the headquarters building expansion would be less than significant.

Mitigation Measures

HYD-1: **Post-Construction Stabilization.** Following implementation of project facilities, areas of disturbance shall be restored to pre-construction conditions with regard to vegetation cover. Existing vegetation shall be preserved to the maximum extent practicable during construction activities. If no vegetation was present prior to construction, the site shall be compacted to achieve soil stabilization.

HYD-2: **Source Control BMPs.** PWD shall implement source control BMPs for all activities at project sites, including but not limited to accidental spills and leaks, outdoor equipment operations, and building and grounds maintenance. Source control BMPs shall be designed to prevent chemicals associated with these activities from coming into contact with stormwater. PWD shall refer to the latest version of the California Stormwater Quality Association's Construction BMP Online Handbook.

Significance Determination: Less than Significant with Mitigation

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Groundwater Supplies and Recharge

Impact 3.8-2: The proposed project could substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level.

All Facilities

All WSMP components have the potential to affect groundwater if excavation associated with construction is deep enough to reach the local groundwater table. When this occurs, groundwater dewatering is required to allow for installation of facilities or foundations. All construction dewatering activities would comply with the LRWQCB Limited Threat Discharges Permit, including groundwater discharges associated with well drilling and testing. Compliance includes designation of a discharge disposal site and implementation of BMPs to control discharges. Drainage systems in the City either drain to earthen channels or retention basins, and thus any discharged groundwater would either evaporate or eventually percolate into the Antelope Valley Groundwater Basin. Impacts associated with construction dewatering or groundwater discharges during well drilling would be less than significant.

In addition, large aboveground facilities like new storage tanks or pump stations in currently undisturbed areas cover ground surfaces and create impervious areas where groundwater recharge from stormwater runoff may potentially be restricted or reduced. For example, near-term storage tanks would range from 3,421 square feet to 18,627 square feet in size, and would thus add large impervious surfaces to the project area that would prevent groundwater recharge via surface flows from occurring. The sizes of long-term storage tanks would likely be similar in size to the near-term storage tanks. Areas surrounding these proposed storage tank locations are largely undeveloped and/or impervious; therefore, surface flows would still be able to recharge groundwater within the vicinity of these facilities. Pumps installed at existing pump stations would add minor amounts of impervious surfaces. Pump stations and wells would be impervious structures but would not be of sufficient size such that groundwater recharge is substantially affected. The PWD headquarters expansion would be located at a site currently covered with impervious surfaces so would not impact the groundwater recharge baseline. Therefore, the near-term and long-term storage tanks, pumps, pump stations, and headquarters expansion would not substantially affect groundwater supplies, groundwater table levels or groundwater recharge. Impacts would be less than significant.

Groundwater Wells (Long-Term)

Operation of the long-term groundwater production wells has the potential to affect the groundwater table level and groundwater supplies. The wells would directly extract groundwater from the Basin, and their operation could have a localized impact on groundwater levels due to temporary pumping depressions. Potential nearby existing wells that could be affected by pumping of the proposed wells include EAFB/ Plant 42 near the northern production wells and wells at the Rock Quarry near the eastern production wells. The location and number of other nearby production wells could change over the long-term nature of project implementation because PWD would implement the five production wells as a long-term project component.

The Antelope Valley Groundwater Basin has recently been adjudicated. The adjudicated PWD portion of the Antelope Valley Groundwater Basin native yield is 2,770 AFY. The Judgement also provides for return flow rights from imported water use and sharing of any unused Federal Reserved groundwater rights. These two types of groundwater rights are anticipated to provide 5,000 AFY (MWH 2016) and 1,370 AFY respectively for PWD. Prior to developing the proposed production wells, PWD would be required to obtain a Los Angeles County Health permit and submit a well application to the Antelope Valley Watermaster Engineer. When PWD chooses to implement the groundwater wells over the long-term portion of the project, **Mitigation Measure HYD-3** would require coordination with the Antelope Valley Watermaster Engineer. Coordination would involve conducting a material harm review of the proposed groundwater wells as well as the available groundwater rights. The Antelope Valley Watermaster Engineer would ensure operational criteria for the wells do not result in a net deficit in aquifer volume or a lowering of the local groundwater table such that the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted. Impacts would be less than significant with mitigation.

Mitigation Measures

HYD-3: **Future Coordination with Antelope Valley Watermaster Engineer.** For all future long-term wells to be implemented under the WSMP, PWD shall coordinate with the Watermaster to conduct a material harm review of the proposed groundwater wells as well as the available groundwater rights. PWD shall work with the Watermaster to ensure that well operation would not interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level such that the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted.

Significance Determination: Less than Significant with Mitigation

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Drainage Patterns

Impact 3.8-3: The proposed project could alter the existing drainage pattern of a site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion, siltation, or flooding on-or off-site.

Storage Tanks (Near-Term and Long-Term)

Construction of storage tanks would require grading, which would alter the topography and drainage patterns of the proposed storage tank locations. Mitigation Measure HYD-1 would ensure implementation of erosion and sediment control BMPs are implemented during construction, thereby preventing erosion and siltation from occurring. With implementation of mitigation, erosion, sedimentation and flooding impacts related to construction of storage tanks would be less than significant.

Once operational, the near-term storage tanks would range in size from 3,421 to 18,627 square feet; the long-term storage tanks are also expected to be within this range of sizes. Therefore, implementation of the tanks would reduce the impervious surfaces, thereby decreasing infiltration and potentially increasing runoff that could result in erosion, siltation and/or flooding. However, Mitigation Measure HYD-1 would require preservation of existing vegetation to the maximum extent practicable, and post-construction stabilization either by replanting any lost vegetation or compacting the soil, thereby reducing the potential for erosion and siltation during storage tank operation. Further, the storage tank locations are mostly surrounded by undeveloped/pervious areas that readily absorb surface water flows. Therefore, storage tank construction and operation would not result in significant impacts related to erosion, siltation or flooding caused by drainage pattern alteration.

Pumps at Existing Pump Stations (Near-Term and Long Term)

Near-term and long-term pumps installed at existing pump stations and would remain within the existing pump station footprint, and would therefore not substantially alter existing drainage patterns. Any earth disturbing activities involved in pump installation at existing pump stations would require preparation of a WWECP that implements temporary erosion and sediment control

BMPs during the rainy season to prevent erosion and sedimentation from occurring during construction. Therefore, pump construction and operation would not result in significant impacts related to erosion, siltation or flooding caused by drainage pattern alteration.

New Pump Stations (Long-Term)

Although pump station construction would not require grading, other construction activities that would alter the ground surface, such as foundation installation, would alter the drainage pattern of the pump sites. Including laydown areas, the construction of new pump stations could potentially result in an acre of ground disturbance. A LSWPPP is required by the County for all construction activities that would disturb greater than an acre of ground surface that would include year-round BMPs to prevent erosion and sedimentation from occurring. A WWECP is required for all construction activities regardless of their disturbance footprint size to implement temporary erosion and sediment control BMPs for the rainy season. A LSWPP and/or WWECP would stabilize the soil and prevent erosion and siltation from occurring during construction. Although impervious, the pump station area is not large enough to dramatically reduce area's pervious surfaces and its overall ability to absorb surface flows, and would not contribute to flooding. With implementation of mitigation, erosion, sedimentation and flooding impacts related to construction of long-term pump stations would be less than significant.

Following construction, vegetation preserved during construction and/or soil compaction required per Mitigation Measure HYD-1 would stabilize soil. Although long-term pump station FB-04 would be located within the Lake Palmdale Dam inundation area and could thus be subject to flooding, drainage pattern alteration resulting from pump station construction and operation is expected to be minor and would not worsen the site's existing flood risk. Therefore, neither pump station construction nor operation would result in significant impacts related to erosion, siltation or flooding caused by drainage pattern alteration. With implementation of mitigation, erosion, sedimentation and flooding impacts related to operation of long-term pump stations would be less than significant.

Pipelines (Near-Term and Long-Term)

Construction activities associated with pipelines such as trenching would disturb the ground surface and alter its drainage pattern. Over 700,000 feet of pipeline is proposed as part of the project; various lengths of pipeline would be constructed at different time periods. A LSWPPP is required by the County for all construction activities that would disturb greater than one acre of ground surface, which would include year-round BMPs to prevent erosion and sedimentation from occurring. A WWECP is required for all construction activities regardless of their disturbance footprint size to implement temporary erosion and sediment control BMPs for the rainy season. Dewatering for pipeline construction could also result in erosion, siltation or flooding if dewatered flows are not properly controlled; however, the Limited Threat Discharges Permit requires prior designation of a discharge site, along with BMPs to control discharge flows. With implementation of mitigation, erosion, sedimentation and flooding impacts related to construction of near-term and long-term pipelines would be less than significant.

Following construction, Mitigation Measure HYD-1 would ensure preservation of existing vegetation to the maximum extent practicable and compacting of unvegetated areas to stabilize soil. Once operational, the pipelines would operate belowground and disturbed surface areas would be restored to pre-construction conditions. There would be no decrease in pervious surfaces that could generate excessive flood flows. Some long-term pipelines would be located within the Lake Palmdale Dam inundation area or a 100-year flood zone; however, pipelines would be located belowground and would thus not worsen existing flood risks. Erosion, sedimentation and flooding impacts related to operation of near-term and long-term pipelines would be less than significant.

Wells (Long-Term)

Well construction activities such as well drilling and finishing would disturb the ground surface and alter its drainage pattern. Although wells would be relatively small facilities compared to pump stations and storage tanks, their construction disturbance footprint could amount to one acre or more. A LSWPPP is required by the County for all construction activities that would disturb greater than one acre of ground surface that would include year-round BMPs to prevent erosion and sedimentation from occurring. A WWECP is required for all construction activities regardless of their disturbance footprint size to implement temporary erosion and sediment control BMPs for the rainy season. Mitigation Measure HYD-1 would ensure preservation of existing vegetation to the maximum extent practicable and compacting of unvegetated areas to stabilize soil. Well construction could also result in erosion, siltation or flooding if dewatered flows are not properly controlled; however, compliance with the Limited Threat Discharges Permit requires prior designation of a discharge site and implementation of BMPs to control discharge flows. Although impervious, the aboveground well structures would not be of a substantial size to decrease pervious surfaces such that excessive flood flows are generated. With implementation of mitigation, erosion, sedimentation and flooding impacts related to construction and operation of long-term wells would be less than significant.

Headquarters Expansion (Long-Term)

Construction of the PWD headquarters expansion would require grading, which would alter the topography and drainage patterns of the existing PWD headquarters site. Mitigation Measure HYD-1 would ensure implementation of erosion and sediment control BMPs are implemented during construction, thereby preventing erosion and siltation from occurring. With implementation of mitigation, erosion, sedimentation and flooding impacts related to construction of the headquarters building would be less than significant.

Once operational, the headquarters building expansion would be approximately 21,000 square feet. Construction would replace an existing building and paved surface and would therefore not increase runoff or modify existing drainage patterns. Therefore, operation would not result in significant impacts related to erosion, siltation or flooding caused by drainage pattern alteration.

Mitigation Measures

Implement **Mitigation Measure HYD-1**.

Significance Determination: Less than Significant with Mitigation

Exceedance of Stormwater Drainage System Capacity

Impact 3.8-4: The proposed project could create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

All Facilities (Near Term and Long Term)

The City of Palmdale contains numerous localized drainage systems that connect to earthen channels or drain to retention basins. Construction of all of the proposed facilities (near-term and long-term storage tanks, pipelines, pumps, pump stations, wells, and the headquarters expansion) would require minimal amounts of water. Therefore, the project is not expected to generate a large amount of runoff onsite during construction compared to existing stormwater runoff conditions that would exceed the capacity of existing stormwater drainage systems. During operation, the facilities would operate to store, convey, extract groundwater, and would not discharge any runoff to stormwater drainage systems. Minor maintenance activities such as equipment washing for near-term and long-term storage tanks, pumps, pump stations and wells would generate minimal amounts of runoff. As described under Impact 3.8-2, although storage tanks would represent large impervious surfaces that would increase stormwater runoff, the storage tank locations are surrounded by undeveloped and/or impervious areas that are expected to accommodate runoff. Pumps, pump stations, wells, pipelines, and the headquarters expansion would not introduce substantial impervious surfaces such that excessive runoff would be generated. Therefore, impacts related to the generation of runoff that would exceed the capacity of stormwater drainage systems would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Housing Placement: Flood Hazard Area

Impact 3.8-5: The proposed project would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map.

All Facilities (Near Term and Long Term)

The proposed project includes construction and operation of storage tanks, pumps, pump stations, pipelines, wells, and the headquarters expansion within the project area, and does not include any type of housing element. Therefore, there would be no impact related to the placement of housing in a 100-year flood hazard area.

Mitigation Measures

None required.

Significance Determination: No impact

Structures: Flood Hazard Area

Impact 3.8-5: The proposed project could place within a 100-year flood hazard area structures that would impede or redirect flood flows.

Pipelines (Long-Term)

Some of the proposed long-term pipelines would be located within a 100-year flood zone. However, pipelines would be installed belowground. Construction equipment necessary for performing trenching, excavation, dewatering and backfilling would be located aboveground, but only temporarily and would not have the capability to impede or redirect any flood flows. The pipelines would operate entirely belowground and would thus not have the ability to impede or redirect flood flows during their operation. Impacts related to the impediment or redirection of flood flows within a 100-year flood zone would be less than significant.

All Other Facilities (Near Term and Long Term)

All other facilities besides the long-term pipelines (including near-term pipelines as well as near-term and long term storage tanks, pumps, pump stations, wells, and headquarters expansion) would not be located within a 100-year flood zone. There would be no impact related to impediment or redirection of flood flows within a 100-year flood zone.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Flood Hazards: Levee or Dam Failure

Impact 3.8-6: The proposed project could expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Pipelines (Long-Term)

Although there are no levees within the vicinity of the project facilities, some of the proposed long-term pipelines would be located within the expected inundation area of the Palmdale Dam. However, pipelines would be installed belowground and construction equipment located aboveground during pipeline installation would only be present temporarily. The pipelines would operate entirely belowground and would not require staffing; therefore, they would not expose people or structures to impacts associated with the failure of a levee or dam. Impacts related to levee or dam failure would be less than significant.

All Other Facilities (Near Term and Long Term)

All other facilities besides the long-term pipelines (including near-term pipelines as well as near-term and long term storage tanks, pumps, pump stations, wells, and headquarters expansion) would not be located within a dam inundation area. There are no levees within the project area. There would be no impact related to flooding as the result of failure of the levee or dam.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Tsunami, Seiche and Mudflow

Impact 3.8-7: **The proposed project could expose people or structures to a significant risk of loss, injury or death involving inundation by tsunami, seiche, or mudflow.**

All Facilities (Near Term and Long Term)

The project area is not located within the vicinity of an ocean and is thus not at risk for experiencing tsunamis. The chance of nearby Lake Palmdale generating a seiche is unlikely according to design reports, and the wave volume above the dam would not be substantial (approximately 1 acre-foot) as to cause damaging floods according to the City General Plan (City of Palmdale 1993b). The California Aqueduct is located within the proposed project area, and could be subject to a seiche; however, relatively few seiches have occurred in aqueduct channels. The project area has the potential to experience mudflow. A rainstorm in October of 2015 caused major flooding and mudflows that impacted City streets and dwellings and damaged both private and public property. The City's Director of Emergency Services proclaimed a local emergency in response to this event (City of Palmdale 2015). Therefore, all proposed project structures except pipelines (storage tanks, pumps, pump stations, wells, and the headquarters expansion) could be damaged by mudflows since they would be located aboveground. However, in accordance with Mitigation Measure HYD-1, impacts to existing vegetation would be minimized and the majority of lost vegetation would be replanted. Therefore, the project would not alter the project sites' existing topography based on pre-construction conditions that would increase the area's potential to experience mudflow. Further, the project sites would only be periodically occupied (either temporarily for construction or periodically for maintenance) and would thus not introduce persons to a permanent risk of safety threats from mudflow. The City's Emergency Operations Plan is a resource employed by City of Palmdale departments to respond effectively to the structural damage and safety risks in the event of an emergency including mudflows. Therefore, impacts related to tsunami, seiche and mudflow would be less than significant.

Mitigation Measures

Implement **Mitigation Measure HYD-1**.

Significance Determination: Less than Significant with Mitigation

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3.8.4 References

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3.9 Land Use, Planning and Recreation

This section addresses the land use and recreation impacts associated with implementation of the proposed 2016 Water System Master Plan (WSMP or proposed project), which would include the construction and operation of new facilities and upgrades to existing facilities throughout the Palmdale Water District (PWD) service area and vicinity. These facilities include pipelines, storage tanks, pump stations and groundwater wells to be constructed in the near-term (before 2020) and long-term (after 2020). Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). This section includes a description of existing land uses and recreational opportunities within the project area, as well as applicable regulatory framework, and potential impacts associated with implementation of the proposed project.

3.9.1 Environmental Setting

Project Area

The project area includes the PWD service area and areas of unincorporated Los Angeles County where facilities are proposed. The City of Palmdale and the County have independent planning documents that guide the development of urban, commercial, and other land uses within their jurisdictional boundaries.

Palmdale Water District Service Area

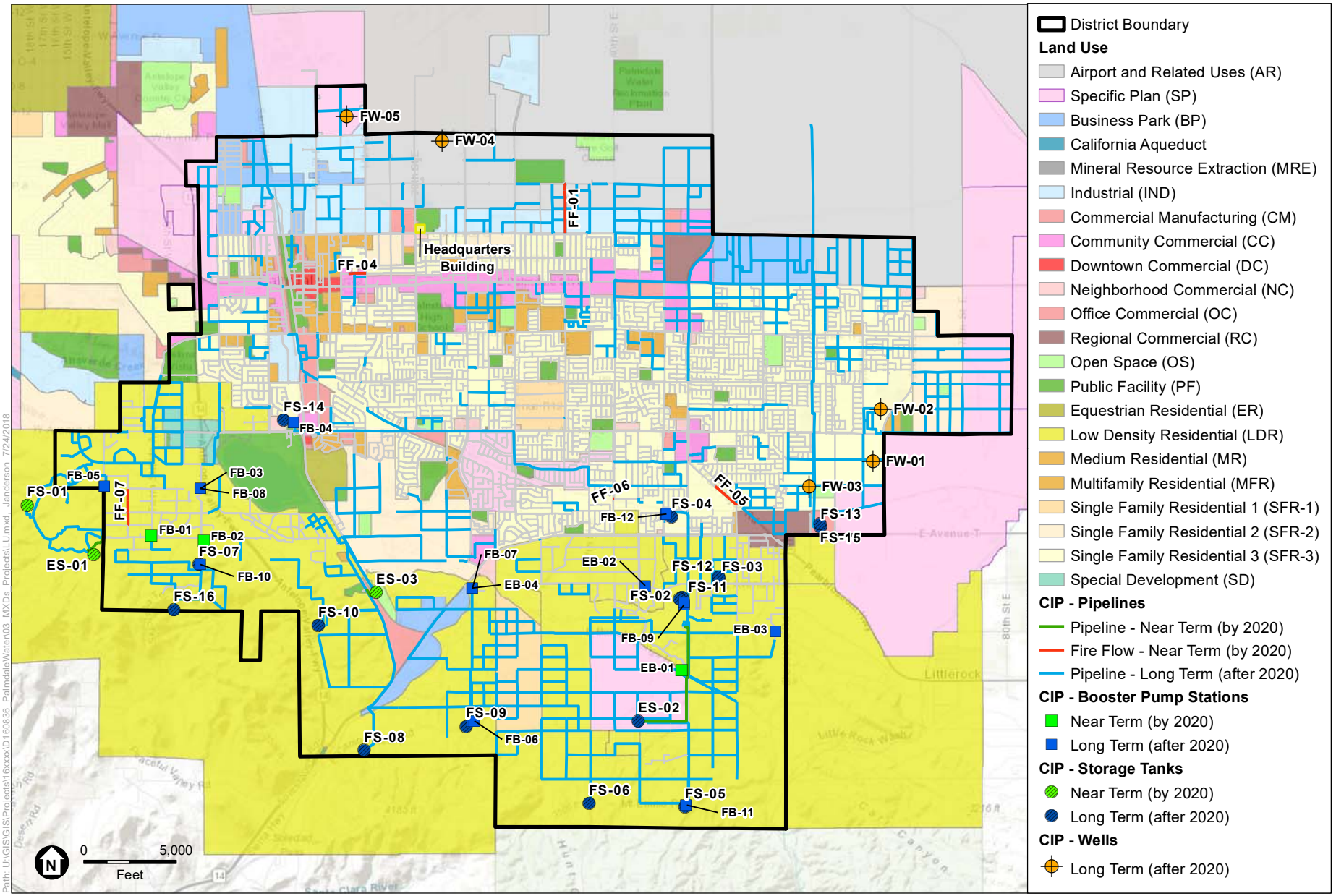
The District's existing water service area is located almost entirely within the limits of the City of Palmdale except for portions of its southern and eastern boundaries that extend into unincorporated areas of Los Angeles County (see Figure 2-1). The District is bordered to the south and west by the San Gabriel Mountain Range, the north by the City of Lancaster, and the east by the unincorporated community of Little Rock. The County of San Bernardino is located immediately to the east. PWD encompasses 47 square miles of mainly developed areas with agricultural uses around its perimeter.

City of Palmdale

The City of Palmdale Planning Area encompasses approximately 174 square miles within a transitional area between the foothills of the San Gabriel and Sierra Pelona Mountains and the Mojave Desert to the north and east. The Planning Area referred to in the General Plan generally extends east to 120th Street East, south to the alignment of Avenue W (Angeles National Forest) to the east of State Route (SR)14 and follows an irregular boundary along the Sierra Pelona ridgeline west of SR-14, north to Avenue M and L, west to 80th Street West south of the Ritter Ridge and 110th Street West north of Portal Ridge (City of Palmdale 1993).

Existing Land Use Designations

The project area is characterized primarily by residential land uses, with open space interspersed along the outer portions of the project area. The land use designations associated with each category of proposed near-term facilities, as well as a general description of long-term facilities, are discussed below. All land use designations associated with near-term and long-term project components are shown on **Figure 3.9-1**.



SOURCE: Palmdale Water 2017; City of Palmdale 2011

Palmdale Water District

Figure 3.9-1
Land Uses within the PWD Service Area

ESA

Storage Tanks

The WSMP calls for construction of up to 19 storage tanks, with three tanks to be constructed by 2020, and 16 tanks to be constructed after 2020. Although locations are preliminary in nature, the tanks to be constructed after 2020 may be located within undeveloped land in between residential areas and on hillsides along the southern boundary of the PWD service area. Some of these tanks would be located adjacent to existing PWD facilities such as pump stations, other storage tanks, and pipelines (Figure 3.9-1). The near-term tanks to be constructed by 2020 are as follows:

- Storage tank ES-01 would be constructed approximately 500 feet west of PWD's western service boundary within open, vacant land. This portion of the project area is designated as Low Density Residential (LDR).
- Storage tank FS-01 would also be constructed approximately 1,700 feet west of PWD's western service boundary within open, undeveloped land. This portion of the project area is designated as Low Density Residential (LDR).
- Storage tank ES-03 would be constructed near the intersection of Sierra Highway and Rae Street and within the PWD's service area. This portion of the project area is designated as Open Space (OS).

Pump Stations

The WSMP calls for the construction of seven new pumps at five existing pump stations and six new pump stations. Three pumps at existing pump stations are to be constructed by 2020, while the remaining four pumps at existing pump stations and six new pump stations would be constructed after 2020. Although locations are preliminary in nature for long-term components, the new pump stations to be constructed after 2020 may be located in undeveloped land close to residential uses. Most of the new pump stations would be located adjacent to other long-term PWD facilities such as pipelines located along rights of way (ROW) of existing roadways throughout the project area (Figure 3.9-1). The long-term pumps would be located within existing pump stations. The near-term pumps to be constructed by 2020 are as follows:

- The EB-01 pump would be installed at the existing V-5 Booster Station near the northwest corner of 47th Street East and Barrel Springs Road within vacant land just south of two residential lots. This portion of the project area is designated as Specific Plan and is directly adjacent to Low Density Residential (LDR).
- The FB-01 pumps would be installed at the existing 3600 ft Booster Pump Station near the intersection of Tierra Subida Avenue and Lakeview Drive within vacant land surrounded by low-density residential lots just northwest and northeast and undeveloped, vacant land to the south. This portion of the project area is designated as Low Density Residential (LDR).
- The FB-02 pump would be installed at the existing El Camino Underground Pump Station near the intersection of El Camino Drive and Lakeview Drive within disturbed land surrounded by low-density residential lots to the east, north and west. This portion of the project area is designated as Low Density Residential (LDR).

Pipelines

Multiple segments of transmission pipelines would be constructed throughout the project area. Pipelines to be constructed after 2020 would primarily be located within the ROW of existing roadways throughout the project area; while some pipelines would be implemented within undeveloped land or open areas with no existing roadways (Figure 3.9-1). Pipelines to be constructed by 2020 include fire flow projects, age-based pipeline improvements, and pipeline expansion projects:

Fire Flow Projects

- The FF-01 pipeline replacement is located within vacant, undeveloped land. FF-01 is not located within a public ROW. This portion of the project area is designated as Industrial (IND) and Airport and Related Uses (AR).
- The FF-04 pipeline area is located within vacant, undeveloped land. 15th Street East separates the project site and residential development. This portion of the project area is designated as Community Commercial (CC).
- The FF-05 pipeline would be installed within the public ROW of Fort Tejon Road.
- The FF-06 would be located within the public ROW of 40th Street East.
- The FF-07 would be constructed within the public ROW of Camares Drive.

Pipeline Improvements and Expansion

- The pipeline within the public ROW of 47th Street East is surrounded by open land designated as Specific Plan (SP). A portion of the pipeline would deviate west from 47th Street East through area designated as Specific Plan (SP).
- The pipeline would be located within the public ROW of Sierra Highway. A small portion of the pipeline from Sierra Highway to proposed storage tank ES-03 would involve jack and bore under the railroad through Commercial Manufacturing (CM).
- Pipeline west of Lakeview Drive runs through vacant, undeveloped land to proposed storage tank ES-01. This pipeline is not located within a public ROW. This portion of the project area is designated as Low Density Residential (LDR).

Groundwater Wells

The WSMP calls for the construction of five new wells to be located in the norther and eastern portion of the project area. The wells in the northern portion of the project area would be located in vacant land within Airport and Related Uses (AR) and Specific Plan (SP). The eastern wells are located within vacant land just east of a developed area containing a high school and residential land uses (Figure 3.9-1). This portion of the project area is designated as Single Family Residential (SFR-1 and SFR-3), and Multifamily Residential (MFR).

Headquarters Expansion

PWD is proposing to expand the existing headquarters located at East Avenue Q and 20th Street East. All construction would be located on PWD-owned property that is currently developed. This portion of the project area is designated as Public Facility (PF).

Significant Ecological Areas

Los Angeles County has identified Significant Ecological Areas (SEAs) throughout the Antelope Valley. The purpose of establishing a SEA is to maintain biological diversity by establishing boundaries which follow natural biological parameters, including habitats, linkages, and corridors and have self-sustaining populations of their component species contained within each area. Lake Palmdale and the immediate area to the east running along Barrel Springs Road is designated as a SEA within the project area. Additionally, the eastern boundary of the project area is partially within a SEA that runs along a wash (County of Los Angeles 2017) (see **Figure 3.9-2**). Multiple long-term pipelines would be implemented within these designated SEAs.

Palmdale Regional Airport

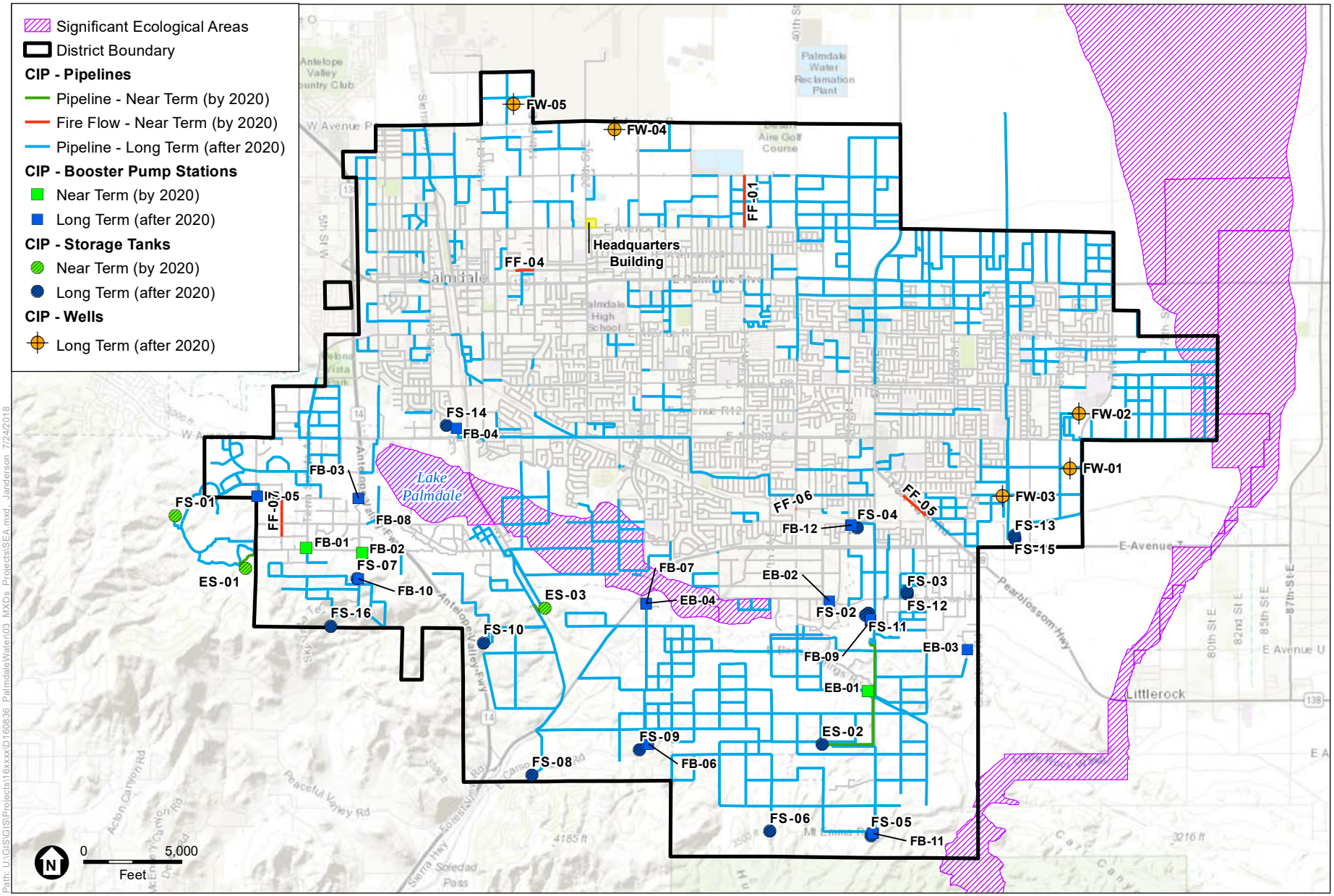
The Palmdale Regional Airport is located just north of the project area. The Los Angeles County Airport Land Use Commission established an airport influence area (AIA) surrounding the airport (County of Los Angeles 2003); multiple segments of long-term pipelines, one segment of the short-term pipelines (FF-01), and the two northern groundwater production wells FW_04 and FW-05 would be located within the AIA for the Palmdale Regional Airport (see **Figure 3.9-3**).

Recreation

The project area is located in southern California, approximately 60 miles northeast of the City of Los Angeles, within the Antelope Valley. The Antelope Valley contains a variety of recreational opportunities of varying sizes and amenities. Recreation facilities within the project area are discussed below.

City of Palmdale Department of Recreation and Culture

The City of Palmdale's Department of Recreation and Culture manages the operation of 316.6 acres of developed parkland throughout the City of Palmdale. Neighborhood parks are small (usually three to seven acres) and are located in areas that are easily accessed by residential communities (City of Palmdale 1993). Community parks are generally larger (usually five to 50 acres) and are shared by the entire local community (City of Palmdale 1993). The Department also operates 18 special use facilities and 28.7 miles of developed trails and pathways. Recreational facilities in the area include parks, golf courses, bikeways, open space, and multipurpose facilities. Other recreational facilities include pools, a six-acre water park, an outdoor amphitheater, a softball complex, full service recreation centers, a senior citizen center, an equestrian arena, two skate parks, and two roller hockey rinks (City of Palmdale 1993). Recreational resources within the project area are listed in **Table 3.9-1** and shown on **Figure 3.9-4**.

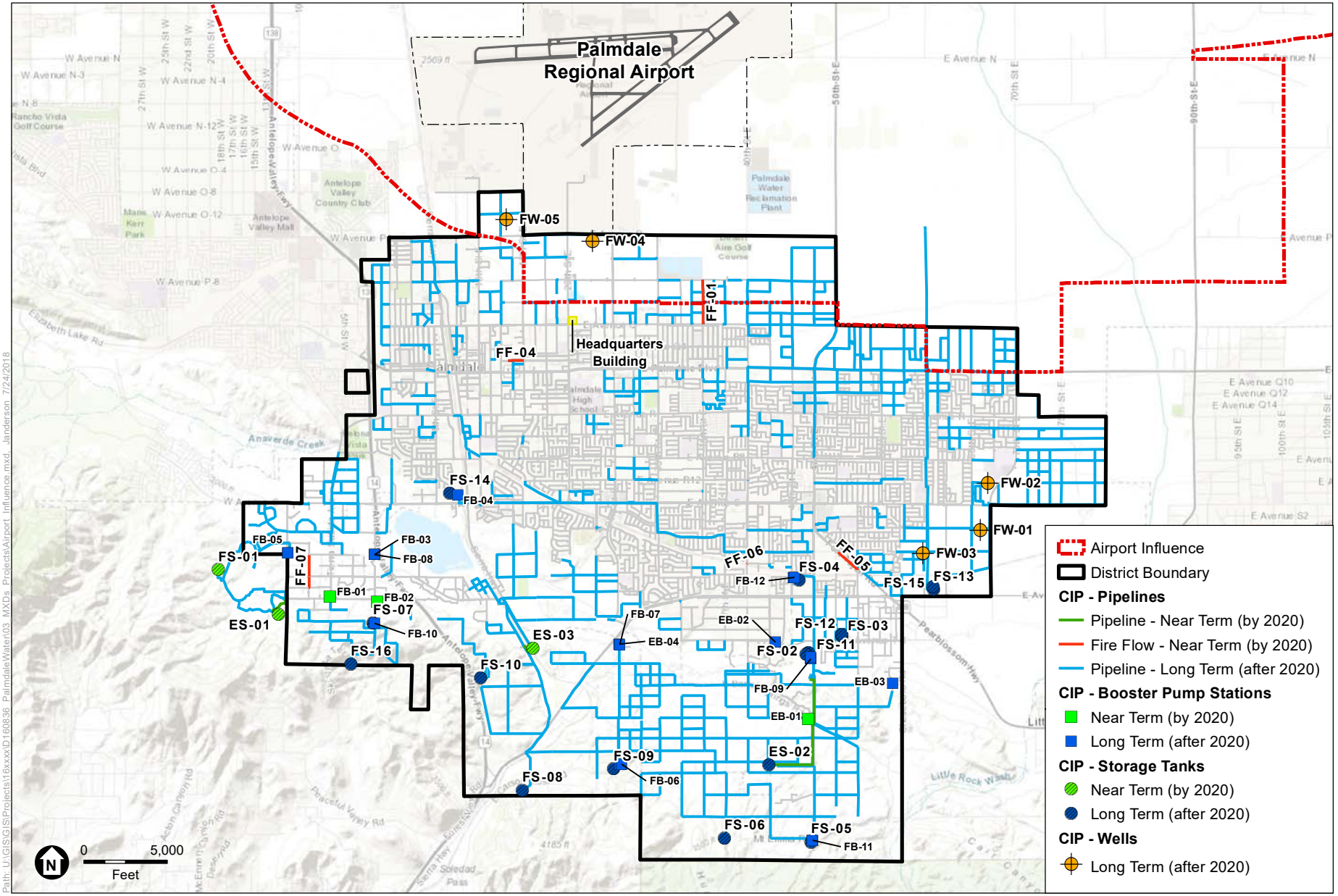


SOURCE: Palmdale Water 2017; Los Angeles Department of Regional Planning

Palmdale Water District

Figure 3.9-2
Significant Ecological Areas

ESA

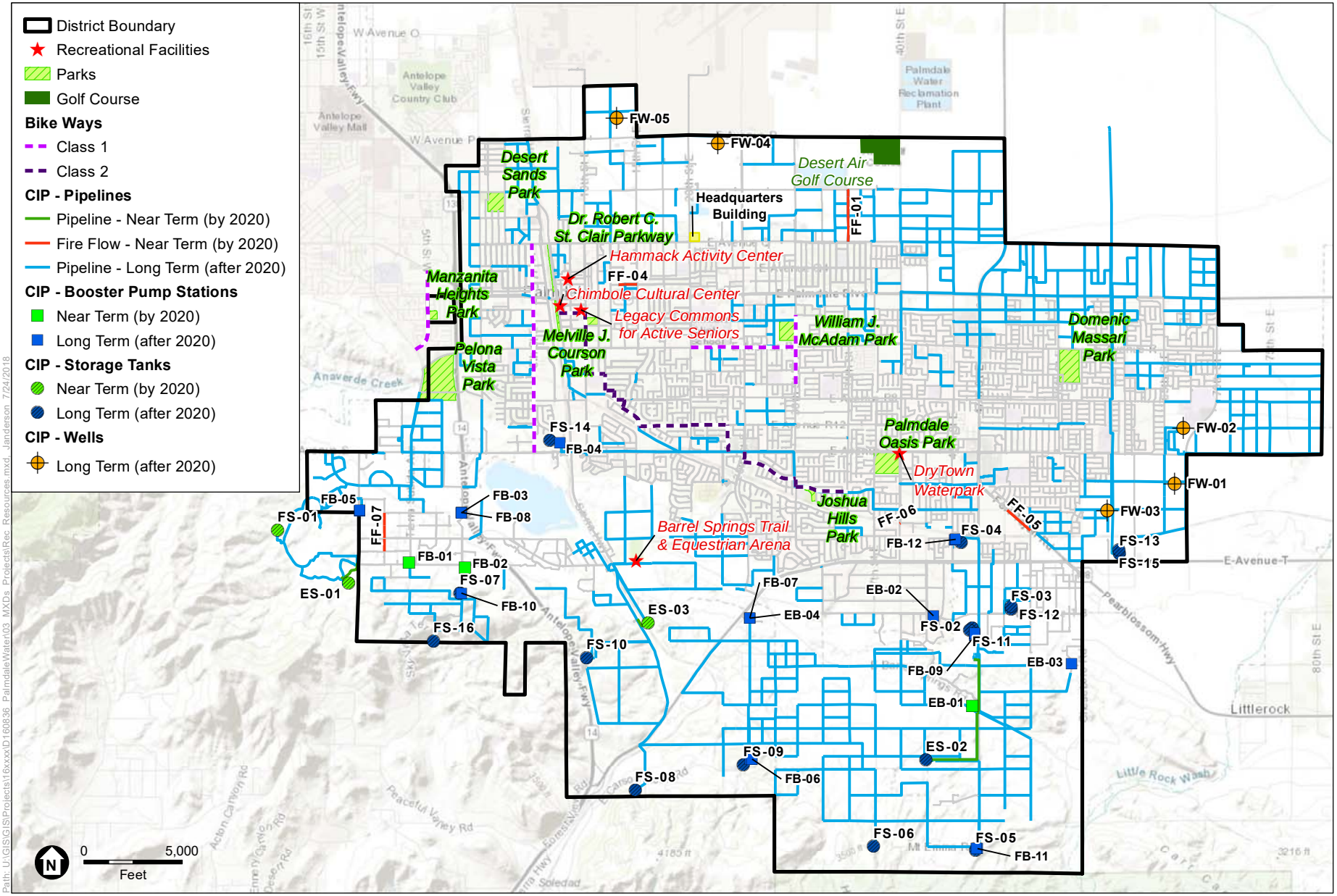


SOURCE: Palmdale Water 2017; Los Angeles Department of Regional Planning

Palmdale Water District

Figure 3.9-3
Palmdale Airport Influence Area

ESA



Path: U:\GIS\GIS\Projects\16xxxx\D160836_PalmdaleWater\03_MXDs_Projects\Rec_Resources.mxd_Janderson_7/24/2018

SOURCE: Palmdale Water 2017; LA Metro 2012

Palmdale Water District

Figure 3.9-4
Recreational Resources

ESA

TABLE 3.9-1
RECREATIONAL RESOURCES IN THE PROJECT AREA

Recreational Resource		
Parks	Recreational Facilities	Specialty Areas
Domenic Massari Park	Richard B Hammack Center	Dr. Robert C. St. Clair Parkway
Desert Sands Park	Dry Town Water Park	Barrel Springs Trail and Equestrian Arena
Pelona Vista Park	Larry Chimbole Cultural Center	Source: City of Palmdale, 2017
William J. McAdam Park	Legacy Commons for Active Seniors	
Melville J. Courson Park		
Manzanita Heights Park		
Joshua Hills Park		
Palmdale Oasis Park		

Bike Paths

The City of Palmdale has three designations of bike paths that are defined as follows:

- Class I: Completely separated from traffic
- Class II: A lane set aside in city streets exclusively for bikes.
- Class III: Purportedly safe city streets connected into a means of getting from one place to another on a bike

Approximately 24.2 miles of on- and off-street (Class 1, II) bike paths have been developed throughout the City of Palmdale. This represents approximately 18.7 percent of the 129 miles of bike paths that are currently designated in the General Plan. The other 104.8 miles of bike paths (Class III) represent approximately 83.3 percent of the bike paths designated in the General Plan. The portion of the Sierra Highway between Avenue H and the Kern County line is designated as a bikeway in the Antelope Valley Areawide Plan. Bicycles within this bikeway use the paved shoulder of the road. In addition, the area along 6th Street from Avenue S through Avenue P is designated as a bike trail within the City of Palmdale. No special lanes have been provided for bicycles in the project area (City of Palmdale 1993).

Open Space

The Palmdale Land Use Map designates 9,458 acres as open space that is intended to be preserved in its present natural condition, with little or no development allowed. Trail linkages through open space areas are often utilized by citizens for recreational purposes; including hiking, camping, and bicycling. The golf course included in the project area is the Desert Air Golf Course; designated as Open Space.

Existing open spaces in the unincorporated areas of Los Angeles County include County parks, conservancy lands, state parklands, and federal lands. Open space can also include private and other open space lands, such as open space parcels and easements. Open space areas near the project area, as designated by the Los Angeles General Plan, include the Angeles National Forest, SEAs, and County owned land to the east of the project area (Los Angeles General Plan 2017).

Angeles National Forest

The Angeles National Forest is located adjacent to the project area, and encompasses approximately 700,000 acres of diverse terrain, and provides recreational opportunities for residents throughout Southern California. Much of the Forest is covered with dense chaparral, which changes to pine and fir forests at higher elevations. Angeles National Forest offers camping and picnicking sites, hiking trails, and opportunities for fishing, hunting and target shooting, off-highway vehicle exploration, water sports, and winter sports. Lands within Angeles National Forest are managed by the U.S. Department of Agriculture (USDA) Forest Service (USDA 2017).

3.9.2 Regulatory Framework

Federal

Federal Aviation Administration: The Federal Aviation Administration (FAA) is the branch of the U.S. Department of Transportation with regulatory responsibility for civil aviation. The FAA is responsible for establishing policies and regulations to ensure the safety of the traveling public. FAA Advisory Circular (AC) 150/5200-33B addresses hazardous wildlife attractants on or near airports (FAA 2007). This Advisory Circular is intended to provide guidance on siting certain land uses that have the potential to attract potentially hazardous wildlife to a public-use airport or its vicinity. The FAA Advisory Circular recommends against "land use practices that attract or sustain populations of hazardous wildlife within the vicinity of airports or cause movement of hazardous wildlife onto, into, or across the approach or departure airspace, aircraft movement area, loading ramps, or aircraft parking area of airports."

Various proposed pipelines would be implemented within the Palmdale Regional Airport's immediate vicinity (see Figure 3.9-3). The proposed project would be required to follow the FAA's 7460 process; which requires that the appropriate entity (PWD) file a "Notice of Proposed Construction or Alternation" Form. Construction plans within the Palmdale Regional Airport AIA would need to be approved before any construction commences.

State

Caltrans Division of Aeronautics: The State Aeronautics Act[1] requires local jurisdictions that operate public airports to establish Airport Land Use Commissions (ALUCs) or an equivalent designated body to protect the public health, safety, and welfare. The ALUCs or equivalent are responsible for promoting the orderly expansion of airports and adoption of land use measures by local public agencies to minimize exposure to excessive noise and safety hazards near airports. Each ALUC or equivalent designated body is responsible for preparing and maintaining an Airport Land Use Compatibility Plan (ALUCP) that identifies compatible land uses near each public use airport within its jurisdiction. The ALUCP must provide policies for reviewing certain types of development that occur near airports. State law requires consistency between airport land use compatibility plans and any associated general plans. Caltrans is responsible for the review and approval of all ALUCPs within the State of California.

[1] The State ALUC law is contained in Public Utilities Code Article 3.5, State Aeronautics Act, Section 21661.5, Section 21670 *et seq*., and Government Code Section 65302.3 *et seq*.

California Government Code Section 53091: California Government Code Section 53091 specifies that water supply facilities such as those associated with the proposed project, are exempt from zoning restrictions. Specifically, Section 53091 states (State of California Legislative Council 2003):

> *(d) Building ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water, wastewater, or electrical energy by a local agency.*
>
> *(e) Zoning ordinances of a county or city shall not apply to the location or construction of facilities for the production, generation, storage, treatment, or transmission of water.*

Local

City of Palmdale General Plan: The project area is located mostly within the City of Palmdale. The City of Palmdale General Plan identifies the types of development that will be allowed, the spatial relationships among land uses, and the general pattern of future development in the city. The City of Palmdale General Plan also addresses planning issues that may affect or be affected by areas outside of the existing city limits. The following is a selected list of General Plan goals, objectives, and polices that are applicable to the proposed project (City of Palmdale 1993; City of Palmdale 2003).

Land Use Element

Goal ER4: Protect the quality and quantity of local water resources.

Objective ER4.1: Ensure that ground water supplies are recharged and remain free of contamination.

Objective ER4.2: Minimize the impacts of urban development on groundwater supplies.

Policy ER4.2.4: Coordinate with local water agencies to monitor ground water levels, State water allocations and development approvals, to assure that development does not outpace long-term water availability. In the event applicable water agencies notify the City that ground water levels and State water allocations are insufficient to serve existing development or projected development, the City will determine whether it is appropriate to reevaluate this General Plan and take other appropriate actions, as permitted by law.

Objective ER4.3: Maintain and further the City's commitment to long-term water management within the Antelope Valley by promoting and encouraging planning for the conservation and managed use of water resources, including groundwater, imported water, and reclaimed water.

Antelope Valley Areawide General Plan (2015): The County of Los Angeles has developed the Antelope Valley Areawide (AVA) General Plan, in conjunction with the other chapters and elements of the County of Los Angeles General Plan. The AVA General Plan is a coordinated statement of public policy by the County for use in making public decisions relating to the future of the Antelope Valley. The AVA General Plan is designed to provide decision makers with a policy framework to guide them in efforts to improve the quality of life in the valley. The

following is a list of selected AVA General Plan polices that apply to the proposed project (County of Los Angeles 2015).

Land Use Element

Goals LU 1: A land use pattern that maintains and enhances the rural character of the unincorporated Antelope Valley.

Goal LU 2: A land use pattern that protects environmental resources.

Policy LU 2.1: Limit the amount of potential development in Significant Ecological Areas, including Joshua Tree Woodlands, wildlife corridors, and other sensitive habitat areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

Policy LU 3.7: All development projects located on parcels that are within an airport influence area shall be consistent with all policies of that airport's land use compatibility plan.

Goal LU 4: A land use pattern that promotes the efficient use of existing and/or planned infrastructure and public facilities.

Mobility Element

Goal M 9: A unified and well-maintained bicycle transportation system throughout the Antelope Valley with safe and convenient routes for commuting, recreation, and daily travel.

Goal M 10: A unified and well-maintained multi-use (equestrian, hiking, and mountain bicycling) trail system that links destinations such as rural town centers and recreation areas throughout the Antelope Valley.

Public Safety, Services, and Facilities Element

Goal PS 8: Antelope Valley residents enjoy access to parks and recreational facilities.

Policy PS 8.7: Provide trails, bikeways, and bicycle routes for recreational purposes, as directed in the policies of the Mobility Element.

Parks, Recreation, and Trails Element

Goal PRT3: Provide a network of open space areas to provide for passive recreation opportunities, enhance the integrity of biological systems, and provide visual relief from the developed portions of the city; and develop a system of multi-use trails which provide connections to the County trails system and the City of Lancaster trails system.

Antelope Valley Significant Ecological Areas

As part of the County General Plan Conservation/Open Space and Land Use elements, Los Angeles County has identified and adopted policies for SEAs. Some long-term pipelines would be implemented within a designated SEA just east of Lake Palmdale and east of the proposed groundwater wells (Figure 3.9-2). Grading and building permits would need to be reviewed and approved by the SEA Technical Advisory Committee (SEATAC) for any proposed facilities being implemented within a SEA (County of Los Angeles, 2009).

Los Angeles County Airport Land Use Plan:

The *Los Angeles County Airport Land Use Plan* (ALUP) includes several components:

- *Airport Land Use Commission Review Procedures* (Review Procedures), adopted on December 1, 2004. The Review Procedures are County-wide procedures that apply to all 11 public-use airports in the County, including Palmdale Regional Airport.
- Airport Land Use Plan, adopted December 19, 1991. Although some of the county-wide policies addressed in this plan have been superseded by the 2004 Review Procedures, the 1991 plan includes background on compatibility issues and each airport for which the ALUC is responsible for policy development.
- Other airport-specific plans. The County is in the process of developing an individual Airport Land Use Compatibility Plan for the Palmdale Regional Airport.

Taken together, these document components define the procedures and criteria through which the County can address, evaluate, and review airport compatibility issues in the vicinity of any of its public use airports.

The ALUP includes policies and programs that apply to project, including the following:

General Policies

G-1: Require new uses to adhere to the Land Use Compatibility Chart.

G-4: Prohibit any uses which will negatively affect safe air navigation.

Policies related to safety

S-5: Prohibit uses which would attract large concentrations of birds, emit smoke, or which may otherwise affect safe air navigation.

S-7: Comply with the height restriction standards and procedures set forth in FAR Part 77.

Palmdale Airport Land Use Compatibility Plan: At this time, the County has not prepared a specific Land Use Compatibility Plan for the Palmdale Regional Airport; however, an AIA has been established (Figure 3.9-3). Any proposed facilities within the AIA would be subject to the county-wide policies in the ALUP and Review Procedures. However, airport-specific policies have not been developed at this time.

3.9.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to Land Use, Planning and Recreation are based on Appendix G of the *CEQA Guidelines*. The proposed project would result in a significant impact to Land Use, Planning and Recreation if it would:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal project, or zoning ordinance) adopted for the purposed of avoiding or mitigating an environmental effect;

- Conflict with any applicable habitat conservation plan or natural community conservation plan;
- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facility would occur or be accelerated; or
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical impact on the environment.

Methodology

The WSMP would develop PWD's potable water system over the next 25 years in order meet the water quantity, water quality, system pressure, and reliability requirements of customers. Implementation of actions under this Plan would require the construction of various aboveground facilities and support infrastructure including storage tanks, pump stations, pipelines and wells. Additionally, PWD is proposing a headquarters building expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to be constructed as part of the long-term facilities. Projects to be implemented by 2020 are considered near-term project components and are analyzed at site-specific level. Projects addressed after 2020 are considered long-term projects. Preliminary locations for the long-term facilities have been established (see Figure 2-2), although locations are subject to change based on the need of facilities in the future. As such, these long-term facilities are therefore evaluated generally and broadly.

Impacts Discussion

Divide an Established Community

Impact 3.9-1: The proposed project would not physically divide an established community.

All Facilities (Near-Term and Long-Term)

The physical division of an established community generally refers to the construction of features that would impact mobility within an existing community or between a community and outlying area, such as an interstate highway, railroad tracks, or permanent removal of a means of access, such as a local road or bridge. The proposed facilities associated with the WSMP are not aboveground linear features that would create a barrier or physically divide an established community. Although the proposed pipelines are linear features, they would be installed underground and as such would not permanently divide an established community. Some proposed facilities such as pump stations would be located adjacent to public ROWs; however, there are no features of these other proposed facilities that would create a barrier within public roadways or physically divide an established community. Implementation of all proposed facilities would not affect existing access conditions. As a result, no impact would occur.

Mitigation Measures

None required.

Significance Determination: No Impact

Conflict with Applicable Plans, Policies, or Regulations

Impact 3.9-2: The proposed project could conflict with an applicable land use plan, policy, or regulation adopted for the purposed of avoiding or mitigating an environmental effect.

All Facilities (Near-Term and Long-Term)

Construction and operation of several long-term pipelines, one short-term pipeline FF-01 and the two northern groundwater production wells would occur within the AIA for the Palmdale Regional Airport (Figure 3.9-3). All other proposed facilities would be located outside of the AIA. Construction of the proposed pipelines within the AIA have the potential to disrupt airport operations. The presence of construction equipment, particularly cranes, could pose temporary hazards to aviation within the AIA. To prevent potential intrusions to navigable airspaces, **Mitigation Measure LU-1** and **Mitigation Measure LU-2** would require that PWD coordinate directly with the County of Los Angeles ALUC and prepare an airport construction safety plan that would identify best management practices to be used before project construction.

Further, **Mitigation Measure LU-3** would require PWD to notify the airport of proposed construction activities in advance and participate in the FAA's 7460 process to ensure that the proposed construction equipment does not pose hazards to aviation. In addition to FAA airspace review, throughout the long-term construction of pipelines, ongoing coordination with the airport would be required to ensure that proposed construction activities do not disrupt airport operations and that appropriate notice is provided to aviators using the airport. Implementation of Mitigation Measure LU-1 through Mitigation Measure LU-3 would reduce potential conflicts with the Palmdale Regional Airport Land Use Plan; impacts would be considered less than significant.

The proposed facilities outside of the AIA would be located within various land uses throughout the City of Palmdale and unincorporated Los Angeles County, as described above in the existing setting and shown on Figure 3.9-1. These include various potential designations such as Specific Plan (SP), Low Density Residential (LDR), Open Space (OS), Industrial (IND), Airport and Related Uses (AR), Community Commercial (CC), Neighborhood Commercial (NC), and Commercial Manufacturing (CM), and Public Facility (PF). These proposed facilities would be compatible with most land use designations as public utility water facilities. Per Government Code Section 53091, building ordinances of local cities or counties do not apply to the location or construction of facilities for the projection, generation, storage, treatment, or transmission of water or wastewater. Therefore, any proposed storage tanks, pump stations, pipelines, groundwater wells, or the headquarters building expansion that conflict with General Plan land use designations would not be subject to a conditional use permit or general plan amendment. As a result, there would be no conflict with the City or County land use ordinances. The proposed project would also support many policies in the City of Palmdale General Plan and the County's AVA General Plan that pertain to long-term integrated planning and management of water resources; protection and conservation of groundwater resources and retention of imported water allocations. Therefore, impacts would be less than significant.

Mitigation Measures

LU-1: For project facilities occurring within the AIA, PWD shall submit their proposed project plans to the Los Angeles County ALUC for review and comment prior to final design.

LU-2: Prior to conducting construction activities within an AIA, PWD shall prepare an airport construction safety plan that would identify best management practices. The plan may include construction timeframes and hours, lighting and flagging requirements, air traffic control communication requirements, access and egress restrictions, equipment staging area requirements, personal safety equipment requirements for construction workers, and appropriate notification to aviators. The plan would be reviewed and approved by airport staff.

LU-3: Prior to final design of the project components within an AIA, PWD shall identify the ground elevation associated with construction equipment associated with each project component constructed within the AIA and submit their project plans to airport staff for review and comment. Working with airport staff, PWD shall submit their design plans for airspace analysis (FAA Part 7460 review) to determine whether any of the construction equipment would protrude into protected airspace. If such objects are identified, the implementing agencies, airport staff, and FAA will identify appropriate steps to adjust project plans or include appropriate markings to identify hazards to aviators pursuant to FAA Part 7460.

Significance Determination: Less than Significant with Mitigation

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Conflict with Conservation Plans

Impact 3.9-3: The proposed project could conflict with an applicable habitat conservation plan or natural community conservation plan.

All Facilities (Near-Term and Long-Term)

None of the near-term project components are within the SEAs. As currently sited, several long-term pipelines are located in the Antelope Valley SEA and the San Andreas Rift Zone SEA (see Figure 3.9-2). The proposed locations go through undeveloped lands of the SEA and could be incompatible with SEA design compatibility criteria. PWD would coordinate with SEATAC and adhere to the design compatibility criteria for each SEA if determined applicable (Los Angeles County Department of Regional Planning 2009). Impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Increase Use of Recreational Facilities

Impact 3.9-4: The proposed project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facility would occur or be accelerated.

All Facilities (Near-Term and Long-Term)

Implementation of the proposed project would allow PWD to address existing system deficiencies, replace aging infrastructure, and provide the facilities necessary to meet future growth. The proposed project would involve construction of water system improvements throughout the PWD service area in order to meet potable water system needs. The project would not build new housing or otherwise have a direct impact on population growth in the project area, such as a residential housing project that would result in impacts to recreational facilities due to increased use. Therefore, the proposed project would not result in an increase in the use of existing neighborhood and regional parks, or other recreational facilities that would result in a substantial physical deterioration of these facilities. There would be no impact.

Mitigation Measures

None required.

Significance Determination: No Impact

Recreational Facilities Physical Effect on Environment

Impact 3.9-5: The proposed project could include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical impact on the environment.

All Facilities (Near-Term and Long-Term)

Most proposed facilities would be constructed adjacent to existing PWD facilities, in areas that do not impact existing parks or other recreational facilities. However, various long-term pipelines would be implemented within the Barrel Springs Trail and Equestrian Arena area.

Additionally, some proposed facilities such as storage tank ES-03 and the proposed short term pipeline along Sierra Highway, would be implemented within areas designated as open space (refer to Figure 3.9-1). According to the City of Palmdale General Plan, land designated as open space is considered to be a recreational land use. Depending on the area required for the facility, an individual project could result in the removal of a portion of open space that could be used for recreational activities. **Mitigation Measure REC-1** would require PWD to coordinate with the appropriate jurisdiction to identify ways to minimize impacts of the project on open space, which would reduce impacts to open space land uses to a less than significant level.

Further, multiple long term pipelines would be constructed within roadway ROW that contain or are located near designated Class I, II, and III bike paths (Figure 3.9-2). The placement of these pipelines in the roadways would temporarily disrupt cyclists utilizing these paths. However,

implementation of **Mitigation Measure REC-2** would ensure that potential impacts associated with temporary disruptions to bikeways would be mitigated to less than significant levels.

Mitigation Measures

REC-1: For projects that would construct new facilities on public lands designated as open spaces, PWD shall coordinate with the City of Palmdale, Recreation and Culture Department identify ways to minimize impacts of project construction and operation on recreational activities. Measures may include but are not limited to:

Project Construction

- Posting of signage indicating dates during which use of recreational areas would be restricted due to construction
- Placement of fencing to isolate construction areas and allow continued use of other areas of recreational parks and facilities
- Timing of construction activities to avoid peak recreational seasons

Project Operation

- Use of vegetation to screen proposed facilities from view of adjacent recreational land uses
- Security fencing to enclose new PWD facilities, as necessary

REC-2: For projects that would construct pipelines or other new facilities within designated bikeways, PWD shall coordinate with the applicable jurisdiction to determine whether circulation and detour plans are required to minimize impacts to access to local bikeways. Circulation and detour plans may include the use of signage and flagging of cyclists through and/or around the construction zone.

Significance Determination: Less than Significant with Mitigation

3.9.4 References

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3.10 Noise

This section addresses the noise and vibration impacts associated with implementation of the proposed 2016 Water System Master Plan (WSMP or proposed project), which would include the construction and operation of new facilities and upgrades to existing facilities throughout the Palmdale Water District (PWD) service area and vicinity. These facilities include pipelines, storage tanks, pump stations and groundwater wells to be constructed in the near-term (before 2020) and long-term (after 2020). Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). This section provides an overview of general noise and vibration characteristics, sensitive receptors in the proposed project area, the regulatory framework applicable to noise and vibration, and an analysis of potential noise and vibration impacts that would result from implementation of the proposed project.

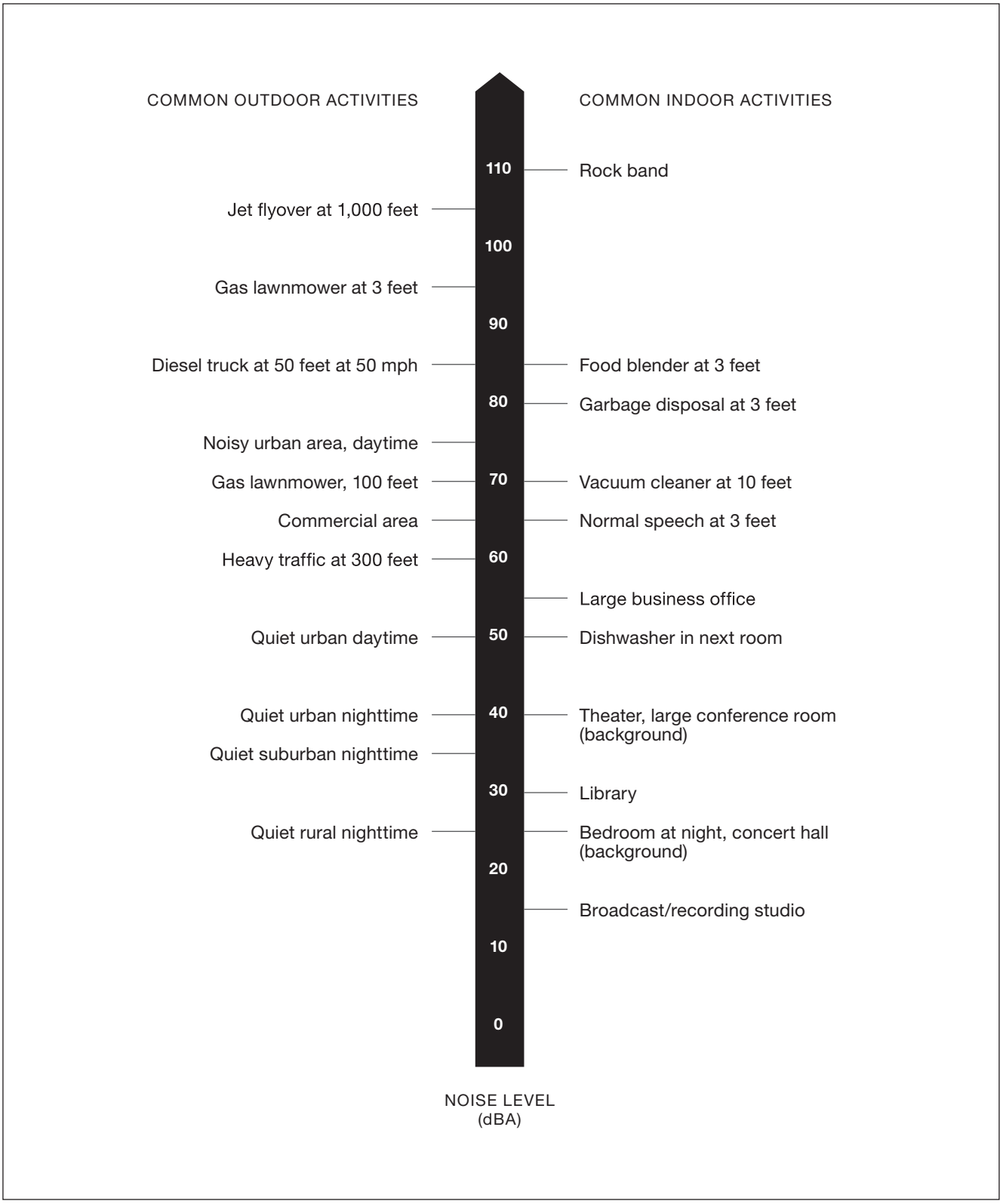
3.10.1 Environmental Setting

Noise Principles and Descriptors

Noise is generally defined as unwanted sound, traveling in the form of waves from a source and exerting a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to extremely low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency deemphasis and is typically applied to community noise measurements. Some representative noise sources and their corresponding A-weighted noise levels are shown in **Figure 3.10-1**.



SOURCE: Caltrans

Palmdale Water District

Figure 3.10-1
Decibel Scale and Common Noise Sources

ESA

Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. The noise levels presented in Figure 3.10-1 are representative of measured noise at a given instant in time; however, they rarely persist consistently over a long period of time. Rather, community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment change the community noise level from instant to instant, thus requiring that noise exposure be measured over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

L_{eq}: The L_{eq}, or equivalent sound level, is used to describe noise over a specified period of time in terms of a single numerical value; the L_{eq} of a time-varying signal and that of a steady signal are the same if they deliver the same acoustic energy over a given time. The L_{eq} may also be referred to as the average sound level.

L_{max}: The maximum, instantaneous noise level experienced during a given period of time.

L_{min}: The minimum, instantaneous noise level experienced during a given period of time.

L_{50}: The noise level that is equaled or exceeded 50 percent of the specified time period. The L_{50} represents the median sound level.

L_{90}: The noise level that is equaled or exceeded 90 percent of the specified time period. The L_{90} is generally considered to be representing the background or ambient level of a noise environment.

L_{dn}: Also termed the day-night average noise level (DNL), the L_{dn} is the average A-weighted noise level during a 24-hour day, obtained after an addition of 10 dBA to measured noise levels between the hours of 10:00 P.M. and 7:00 A.M. to account nighttime noise sensitivity.

CNEL: CNEL, or Community Noise Equivalent Level, is the average A-weighted noise level during a 24-hour day that is obtained after an addition of 5 dBA to measured noise levels between the hours of 7:00 P.M. and 10:00 P.M. and after an addition of 10 dBA to noise levels between the hours of 10:00 P.M. and 7:00 A.M. to account for noise sensitivity in the evening and nighttime, respectively.

Effects of Noise on People

Noise is generally loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity that is a nuisance or disruptive. The effects of noise on people can be placed into four general categories:

- Subjective effects (e.g., dissatisfaction, annoyance)
- Interference effects (e.g., communication, sleep, and learning interference)
- Physiological effects (e.g., startle response)
- Physical effects (e.g., hearing loss)

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. Interference effects of environmental noise refer to those effects that interrupt daily activities and include interference with human communication activities, such as normal conversations, watching television, telephone conversations, and interference with sleep. Sleep interference effects can include both awakening and arousal to a lesser state of sleep. With regard to the subjective effects, the responses of individuals to similar noise events are diverse and are influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity.

Overall, there is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction on people. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived.
- Outside of the laboratory, a 3 dBA change in noise levels is considered to be a barely perceivable difference.
- A change in noise levels of 5 dBA is considered to be a readily perceivable difference.
- A change in noise levels of 10 dBA is subjectively heard as doubling of the perceived loudness.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a nonlinear fashion; hence, the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple

additive fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate between 6 dBA for hard sites and 7.5 dBA for soft sites for each doubling of distance from the reference measurement (typically, 50 feet). Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the change in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dBA (per doubling distance) is normally assumed for soft sites. Line sources (i.e., vehicle traffic noise on roadways) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement (Caltrans 1998).

Fundamentals of Vibration

As described in the Federal Transit Administration's (FTA's) *Transit Noise and Vibration Impact Assessment* (FTA 2006), groundborne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, groundborne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of groundborne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operation of heavy earthmoving equipment.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the effect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. PPV is typically a factor of 1.7 to 6 times greater than RMS vibration velocity (FTA 2006). The decibel notation acts to compress the range of numbers required to describe vibration. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment.

The effects of groundborne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction.

Annoyance from vibration often occurs when the vibration levels exceed the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV (FTA 2006).

In residential areas, the background vibration velocity level is typically approximately 50 VdB (approximately 0.0013 in/sec PPV). This level is well below the vibration velocity level threshold of perception for humans, which is approximately 65 VdB. A vibration velocity level of 75 VdB is considered to be the approximate dividing line between barely perceptible and distinctly perceptible levels for healthy human hearing (FTA 2006).

Sensitive Receptors

Some land uses are considered more sensitive to noise than others due to the types of activities that typically occur at the receptor location. Noise-sensitive receptors are typically defined as land uses that are considered more sensitive to intrusive noise than others, such as residences, schools, motels and hotels, libraries, and hospitals, due to the land use activities typically occurring at the receptor (i.e., sleeping, concentrating, and convalescing).

Many of the proposed project facilities are located within low-density residential or single-family residential use areas within the City of Palmdale and unincorporated area of Los Angeles County, and would be located adjacent to or within the vicinity of residential use sensitive receptors. Additionally, other sensitive receptors such as schools and recreational areas could be located along anticipated pipeline alignments and near future pump stations and storage tanks.

Existing Noise Sources

The primary noise sources of the project area are related to transportation including automobiles, trucks, motorcycles, buses, trains, helicopters, and planes. The predominant noise ambient sources include roadway traffic noise. Secondary noise sources include activities related to the operation of commercial businesses in the area including loading area/delivery truck activities, trash compaction, and refuse collection; and periodic landscape maintenance and other occasional outdoor noise associated with residential uses.

Major highways through the City include State Route (SR) 14 and SR 238, which connect to Interstate (I) 5 and I-15, and Sierra Highway. Commuter rail service is provided by Metrolink's Antelope Valley Line that runs north-south adjacent to Sierra Highway through Palmdale, from Los Angeles Union Station to the City of Lancaster. Freight rail service is also provided by this rail line, which continues north beyond the City of Lancaster. The Palmdale Regional Airport and U.S. Air Force Plant 42 are located one mile north of PWD's service boundary. U.S. Air Force Plant 42 and Palmdale Regional Airport are separate facilities that share a common runway with a northeast to southwest orientation. There may be occasional flyovers from small general aviation aircrafts, but no commercial flights are scheduled to fly directly over the City's airspace. The PWD service area is outside of the 65 dBA CNEL contour for the Palmdale Regional Airport and U.S. Air Force Plant 42 (Los Angeles County Airport Land Use Commission 2003).

Existing Ground-borne Vibration Levels

Aside from periodic construction work that may occur throughout the area, other sources of ground-borne vibration in the project area include heavy-duty vehicular travel (e.g., refuse trucks, delivery trucks) on local roadways. Truck traffic at a distance of 50 feet typically generates ground-borne vibration velocity levels of approximately 63 VdB (approximately 0.006 in/sec PPV). These levels could reach 72 VdB (approximately 0.016 in/sec PPV) where trucks pass over irregularities in the road surface.

3.10.2 Regulatory Framework

Detailed below is a discussion of the relevant noise regulatory setting, and the noise regulations, plans, and policies applicable to the project.

Federal

Under the authority of the Noise Control Act of 1972, the United States Environmental Protection Agency (USEPA) established noise emission criteria and testing methods published in Parts 201 through 205 of Title 40 of the Code of Federal Regulations that apply to some transportation equipment (e.g., interstate rail carriers, medium trucks, and heavy trucks) and construction equipment. In 1974, USEPA issued guidance levels for the protection of public health and welfare in residential land use areas (USEPA 1974). The guidance levels specified an outdoor L_{dn} of 55 dBA and an indoor L_{dn} of 45 dBA. These guidance levels are not considered as standards or regulations and were developed without consideration of technical or economic feasibility. There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the proposed project.

Federal Transit Authority Vibration Standards: FTA has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities. The vibration damage criteria adopted by FTA are shown in **Table 3.10-1.**

TABLE 3.10-1
CONSTRUCTION VIBRATION DAMAGE CRITERIA

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

SOURCE: FTA 2006.

In addition, FTA has also adopted standards associated with human annoyance for groundborne vibration impacts for the following three land-use categories: Vibration Category 1 – High Sensitivity, Vibration Category 2 – Residential, and Vibration Category 3 – Institutional. FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with

vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference. The vibration thresholds associated with human annoyance for these three land-use categories are shown in **Table 3.10-2**. No thresholds have been adopted or recommended for commercial and office uses.

TABLE 3.10-2
GROUNDBORNE VIBRATION IMPACT CRITERIA FOR GENERAL ASSESSMENT

Land Use Category	Frequent Events[a]	Occasional Events[b]	Infrequent Events[c]
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB[d]	65 VdB[d]	65 VdB[d]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

a "Frequent Events" is defined as more than 70 vibration events of the same source per day.
b "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.
c "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day.
d This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes.

SOURCE: FTA 2006.

State

Noise: The State of California does not have statewide standards for environmental noise, but the California Department of Public Health (DPH) has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure (**Table 3.10-3** below). The purpose of these guidelines is to maintain acceptable noise levels in a community setting for different land use types. Noise compatibility by different land uses types is categorized into four general levels: "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable." For instance, a noise environment ranging from 50 dBA CNEL to 65 dBA CNEL is considered to be "normally acceptable" for multi-family residential uses, while a noise environment of 75 dBA CNEL or above for multi-family residential uses is considered to be "clearly unacceptable."

TABLE 3.10-3
COMMUNITY NOISE EXPOSURE - LDN OR CNEL (DBA)

Land Use Category	50	55	60	65	70	75	80
Residential – Low Density Single Family, Duplex, Mobile Home							
Residential – Multi-Family							
Transient Lodging – Motel/Hotel							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditorium, Concert Hall, Amphitheaters							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business, Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							

	Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements
	Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
	Normally Unacceptable	New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
	Clearly Unacceptable	New construction or development generally should not be undertaken.

SOURCE: State of California, Governor's Office of Planning and Research, 2003.

Vibration: There are no state vibration standards. Moreover, according to the California Department of Transportation's (Caltrans) *Transportation and Construction Vibration Guidance Manual*, there are no official Caltrans standards for vibration. However, this manual provides guidelines that can be used as screening tools for assessing the potential for adverse vibration effects related to structural damage and human annoyance. The manual is meant to provide practical guidance to Caltrans engineers, planners, and consultants who must address vibration issues associated with the construction, operation, and maintenance of Caltrans projects. The vibration criteria established by Caltrans for assessing structural damage and human are shown in **Table 3.10-4**, and **Table 3.10-5**, respectively.

TABLE 3.10-4
CALTRANS VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

	Maximum PPV (in/sec)	
Structure and Condition	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

NOTE: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans 2013.

TABLE 3.10-5
CALTRANS VIBRATION ANNOYANCE POTENTIAL CRITERIA

	Maximum PPV (in/sec)	
Structure and Condition	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

NOTE: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans 2013.

Local

Local noise regulation involves implementation of the noise goals and policies of the applicable municipal general plan noise element and the noise standards of the applicable municipal code noise ordinance. The project site is located in the City of Palmdale and unincorporated areas of the County of Los Angeles, therefore, the City and County General Plan Noise Elements and Municipal Code Noise Ordinances are applicable to the project.

County of Los Angeles General Plan Noise Element: The California Government Code Section 65302(g) requires that a noise element be included in the General Plan of each county and city in the state. The Noise Element of the County of Los Angeles General Plan was established as a planning tool to develop strategies and action programs that address the multitude of noise sources and issues throughout the County. The noise guidelines used by the County are based on the community noise compatibility guidelines established by the State of California DHS (refer to Table 3.10-3), as described above. Specific regulations that implement these guidelines are set forth in the Los Angeles County Municipal Code, as discussed below.

The following portions of the General Plan Noise Element are relevant to the proposed project:

Goal N-1 An environment that is protected from unacceptable levels of noise.

Policy N 1.1: Employ effective noise abatement measures to achieve acceptable levels of noise as defined by the Los Angeles County Exterior Noise Standards.

Policy N 1.2: Ensure the compatibility of land uses throughout the County to minimize excessive noise levels.

County of Los Angeles Municipal Code: Chapter 12.08, Noise Control, of the County of Los Angeles Municipal Code serves as the Noise Ordinance for the County and establishes noise standards to control unnecessary, excessive, and annoying noise and vibration in the County. Within Chapter 12.08 of the Los Angeles County Code, Section 12.08.380 assigned the following noise zones for receptor properties in the County:

- Noise Zone 1 – Noise-sensitive areas
- Noise Zone 2 – Residential properties
- Noise Zone 3 – Commercial properties
- Noise Zone 4 – Industrial properties

With respect to operational noise, Section 12.08.390 of the Noise Ordinance established exterior noise levels that should be applied to all receptor properties within a designated noise zone in the County. These exterior noise levels are shown in **Table 3.10-6**.

TABLE 3.10-6
COUNTY OF LOS ANGELES EXTERIOR NOISE STANDARDS BY NOISE ZONES

Noise Zone	Designated Noise Zone Land Use (Receptor Property)	Time Interval	Exterior Noise Level (dBA)
I	Noise-sensitive area	Anytime	45
II	Residential properties	10:00 P.M. to 7:00 A.M. (nighttime)	45
		7:00 A.M. to 10:00 P.M. (daytime)	50
III	Commercial properties	10:00 P.M. to 7:00 A.M. (nighttime)	55
		7:00 A.M. to 10:00 P.M. (daytime)	60
IV	Industrial properties	Anytime	70

SOURCE: County of Los Angeles Ordinance No. 11743, Section 12.08.390.

The exterior noise levels shown in Table 3.10-6 are meant to be further applied as noise standards based on the duration of the noise; i.e., the louder the noise, the shorter the time it is allowed to last. The Noise Ordinance uses a number of noise metrics to define the permissible noise levels. These metrics include L_{50}, L_{25}, $L_{8.3}$, $L_{1.7}$, and L_{max}, and are based upon a 1-hour timeframe which indicates exceedances of 50, 25, 8.3, and 1.7 percent of the time, plus the maximum sound level during that time period. The following noise standards should be applied to the exterior noise levels provided in Table 3.10-6:

- Standard No. 1 shall be the exterior noise level that may not be exceeded for a cumulative period of more than 30 minutes in any hour. Standard No. 1 shall be the applicable noise level from Table 3.10-6; or, if the ambient L_{50} exceeds the forgoing level, then the ambient L_{50} becomes the exterior noise level for Standard No. 1.
- Standard No. 2 shall be the exterior noise level that may not be exceeded for a cumulative period of more than 15 minutes in any hour. Standard No. 2 shall be the applicable noise level from Table 3.10-6 plus 5 dB(A); or, if the ambient L_{25} exceeds the forgoing level, then the ambient L_{25} becomes the exterior noise level for Standard No. 2.
- Standard No. 3 shall be the exterior noise level that may not be exceeded for a cumulative period of more than 5 minutes in any hour. Standard No. 3 shall be the applicable noise level from Table 3.10-6 plus 20 dB(A); or, if the ambient $L_{8.3}$ exceeds the forgoing level, then the ambient $L_{8.3}$ becomes the exterior noise level for Standard No. 3.
- Standard No. 4 shall be the exterior noise level that may not be exceeded for a cumulative period of more than one minute in any hour. Standard No. 4 shall be the applicable noise level from Table 3.10-6 plus 15 dB(A); or, if the ambient $L_{1.7}$ exceeds the forgoing level, then the ambient $L_{1.7}$ becomes the exterior noise level for Standard No. 4.
- Standard No. 5 shall be the exterior noise level that may not be exceeded for any period of time. Standard No. 5 shall be the applicable noise level from Table 3.10-6 plus 20 dB(A); or, if the ambient L_0 exceeds the forgoing level, then the ambient L_0 becomes the exterior noise level for Standard No. 5.

With respect to construction noise in the County, Section 12.08.440 of the Noise Ordinance prohibits the operation of any tools or equipment used between weekday hours of 7:00 P.M. and 7:00 A.M., or at any time on Sundays or holidays, that will create a noise disturbance across a residential or commercial real-property line. The only exceptions would be emergency work or public safety projects (Section 12.08.0570, part 5, exemption H, Public Health and Safety Activities) or by variance issued by the health officer. Additionally, both the working hours and maximum levels of equipment and activity noise that are allowable from both mobile and stationary equipment in the County are defined by land use and shown in **Table 3.10-7**.

TABLE 3.10-7
COUNTY OF LOS ANGELES CONSTRUCTION NOISE STANDARDS

Allowable Work Dates & Hours	Residential Structures					
	Single-Family		Multi-Family		Semi-Residential/Commercial	
	Mobile Equipment [a]	Stationary Equipment [b]	Mobile Equipment [a]	Stationary Equipment [b]	Mobile Equipment [a]	Stationary Equipment [b]
Daily 7:00 A.M. to 8:00 P.M.[c]	75 dBA	60 dBA	80 dBA	65 dBA	85 dBA	70 dBA
Daily 8:00 P.M. to 7:00 A.M.[d]	60 dBA	50 dBA	64 dBA	55 dBA	70 dBA	60 dBA
	Business Structures					
Daily[d]	85 dBA					

[a] Represents maximum noise levels for nonscheduled, intermittent, short-term operation (less than 10 days).
[b] Represents maximum noise level for repetitively scheduled and relatively long-term operation (periods of 10 days or more).
[c] Exception for Sundays and legal holidays.
[d] Includes all day Sunday and legal holidays.

SOURCE: County of Los Angeles Ordinance No. 11743, Section 12.08.440.

County of Los Angeles Groundborne Vibration Regulation: With respect to vibration, the County Noise Ordinance identifies a presumed perception threshold of 0.01 inches per second over the range of 1 to 100 hertz. Section 12.08.560 of the County Noise Ordinance prohibits the operation of any device that creates vibration above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way.

City of Palmdale General Plan Noise Element: The City's General Plan Noise Element establishes acceptable noise levels within the City's jurisdiction (City of Palmdale 1993). The Noise Element outlines general goals and policies to regulate noise levels within the City, including the following:

> **Policy N1.2.2:** Restrict construction hours during the evening, early morning and Sundays.

Policy N1.2.3: Utilize any or all of the following measures in order to maintain acceptable noise environments throughout the City:

a. Control of noise at its source, including noise barriers and other muffling devices built into the noise source.

b. The provision of buffer areas and/or wide setbacks between the noise source and other development.

c. The reduction of densities, where practical, adjacent to the noise source (freeway, airport, railroad).

d. The use of sound insulation, blank walls, double paned windows and other design or architectural techniques to reduce interior noise levels.

e. Designation of appropriate land uses adjacent to known noise sources.

Policy N1.2.4: Where deemed appropriate based upon available information, acoustical analysis and appropriate mitigation for noise-sensitive land uses should be required in areas which may be adversely impacted by significant intermittent noise sources. Such noise sources may include but not be limited to railroads, racetracks, stadiums, aircraft overflights and similar uses.

Table 3.10-8 below outlines the maximum acceptable exterior noise limits for different land use types within the City. Residential uses are the only land use types that have a quantitative noise level limit, while commercial, institutional, and industrial uses have noise limits which may not exceed a noise level that jeopardizes human health and safety or jeopardizes business activity.

TABLE 3.10-8
CITY OF PALMDALE EXTERIOR NOISE STANDARDS

Land Use	Maximum Acceptable Exterior Limit (dBA)
Residential	65
Commercial	A noise level which does not jeopardize health, safety and welfare of visitors.
Institutional	A noise level which does not jeopardize health, safety and welfare of visitors.
Industrial	A noise level which does not interfere with normal business activity.

SOURCE: City of Palmdale 1993.

City of Palmdale Noise Ordinance: Chapter 8.28 of the City of Palmdale Municipal Code (Noise Ordinance) governs construction and operational noise for various land uses and regulates the impact of offensive noise from various sources. The Noise Ordinance sets an allowed exterior level for single-family and medium-density residential areas of 65 dBA L_{eq}. According to Section 8.28.030, no person shall perform any construction or repair work on any Sunday, or any other day after 8:00 p.m. or before 6:30 a.m., in any residential zone or within 500 feet of any residence, hotel, motel or recreational vehicle park.

The Department of Building and Safety, the Planning Department, and the Sheriff's Department will work cooperatively to enforce the noise ordinance. The noise ordinance may include policies addressing the following issues:

- Land use compatibility.
- Restriction of hours of operation for construction equipment, power mowers, garbage collection, street sweeping, truck deliveries, leaf blowers, and other noise activities within the hours of 6:30 a.m. and 8:00 p.m., unless the work is made in response to an emergency or special purpose.
- Periodic investigation of noise sources throughout the City, with citations issued for offender, in addition to investigations conducted due to such complaints. The Noise Ordinance shall set standards and penalties for violating the provisions contained therein. Penalties may range from warnings and monetary penalties to revocation of operating licenses for businesses.

Construction work may be exempt from the noise level limits established in Table 3.10-8 by the City Engineer upon a determination that the authorization furthers the public interest. According to Section 8.28.070, construction work or excavation by a public utility may also be exempt from the noise level limits established in Table 3.10-8 for the preservation of life or property and where such necessity makes it necessary to construct, repair, or excavate during the prohibited hours.

3.10.3 Impacts and Mitigation Measures

Significance Criteria

Consistent with the CEQA *Guidelines* Appendix G, the proposed project would result in a significant impact on the environment if it would result in:

- Exposure of persons to or generation of noise levels in excess of standards in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels existing without the project;
- For a project located with an airport land use plan, or where such a pan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels; or
- For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

Methodology

Noise impacts are assessed based on a comparative analysis of the noise levels resulting from the proposed project and the noise levels under existing conditions.

Construction Noise

Analysis of temporary construction noise effects is based on typical construction phases, published or previously measured decibel levels of construction equipment and attenuation of those noise levels due to distances, presence of any barriers between the construction activity and the sensitive receptors near the sources of construction noise, and time of day and expected duration of construction activity.

Noise impacts from short-term construction activities could exceed noise thresholds and could result in a significant construction impact if short-term construction activity occurred outside of the daytime hours permitted by the City's/County's municipal code noise ordinance. However, project construction would be temporary in duration and only occur in short intervals (i.e. as long as the particular piece of construction machinery is running), and would adhere to noise standards in the City's/County Municipal Code.

Vibration from construction is evaluated for potential impacts at sensitive receptors. Typical activities evaluated for potential building damage due to construction vibration include demolition, pile driving, and drilling or excavation in close proximity to structures. The ground-borne vibration is also evaluated for perception to eliminate annoyance. Vibration propagates according to the following expression, based on point sources with normal propagation conditions:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

Where PPV (equip) is the peak particle velocity in inches per second of the equipment adjusted for distance, PPV (ref) is the reference vibration level in inches per second at 25 feet, and D is the distance from the equipment to the receiver. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration and is often used in monitoring vibration because it is related to the stresses experienced by structures.

To determine the potential for annoyance, the RMS vibration level (L_v) at any distance (D) is estimated based on the following equation:

$$L_v(D) = L_v(25\ ft) - 30\log(D/25)$$

Stationary Noise

A resulting off-site noise level at residences and other sensitive receptors from stationary, non-transportation sources that exceed levels in Tables 3.10-6 or 3.10-8 would result in a significant noise impact.

Impacts Discussion

Exceedance of Established Noise Standards

Impact 3.10-1: The proposed project could expose people to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Storage Tanks, Pump Stations, and Pipelines (Near-Term)

Construction noise levels associated with the installation the proposed near-term facilities would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Material haul truck trips (from spoils and pipelines) would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. **Table 3.10-9** shows the typical maximum and average noise levels produced by various types of construction equipment.

TABLE 3.10-9
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Maximum Noise Level (dBA, L_{max} at 50 feet)	Average Noise Level (dBA, L_{eq} at 50 feet)[a]
Air Compressor	78	74
Backhoe	78	74
Chain Saw	84	77
Compactor (Ground)	83	76
Concrete Mixer Truck	79	75
Concrete Pump Truck	81	74
Concrete Saw	90	83
Crane	81	73
Dozer	82	78
Dump Truck	77	73
Excavator	81	77
Generator	82	79
Flat-Bed Truck	74	70
Front End Loader	79	75
Grader	85	81
Jack Hammer	89	82
Pavement Scarafier	90	83
Paver	77	74
Pneumatic Tool	85	82
Pumps	81	78
Roller	80	73
Scraper	84	80
Tractor	84	80
Vacuum Street Sweeper	82	72
Vibratory Concrete Mixer	80	73
Welder/Torch	74	70

[a] The average noise levels for the construction equipment at 50 feet were calculated from the maximum noise levels using the usage factors for each piece of equipment provided in the FHWA's RCNM.

SOURCE: FHWA 2006.

Table 3.10-10 shows typical noise levels during different construction phases.

TABLE 3.10-10
TYPICAL NOISE LEVELS FROM CONSTRUCTION ACTIVITIES

Construction Phase	Noise Level[a] (dBA, Leq)
Ground clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89
Well Drilling	83

[a] Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: Bolt, Baranek, and Newman 1971; Cunniff 1977; BLM 2000.

The noise levels shown above in Table 3.10-10 represent composite noise levels associated with typical construction activities, which take into account both the number of pieces and spacing of heavy construction equipment that are typically used during each phase of construction. These noise levels would diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 84 dBA L_{eq} measured at 50 feet from the noise source to the receptor would reduce to 78 dBA L_{eq} at 100 feet from the source to the receptor, and reduce by another 6 dBA L_{eq} to 72 dBA L_{eq} at 200 feet from the source to the receptor. As shown in Table 3.10-10, excavation and finishing activities would generate noise levels of approximately 89 dBA Leq at 50 feet during excavation and finishing activities, the loudest of the construction phases that would occur.

Since the proposed near-term storage tanks, pump stations, and most near-term pipelines would be located in unincorporated areas of Los Angeles County, in order for excavation and finishing noise for the near-term facilities to be below the County daytime residential threshold of 50 dBA, construction would have to occur at an approximate distance of 4,500 feet or greater from a sensitive receptor. Other sensitive receptors located further away from construction would be exposed to construction noise at incrementally lower levels.

Noise during construction of the storage tanks, pump stations, and pipeline facilities could exceed the County maximum permissible sound levels. Pipeline construction however would be short-term in duration and would expose sensitive receptors to temporary increases in noise levels because the construction activities would move along the pipeline route (i.e., roadways) as the pipeline is installed. Furthermore, construction activities that occur between 7:00 a.m. to 7:00 p.m., Monday through Saturday, would be exempt from the Los Angeles County Code noise thresholds. However, if construction activities within 4,500 feet of a sensitive receptor were to occur outside of these times and days, sensitive receptors could be exposed to increased noise levels in excess of the Municipal Code, which could result in a significant impact. However,

implementation of **Mitigation Measure NOISE-1** and **NOISE-2** would impose measures to reduce construction noise activities adjacent to sensitive receptors, and excessive noise impacts to sensitive receptors would be reduced to less than significant.

Storage Tanks, Pump Stations, Pipelines, Wells, and Headquarters Expansion (Long-Term)

Construction noise levels associated with the installation the proposed long-term facilities would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. Material haul truck trips (from spoils and pipelines) would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used.

The majority of the proposed long-term storage tanks and pump stations would be located in unincorporated areas of Los Angeles County. However, some tanks and pumps, such as FS-13 and FB-04, most long-term pipelines, all production wells, and the PWD headquarters expansion are located within the City boundary. Based on the noise levels described in Table 3.10-9 and Table 3.10-10, in order for excavation and finishing noise for the long-term facilities to be below the County daytime residential threshold of 50 dBA or City daytime residential threshold of 65 dBA, construction would have to occur at an approximate distance of 4,500 feet or 800 feet, respectively, from a sensitive receptor. Well drilling would have to occur at approximately 1,600 feet and 400 feet, respectively, to be below these thresholds. Other sensitive receptors located further away from construction would be exposed to construction noise at incrementally lower levels.

Noise during construction of the all long-term facilities could exceed the City or County maximum permissible sound levels. Pipeline construction however would be short-term in duration and would expose sensitive receptors to temporary increases in noise levels because the construction activities would move as the pipeline is installed. Furthermore, construction activities that occur between 7:00 a.m. to 7:00 p.m., Monday through Saturday, would be exempt from the Los Angeles County Code and City of Palmdale Municipal Code noise thresholds. However, if construction activities within 4,500 feet of a sensitive receptor in the County or 800 feet of a sensitive receptor in the City were to occur outside of these times and days, sensitive receptors could be exposed to increased noise levels in excess of the County or Municipal Code, which could result in a significant impact. However, implementation of Mitigation Measure NOISE-1 and NOISE-2 would impose measures to reduce construction noise activities adjacent to sensitive receptors, and excessive noise impacts to sensitive receptors would be reduced to less than significant.

Mitigation Measures

NOISE-1: PWD shall require the construction contractors to implement the following measures, as applicable, during construction of the proposed facilities:

- Construction activities shall meet municipal or County code requirements related to noise. Construction activities shall be limited to between 7:00 a.m. and 7:00 p.m. Monday through Saturday to avoid noise-sensitive hours of the day. Construction activities shall be prohibited on Sundays and holidays.

- Prior to nighttime construction activities that would generate noise in excess of noise standards, the construction contractor shall secure a noise waiver from the relevant jurisdiction (City or County) and comply with any terms and conditions of the waiver.
- Sensitive receptors (residences, residential areas, schools, and hospitals) within 800 feet (in the City) and 4,500 feet (in the County) of project construction activities shall be identified and mapped.
- Construction equipment noise shall be minimized by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications) and by shrouding or shielding impact tools.
- Construction contractors shall locate fixed construction equipment (such as compressors and generators) and construction staging areas as far as possible from nearby sensitive receptors including residences, schools, and hospitals.
- Where feasible, construct barriers between noise sources and noise-sensitive land uses to block sound transmission. Enclose construction equipment where practicable.
- If construction were to occur near a school, the construction contractor shall coordinate the most noise producing construction activities with school administration in order to limit disturbance to the campus.

NOISE-2: PWD shall require the construction contractor to notify in writing all landowners and occupants of properties within 500 feet of the construction area of the construction schedule at least two weeks prior to groundbreaking. The construction contractor shall designate a Noise Complaint Coordinator who will be responsible for responding to complaints regarding construction noise. The Coordinator shall ensure that reasonable measures are implemented to correct any problems. A contact telephone number for the Coordinator shall be conspicuously posted at the construction site and included in the written notification of the construction schedule sent to surrounding properties.

Significance Determination: Less than Significant with Mitigation

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Exposure to Vibration Levels

Impact 3.10-2: The proposed project could impact people and structures to ground-borne vibration or ground-borne noise levels.

All Facilities (Near-Term and Long-Term)

Typical activities that could generate ground-borne vibration during construction include demolition, pile driving, and drilling or excavation in close proximity to structures. FTA's threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV and the FTA threshold of human annoyance to ground-borne vibration is 80 RMS (FTA 2006). Construction of the project would employ conventional activities and the equipment/techniques to be used would not cause excessive ground-borne vibration; however, drilling could be required during pipeline installation. As shown in **Table 3.10-11** below, use of heavy equipment during construction generates vibration levels of up to 0.089 in/sec PPV or 87 RMS (large bulldozer) at a distance of 25 feet.

TABLE 3.10-11
VIBRATION VELOCITIES FOR CONSTRUCTION EQUIPMENT

Construction Equipment	PPV at 25 feet (inches/second)	RMS at 25 feet (VdB)
Large Bulldozer	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

SOURCE: FTA 2006.

Construction could require jack and bore drilling depending on the local geology and locations. The proposed facilities could get as close as 43 feet from sensitive receptors before exceeding the annoyance threshold of 80 RMS and 15 feet from a structure to be below the potential structural damage threshold of 0.2 in/sec PPV. However, if construction activities within 43 feet of a sensitive receptor were to occur, sensitive receptors could be exposed to ground-borne vibration or ground-borne noise in excess of FTA standards. This would be a significant impact. However, implementation of **Mitigation Measure NOISE-3** would reduce ground-borne vibration and noise levels when construction activities occur adjacent to sensitive receptors and would result in less than significant impacts to sensitive receptors.

Mitigation Measures:

NOISE-3: PWD shall require the construction contractor to implement the following measures, as applicable, during construction of proposed facilities:

- Sensitive receptors (residences, residential areas, schools, and hospitals) within 50 feet of project construction activities shall be identified and mapped.
- Limit jack and bore drilling to at least 43 feet from sensitive receptors and 15 feet from any structures.
- If jack and bore drilling must occur within 15 feet of any structure, the construction contractor shall conduct crack surveys before drilling to prevent potential architectural damage to nearby structures. The surveys shall be done by photographs, video tape, or visual inventory, and shall include inside as well as outside locations. All existing cracks in walls, floors, and driveways shall be documented with sufficient detail for comparison after construction to determine whether actual vibration damage occurred. A post-construction survey shall be conducted to document the condition of the surrounding buildings after the construction is complete.

Significance Determination: Less than Significant with Mitigation

Permanent Increase in Ambient Noise Levels

Impact 3.10-3: The proposed project could result in a permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

All Facilities (Near-Term and Long-Term)

Project operations that would generate noise include maintenance vehicle trips and the operation of certain mechanical equipment such as stationary pumps, wells, and generators. Implementation of the proposed facilities would not result in large numbers of new employees because the facilities are highly automated. Maintenance inspection of storage tanks, pump stations and production wells would occur periodically, as needed. The pipeline alignments would be largely underground and serviced on an as-need basis as well. Employees and maintenance work associated with the headquarters expansion building would not require a substantial increase in vehicle trips since the existing PWD headquarters and maintenance yard are adjacent to the proposed expansion location. As a result, maintenance and inspection of facilities would result in a minimal increase in traffic trips, and therefore, operational vehicle trip increases would not generate a substantial increase in noise along local roadways.

Storage tanks would involve passive conveyance and storage of water and would produce minimal operational noise. Pipelines would be primarily underground and would not produce operational noise aboveground. Pump stations and groundwater wells would include hydraulic pumps that would have the potential to produce increased ambient noise levels in the vicinity; however, they would be housed within structural buildings to minimize operational noise increases. Once constructed, the headquarters facility expansion would produce minimal noise associated with normal operation of a business. All near-term and long-term facilities would be designed in accordance with noise ordinances of the City or County, whichever the facility site is located within, to ensure that noise thresholds at the property boundary do not exceed day and nighttime limitations for neighboring land uses. For example, a proposed pump station located adjacent to residential uses would be designed to ensure operational noise does not exceed 50 dBA at neighboring residential property lines during the day and 45 dBA during the nighttime, in accordance with Los Angeles County exterior noise standards for residential land uses. Implementation of **Mitigation Measure NOISE-4** would ensure that operations of new facilities are in compliance with local noise ordinances. As a result, the proposed facilities would not generate permanent increase ambient noise levels in the project vicinity, and impacts would be less than significant.

Mitigation Measures

NOISE-4: PWD shall conduct post-construction noise measurements to ensure that operation of new equipment is in compliance with local noise ordinances at the property boundary. If operational noise exceeds local thresholds, then PWD shall implement further noise-reducing measures, such as enclosing noise generating-equipment, until facilities are in compliance with local ordinances.

Significance Determination: Less than Significant with Mitigation

Temporary Increase in Ambient Noise Levels

Impact 3.10-4: The proposed project could result in temporary or periodic increases in ambient noise levels in the project vicinity above levels existing without the project.

All Facilities (Near-Term)

During construction of the proposed near-term facilities, temporary or periodic increases in ambient noise levels in and around each project site would result from the operation of construction equipment. As discussed in Impact 3.10-1, the construction activities for each project facility could expose nearby existing land uses to increased noise levels as high as 89 dBA during excavation activities, which would result in a substantial ambient noise increase over existing ambient noise levels at that existing land use.

As discussed in Impact 3.10-1, since the proposed near-term storage tanks, pump stations, and most near-term pipelines would be located in unincorporated areas of Los Angeles County, in order for excavation and finishing noise for the near-term facilities to be below the County daytime residential threshold of 50 dBA, construction would have to occur at an approximate distance of 4,500 feet or greater from a sensitive receptor. Other sensitive receptors located further away from construction would be exposed to construction noise at incrementally lower levels. Several near-term components would be constructed adjacent to (less than 100 feet from) sensitive residential use receptors, including new pumps at existing pump stations EB-01, FB-01, FB-02, and various pipeline segments. Although implementation of Mitigation Measure NOISE-1 would reduce construction noise levels associated with the proposed project to the maximum extent feasible, under circumstances where facilities or sensitive receptors are located immediately adjacent to existing sensitive land uses, particularly for construction of EB-01, FB-01, FB-02, and various pipeline segments in the near-term, the noise impacts related to a substantial temporary or periodic increase in ambient noise levels above levels existing without the proposed project could be significant. Therefore, this temporary impact associated with construction of near-term project facilities is considered potentially significant and unavoidable.

All Facilities (Long-Term)

During construction of the proposed long-term facilities, temporary or periodic increases in ambient noise levels in and around each project site would result from the operation of construction equipment. As discussed in Impact 3.10-1, the construction activities for each project facility could expose nearby existing land uses to increased noise levels as high as 89 dBA during excavation activities, which would result in a substantial ambient noise increase over existing ambient noise levels at that existing land use.

As discussed in Impact 3.10-1, long-term facilities would be located both within unincorporated Los Angeles County and the City of Palmdale. Based on the noise levels described in Table 3.10-9 and Table 3.10-10, in order for excavation and finishing noise for the long-term facilities to be below the County daytime residential threshold of 50 dBA or City daytime residential threshold of 65 dBA, construction would have to occur at an approximate distance of 4,500 feet or 800 feet, respectively, from a sensitive receptor. Well drilling would have to occur at approximately 1,600 feet and 400 feet, respectively, to be below these thresholds. Other sensitive receptors located further away from construction would be exposed to construction noise at incrementally lower

levels. Given the preliminary locations of long-term facilities in the WSMP, there is potential for construction to occur in proximity to sensitive receptors that are closer than 4,500 feet or 800 feet. Although implementation of Mitigation Measure NOISE-1 would reduce construction noise levels associated with the proposed project to the maximum extent feasible, under circumstances where facilities or sensitive receptors are located immediately adjacent to existing sensitive land uses, the noise impacts related to a substantial temporary or periodic increase in ambient noise levels above levels existing without the proposed project could be significant. Therefore, this temporary impact associated with construction of long-term project facilities is considered potentially significant and unavoidable.

Mitigation Measures

Implement **Mitigation Measure NOISE-1**.

Significance Determination: Potentially Significant and Unavoidable with Mitigation

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Public Airport and Private Airstrip Noise

Impact 3.10-5: The proposed project could result in noise level impacts on people residing or working within two miles of a public airport, public use airport, or private airstrip.

All Facilities (Near-Term and Long-Term)

The proposed project could include the installation of new water facilities, such as pipelines, pump stations, storage tanks, and wells, within two miles of the Palmdale Municipal Airport and U.S. Air Force Plant 42. Implementation of the proposed project would not introduce permanent future residents or workers to the facilities; however, maintenance and inspection workers would be required to intermittently visit the proposed facilities. Existing and future staff associated with the proposed headquarters facility expansion would accommodate future facilities to be constructed as part of the WSMP and would not present a substantial increase in workers to the site. Future employees to perform maintenance and inspection at the facility sites would be minimal and periodic, and therefore, employees would not be subjected to excessive noise levels from an airport or airstrip. Therefore, implementation of the proposed project would not expose people to excessive airport noise levels, and impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

3.10.4 References

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3.11 Public Services

This section addresses the public services impacts associated with implementation of the proposed 2016 Water System Master Plan (WSMP or proposed project), which would include the construction and operation of new facilities and upgrades to existing facilities throughout the Palmdale Water District (PWD) service area and vicinity. These facilities include pipelines, storage tanks, pump stations and groundwater wells to be constructed in the near-term (before 2020) and long-term (after 2020). Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). This section includes a description of existing law enforcement services, fire protection services, and schools, as well as applicable regulatory framework, and potential impacts associated with implementation of the proposed project.

3.11.1 Environmental Setting

Fire/Emergency Protection Services

State

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) is responsible for fire protection within State Responsibility Areas (SRAs), including 31 million acres of wildlands throughout California (CAL FIRE 2012). CAL FIRE serves the project area around Lake Palmdale and the southern boundary of the service area along the foothills of the Angeles National Forest (CAL FIRE 2007).

Local

Los Angeles County Fire Department

The Los Angeles County Fire Department (LACFD) has a service area of 2,300 square miles and provides fire and emergency response services to more than 4.1 million residents and commercial businesses. The project area is located within Division 5 of the LACFD, which consists of two battalions working out of 20 stations for the City of Palmdale and Lancaster (LACFD 2015). There are three fire stations located within the project area (LACFD 2017):

- Station 24, located at 1050 W. Rancho Vista Blvd. Palmdale, CA 93551
- Station 37, located at 38318 E. 9th Street East Palmdale, CA 93550
- Station 131, located at 2629 E. Avenue S Palmdale, CA 93550

Police Protection

State

California Highway Patrol

The California Highway Patrol (CHP) is a law enforcement agency created in 1929 to provide uniform traffic law enforcement for the state of California. The CHP has jurisdiction over all Interstates and State Routes in the State of California, which includes State Route (SR) 14 in the project area. The project area is served by the Southern Division, which has one facility in the

immediate project area (CHP 2017a). The Antelope Valley Station located at 2041 West Avenue "I" in the City of Lancaster and just north of the project area patrols approximately 30 miles of SR-14 and approximately 1400 miles of unincorporated roadways (CHP 2017b).

Local

Los Angeles County Sheriff's Department

The Los Angeles County Sheriff's Department (LASD) serves an area totaling approximately 4,084 square miles with a population of over 10 million people. LASD provides general law enforcement services to 40 contract cities, 90 unincorporated communities, 216 facilities, hospitals, and clinics located throughout the County, nine community colleges, the Metropolitan Transit Authority and 47 Superior Courts (LASD 2010).

Two sheriff's stations serve the Antelope Valley, one in Lancaster and the other in Palmdale, with a total patrol area of 1,370 square miles (City of Palmdale 1993). The Palmdale substation, located at 750 East Avenue Q would serve the project area (LASD 2014).

Schools

Palmdale School District

The Palmdale School District (PSD) serves the project area. The PSD student population is made up of approximately 22,006 students attending approximately 29 Elementary, Middle, and "Other Educational" Schools. The District's main office is located at 39139 10th Street in Palmdale (Education Data Partnership 2017a).

Antelope Valley Union High School District

The Antelope Valley Union High School District (AVUHSD) also serves the project area. The AVUHSD student population is made up of approximately 24, 127 students attending approximately 15 High Schools. The District's main office is located at 44811 N. Sierra Highway in Lancaster, CA (Education Data Partnership 2017b).

Parks

City of Palmdale Department of Recreation and Culture

The City of Palmdale's Department of Recreation and Culture manages the operation of developed parkland throughout the City of Palmdale. The Department also operates 18 special use facilities and developed trails and pathways. According to the City of Palmdale General Plan, recreational facilities in the area include parks, golf courses, bikeways, land designated as open space, and multipurpose facilities (City of Palmdale 1993). Recreational resources within the project area are summarized below in **Table 3.11-1** below.

TABLE 3.11-1
RECREATIONAL RESOURCES IN THE PROJECT AREA

Recreational Resource		
Parks	Recreational Facilities	Specialty Areas
Domenic Massari Park	Richard B Hammack Center	Dr. Robert C. St. Clair Parkway
Desert Sands Park	Dry Town Water Park	Barrel Springs Trail and Equestrian Arena
Pelona Vista Park	Larry Chimbole Cultural Center	Source: City of Palmdale, 2017
William J. McAdam Park	Legacy Commons for Active Seniors	
Melville J. Courson Park		
Manzanita Heights Park		
Joshua Hills Park		
Palmdale Oasis Park		

3.11.2 Regulatory Framework

Local

Los Angeles County General Plan Safety Element: The following General Plan policies from the safety element are relevant to the project (County of Los Angeles 2014):

Goal S 4: Effective County emergency response management capabilities

Policy S 4.2: Support County emergency providers in reaching their response time goals.

Policy S 4.3: Coordinate with other County and public agencies, such as transportation agencies, and health care providers on emergency planning and response activities, and evacuation planning.

Antelope Valley Area Plan: Safety, Services and Facilities Element

Goal PS 7: Emergency services that respond in a timely manner.

City of Palmdale General Plan: The following General Plan policies from the public services element of the City of Palmdale General Plan are relevant to the project (City of Palmdale 1993):

GOAL PS5: Support the provision of adequate public and community services to meet the needs of residents.

Objective PS5.1: Ensure provision of fire protection facilities and equipment needed to protect existing and future development.

Policy PS5.1.1: Obtain fire protection, fire prevention, and paramedic services from Los Angeles County Fire Protection District.

Objective PS5.2: Support the provision of adequate law enforcement services to meet the needs of City residents.

Policy PS5.2.1: Contract with the Los Angeles County Sheriff's Department for law enforcement services.

City of Palmdale Emergency Operations Plan (EOP): This City of Palmdale Emergency Operations Plan (EOP) is a flexible, multi-hazard document that addresses the City of Palmdale's planned response and short-term recovery to extraordinary emergency/disaster situations associated with natural disasters, technological incidents, and national security emergencies. The EOP is a preparedness document, designed to be read, understood, and exercised prior to an emergency/disaster. It is designed to include the City of Palmdale as part of the Los Angeles Operational Area, California Standardized Emergency Management System (SEMS) and National Incident Management System (NIMS) (City of Palmdale 2012).

3.11.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this PEIR and consistency with Appendix G of the CEQA Guidelines, the project would have a significant impact on public services if the project would:

- Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:
  - Fire protection
  - Police protection
  - Schools
  - Parks
  - Other public facilities

Methodology

The WSMP would develop PWD's potable water system over the next 25 years in order meet the water quantity, water quality, system pressure, and reliability requirements of customers. Implementation of actions under this Plan would require the construction of various aboveground facilities and support infrastructure including storage tanks, pump stations, pipelines and wells. Additionally, PWD is proposing a headquarters building expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to be constructed as part of the long-term facilities. Projects to be implemented by 2020 are considered near-term project components and are analyzed at site-specific level. Projects addressed after 2020 are considered long-term projects. Preliminary locations for the long-term facilities have been established (see Figure 2-2), although locations are subject to change based on the need of facilities in the future. As such, these long-term facilities are therefore evaluated generally and broadly.

Fire protection, police, schools, parks, and other public facility requirements are based on the number of residents and workers in a service area. Service demand is primarily tied to population, not building size or construction footprint. For example, because emergency calls typically make up the majority of responses provided by the police and fire departments, as the number of residents and workers increases, so does the number of emergency calls. Further, population growth could directly affect student generation rates for local schools and adequate park acreage

to serve City parkland ratio goals. If there is an increased need for services, a determination of whether the increased need requires the construction of a facility to provide the services is made. If the construction of a facility is required, a determination of whether the construction of the new or altered facility could cause a significant effect is evaluated.

Impacts Discussion

Fire and Police Protection

Impact 3.11-1: The proposed project would not result in the provision of, or the need for, new or physically altered police or fire protection facilities, the construction of which could cause environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire and police services.

All Facilities (Near-Term and Long-Term)

The proposed project facilities do not include new fire departments, police stations or expansion of existing fire and police protection facilities. The facilities would not directly induce substantial population growth in the project area that would require expanded fire or police protection facilities. Construction activities would involve a temporary increase in employees, which could range from three to 10 employees per individual project site. However, employment opportunities associated with the construction activities are assumed to be filled by the local workforce, and would not result in increased housing demand.

No new full time employees would be required to operate the project's proposed water facilities; therefore, implementation of the storage tanks, pumps, pipelines, and wells would not require new fire or police facilities to maintain response ratios, service ratios, or other measures of performance. The headquarters expansion may involve a minimal increase in staff to accommodate future facilities to be constructed as part of the WSMP. The number of staff would be minimal compared with baseline staff numbers and would not present a substantial increase in workers to the site. Further, operational activities associated with the facilities would not require fire department or police services. Because the proposed project components would not result in the permanent increase in residences or population, no increase in the need for new fire or police protection facilities would occur. As a result, no impacts would occur because construction of a new police or fire facility would not be required.

Mitigation Measures

None required.

Significance Determination: No Impact

Schools

Impact 3.11-2: The proposed project would not result in the provision of, or the need for, new school facilities, the construction of which could cause environmental impacts, in order to maintain acceptable performance objectives for the school district.

All Facilities (Near-Term and Long-Term)

The proposed project facilities would not directly induce population growth in the project area. No new fulltime employees would be required to operate facility components; therefore, there would be no demand for new housing units that could generate school-age children. No new schools would need to be built in order to maintain acceptable performance objectives. Because the project would not require the construction of new schools, no environmental impacts from school construction would occur.

Mitigation Measures

None required.

Significance Determination: No Impact

Parks and Other Public Facilities

Impact 3.11-3: The proposed project would not result in the provision of, or the need for, new or physically altered parks and recreation facilities, the construction of which could cause environmental impacts, in order to maintain acceptable performance objectives for parks and recreation.

All Facilities (Near-Term and Long-Term)

The proposed project does not include any park or recreation facilities and would not directly induce population growth in the PWD service area. No new fulltime employees would be required to operate facility components; therefore, there would be no demand for new housing units that could generate the demand for new or expanded recreational facilities. Because the project would not require the construction of new recreational facilities, no environmental impacts would occur.

Mitigation Measures

None required.

Significance Determination: No Impact

3.11.4 References

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LASD, 2014. Palmdale Station. Available at: http://shq.lasdnews.net/pages/patrolstation.aspx?id=PLM, accessed April 4, 2017.

3.12 Traffic and Transportation

This section addresses the traffic and transportation impacts associated with implementation of the proposed 2016 Water System Master Plan (WSMP or proposed project), which would include the construction and operation of new facilities and upgrades to existing facilities throughout the Palmdale Water District (PWD) service area and vicinity. These facilities include pipelines, storage tanks, pump stations and groundwater wells to be constructed in the near-term (before 2020) and long-term (after 2020). Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). This section describes the existing transportation system within the project area and discusses applicable, federal, state and local regulations pertaining to traffic and transportation. This section also evaluates the proposed project's potential impacts on traffic and transportation in the project area and describes mitigation measures necessary to reduce these impacts to less than significant levels.

3.12.1 Environmental Setting

Regional Transportation System

The project area is located within the Antelope Valley in the City of Palmdale and several unincorporated areas of Los Angeles County. State Route 14 (SR-14) and State Route (SR-138) are the two State roadways that pass through the project area (Caltrans 2015). The average annual daily trips occurring on the sections of these roadways within the project area are listed in **Table 3.12-1** below.

TABLE 3.12-1
AVERAGE ANNUAL DAILY TRIPS (AADT) – PROJECT AREA STATE ROADWAYS

Roadway	Location	Back AADT[1]	Ahead AADT[2]
SR 14	Angeles Forest Highway	100,419	75,000
SR 14	Palmdale, Ave S Interchange	75,000	83,000
SR 14	Palmdale, South Jct. Rte. 138, Palmdale Blvd	83,000	88,000
SR 14	Palmdale, 10th Street West	88,000	88,000
SR 138	Palmdale, 35th Street East	19,600	17,800
SR 138	Palmdale, 30th Street East	21,100	19,600
SR 138	Palmdale, 20th Street East	21,700	21,100
SR 138	Palmdale, 10th Street East	23,000	21,700
SR 138	Palmdale, Sierra Highway	23,700	23,500
SR 138	Palmdale, Junct. Rte. 14 South	3,800	31,000

[1] Back AADT represents traffic south or west of the count location.
[2] Ahead AADT represents traffic north or east of the count location.

SOURCE: Caltrans 2015.

Details about the State highways and other major roadways found within the project area are described below:

SR-14, also known as the Antelope Valley Freeway, is a north/south freeway which provides the Antelope Valley regional access to the rest of Los Angeles County. SR-14 has four travel lanes south of Avenue P-8 and six travel lanes north of Avenue P-8 (City of Palmdale 1993). Long-term pipelines, long-term pump stations (FB-03 and FB-08) as well as a long-term storage tank (FS-10) would be located adjacent to SR-14.

SR-138, also known as the Pearblossom Highway, extends from the San Bernardino County border to Sierra Highway, where it branches into SR-14 and SR-138 (City of Palmdale 1993). In the City of Palmdale, SR-138 has four through lanes. Multiple segments of long-term pipeline would be located either directly along or adjacent to SR-138; a small segment of near-term pipeline (FF-05) would be located adjacent to SR-138.

Sierra Highway extends from the City of Mojave in Kern County through Palmdale to the I-5/SR-14 interchange to the south. Sierra Highway generally runs adjacent to SR-14 and turns into an east/west arterial a few miles south of the project area (City of Palmdale 1993). Multiple segments of long-term pipeline would be located along or adjacent to Sierra Highway. A near-term pipeline (ES-03) would also be located along Sierra Highway.

Palmdale Boulevard is an east-west road that has an interchange configuration with SR-14 (City of Palmdale 1993); east of this intersection the road becomes SR-138. After SR-138's intersection with 47 Street East, the road becomes Palmdale Boulevard again. Multiple segments of long-term pipelines would be located along or adjacent to Palmdale Boulevard.

Local Transportation System

The project area's local transportation system is comprised of major arterials spaced at approximately one-mile intervals. These arterials represent the major carrying capacity for traffic to and within the project area, and are described in more detail below.

Avenue P extends from 30th Street West to 50th Street East (City of Palmdale 1993). Three segments of long-term pipelines would be located along or adjacent to Avenue P.

Avenue Q is discontinuous along its length. It reaches from Palmdale Boulevard to 6th Street East where it is classified as a secondary arterial, and from Sierra Highway to 40th Street East where it is classified as a major arterial (City of Palmdale 1993). Multiple segments of long-term pipelines as well as the PWD headquarters building expansion would be located along or adjacent to Avenue Q.

Avenue R extends from Tierra Subida Avenue to 3,000 feet east of 47th Street East. The arterial crosses under SR-14 but does not have an interchange (City of Palmdale 1993). Small segments of long-term pipeline would be located along or adjacent to Avenue R.

Avenue S extends from 20th Street West to about 3,800 feet east of 47th Street East. The arterial has a full diamond interchange with SR-14, providing regional connections to the north and south. Multiple segments of long-term pipeline would be located along or adjacent to Avenue S (City of Palmdale 1993). A long-term pump station (FB-04), a long-term storage tank (FS-14) and a long-term well (FW-01) would be located adjacent to Avenue S.

Avenue T extends from Pearblossom Highway to east of 90th Street East (City of Palmdale 1993). A segment of a long-term pipeline and two long-term storage tanks (FS-13 and FS-15) would be located along or adjacent to Avenue T.

Certain roadways within the project area have been assigned a level of service (LOS) designation to indicate whether the capacity of the roadway is adequate to handle the volume of traffic using that roadway (City of Palmdale 1993). LOS designations are defined in **Table 3.12-2** below.

TABLE 3.12-2
LEVEL OF SERVICE DEFINITIONS

LOS Designation	Type of Flow	Description	Unsignalized Intersections Delay (sec)	Volume to Capacity Ratio
A	Free flow	Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at intersections is minimal. The travel speed exceeds 85% of the base free-flow speed.	0-10	0.00-0.599
B	Stable flow	The ability to maneuver within the traffic stream is only slightly restricted and control delay at intersections is no significant. The travel speed is between 67% and 85% of the base free-flow speed.	> 10-15	0.60-0.699
C	Stable flow	The ability to maneuver and change lanes at midsegment locations may be more restricted than at LOS B. Longer queues at intersections may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed.	> 15-25	0.70-0.799
D	Approaching unstable flow	Small increases in flow may cause substantial increases in delay and decreases in travel speed. The travel speed is between 40% and 50% of the base free-flow speed.	> 25-35	0.80-0.899
E	Unstable flow	Significant delay is commonly experienced. The travel speed is between 30% and 40% of the base free-flow speed.	> 35-50	0.90-0.999
F	Forced flow	Congestion is likely occurring at intersections, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the base free-flow speed	> 50	≥ 1.000

SOURCE: County of Los Angeles 2015; ESA 2011.

The available LOS designations from the 1993 City of Palmdale General Plan for roadways at or adjacent to the proposed near-term facility locations are shown in **Table 3.12-3** below. It should be noted that the resident population of the project area has steadily increased over the past 25 years since these LOS designations were determined (PWD 2005, PWD 2011; PWD 2016).

However, more current LOS designations have not been published by the City. Further, traffic in the City is expected to grow increasingly through 2035, increasing by more than 50 percent of 2010 levels by 2035 (LACMTA 2010). Therefore, the LOS levels from the 1993 General Plan could possibly overestimate these roadways' ability to handle their capacities.

TABLE 3.12-3
LOCAL ROADWAY SERVICE LEVELS IN THE PROJECT AREA – NEAR-TERM COMPONENTS

Facility Name	Jurisdiction	Roadway	From/To	LOS
Pipelines				
FF-01	Palmdale	35th Street East	Avenue P / Avenue Q	A
FF-04	Palmdale	E Ave Q-6	12th Street E / 15th Street E	-
FF-05	Palmdale	Fort Tejon Road	N/A	A
FF-06	Palmdale	40th Street East	Avenue S / Pearblossom Highway	B
FF-07	Palmdale	Camares Drive	W Avenue S-14 / Hacienda Drive	-
Unnamed	Palmdale and LA County	47th Street E	CA Aqueduct / 0.45 mile S of Barrel Springs Road	-
Unnamed	Palmdale and LA County	Sierra Highway	3000' N of Barrel Springs Road / Pearblossom Highway	A
Unnamed	LA County	Unnamed	Nearest intersection is Lakeview Drive and Tovey Avenue	-
Pump Stations				
EB-01	Palmdale	Barrel Springs Road	40th Street E / Cheseboro Road	A
FB-01	LA County	Tierra Subida Avenue	Avenue S / W Barrel Springs Road	A
FB-02	LA County	None	Nearest intersection is El Camino Drive and Lakeview Drive	-
Storage Tanks				
ES-01	LA County	Unnamed	Nearest intersection is Lakeview Drive and Tovey Avenue	-
ES-03	LA County	Sierra Highway	3000' N of Barrel Springs Road / Pearblossom Highway	A
FS-01	LA County	Unnamed	Nearest intersection is W Barrel Springs Road and Tovey Avenue	-

SOURCE: City of Palmdale 1993.

The long-term project components would consist of 16 storage tanks, 7 new pumps at five existing pump stations, 6 new pump stations, 5 production wells, over 700,000 feet of transmission pipelines, and a PWD headquarters building expansion. Preliminary locations for the long-term facilities have been established (see Figure 2-2), although locations are subject to change based on the need of facilities in the future. As a result, the LOS levels for these intersections are not specifically identified in this EIR, although specific intersections are identified as they relate to potential impacts in Section 3.12.3 below.

Public Transportation

Bus service within the project area provided through the Antelope Valley Transit Authority (AVTA 2017a), a joint powers agency whose members include the City of Palmdale, City of Lancaster and Los Angeles County (AVTA 2017b). Several AVTA bus routes pass through the project area, including routes 1, 2, 3, 51, and 52 (AVTA, 2017a). The Metrolink Antelope Valley Line also runs in a north south direction through the project area along Sierra Highway. The Metrolink Palmdale stop is located near the intersection of E Avenue Q and Sierra Highway.

Bicycle Routes and Pedestrian Facilities

Pedestrian facilities within the project area include sidewalks, crosswalks, and pedestrian signals; pedestrian facilities are present along most roadways in the project area (City of Palmdale 1993). Bikeways fall into one of three classes: Class I (a separated right of way for the exclusive use of bicycles and pedestrians); Class II (a striped lane for one-way bike travel on a street or highway); and Class II (a shared roadway that allows shared use with pedestrians or motor vehicle traffic) (CDOT 2017). According to the City of Palmdale's Bikeway and Multi-Purpose Trail Plan, the project area contains multiple bikeways (City of Palmdale 2003). There are no County-maintained bikeways in the project area (County of Los Angeles 2012). **Table 3.12-4** lists the existing City-maintained bikeways in the project area.

TABLE 3.12-4
EXISTING BIKEWAYS WITHIN THE PROJECT AREA

Segment	From	To	Class
Sierra Highway	Avenue R	Avenue J	I
Avenue S	Tierra Subida Avenue	25th Street East	I
5th Street East	Avenue S	Avenue Q	II
5th Street West	Tierra Subida Avenue	West Palmdale Boulevard	II
Avenue R	20th Street East	30th Street East	II
Avenue R-12 (main segment)	Sierra Highway	35th Street East	III

SOURCE: County of Los Angeles 2012.

Air Traffic

The Palmdale Airport is located just north of the project area. The Los Angeles County Airport Land Use Commission established an airport influence area (AIA) surrounding the airport (County of Los Angeles 2003); multiple segments of long-term pipelines, one segment of short-term pipelines (FF-01), and two of the northern groundwater production wells would be located within the AIA for the Palmdale Airport.

3.12.2 Regulatory Framework

State

California Department of Transportation (Caltrans): Caltrans manages interregional transportation, including management and construction of the California highway system. In addition, Caltrans is responsible for permitting and regulation of the use of state roadways. Caltrans has jurisdiction over state highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. Caltrans' construction practices require temporary traffic control planning "during any time the normal function of a roadway is suspended" (FHWA, 2003). The project area includes three roadways that fall under Caltrans' jurisdiction: SR-138, SR-14, and Sierra Highway. The following Caltrans regulations apply to potential transportation and traffic impacts associated with the proposed project.

Project Development Procedures Manual. Chapter 17 of the Caltrans Project Development Procedures Manual contains specific provisions pertaining to encroachment onto State highways and the placement and protection of utilities within State highway rights-of-way (ROW) (Caltrans 2016).

California Vehicle Code (CVC), division 15, chapters 1 through 5 (Size, Weight, and Load). Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways.

Local

Regional Transportation Plan: On May 8, 2008, the Southern California Association of Governments (SCAG) adopted its 2008 Regional Transportation Plan (RTP). The 2008 RTP presents the transportation vision for the SCAG region through the year 2035 and provides a long-term investment framework for addressing the region's transportation and related challenges. The RTP focuses on maintaining and improving the transportation system through a balanced approach and considers system preservation, operation, and management, improved coordination between land-use decisions and transportation investments, and strategic expansion of the system to accommodate future growth.

Congestion Management Program: The Los Angeles County Metropolitan Transportation Authority prepared a Congestion Management Program (CMP) in 2010. The CMP summarizes the results from eighteen years of highway and transit monitoring and fifteen years of monitoring local growth. The CMP also contains specific information about CMP requirements and implementation responsibilities. The CMP details expansions of the transit system within the Los Angeles County Area, summarizes level of service data from 1992 through 2005, and predicts traffic volume growth (LACMTA 2010).

County of Los Angeles General Plan: The 2015 County of Los Angeles General Plan Mobility Element contains goals and policies relevant to traffic and transportation. The County General Plan goal and policy related to the proposed project are listed below.

Mobility Element

Goal M 6: The safe and efficient movement of goods.

> **Policy M 6.4:** Minimize noise and other impacts of goods movement, truck traffic, deliveries, and staging in residential and mixed-use neighborhoods.

City of Palmdale General Plan: The 1993 City of Palmdale General Plan Circulation and Mobility elements contain goals, objectives and policies relevant to traffic and transportation. County General Plan goals, objectives and policies related to the proposed project are listed below.

Circulation Element

Goal C1: Establish, maintain and enhance a system of streets and highways which will provide for the safe and efficient movement of people and goods throughout the Planning Area, while minimizing adverse impacts on the community.

Objective C1.1: Adopt and implement a street and highway plan designed to meet existing and future circulation needs.

Objective C1.4: Adopt policies and standards for street design and construction which promote safety, convenience and efficiency.

Policy C1.4.1: Strive to maintain a Level of Service (LOS) C or better to the extent practical; in some circumstances, a LOS D may be acceptable for a short duration during peak periods.

Objective C1.7: Ensure adequate access within the Planning Area for trucks, while protecting incompatible uses from through truck traffic.

Policy C.1.7.1: Review periodically, and update as necessary, City Code provisions concerning truck routes and enforcement.

Policy C.1.7.2: To the extent feasible, route through truck traffic around existing and future residential neighborhoods.

Policy C.1.7.3: Designate truck routes which will serve commercial/industrial areas while minimizing adverse impacts of heavy truck traffic on these uses.

Goal C2: Reduce the number of trips and vehicle miles traveled by individuals within the Planning Area, to meet regional transportation and air quality goals.

Objective C2.1: Encourage development and implementation of a variety of measures to reduce trips and vehicle miles traveled by existing and future residents and workers within the Planning Area.

Policy C2.1.5: Ensure compliance with the County's Congestion Management Plan.

3.12.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this PEIR and consistent with Appendix G of the *CEQA Guidelines*, the proposed project would have a significant impact on transportation and traffic if it would:

- Conflict with an applicable plan, ordinance or policy establishing measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards and travel demand measures, or other standards established by the county congestion management agency for designated road or highways;
- Result in change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risk;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);

- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance of safety of such facilities.

Methodology

The WSMP would develop PWD's potable water system over the next 25 years in order meet the water quantity, water quality, system pressure, and reliability requirements of customers. Implementation of actions under this Plan would require the construction of various aboveground facilities and support infrastructure including storage tanks, pump stations, pipelines and wells. Additionally, PWD is proposing a headquarters building expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to be constructed as part of the long-term facilities. Projects to be implemented by 2020 are considered near-term project components and are analyzed at site-specific level. Projects addressed after 2020 are considered long-term projects. Preliminary locations for the long-term facilities have been established (see Figure 2-2), although locations are subject to change based on the need of facilities in the future. As such, these long-term facilities are therefore evaluated generally and broadly.

Impacts Discussion

Traffic Increase

Impact 3.12-1: The proposed project could conflict with an applicable plan, ordinance or policy establishing measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

Pump Stations, Storage Tanks, Wells and Headquarters Expansion (Near-Term and Long-Term)

Construction of all pump stations, storage tanks, wells, and the PWD headquarters expansion would generate vehicle trips associated with both construction worker commutes and material and equipment hauling. These increases in trips per day on local and regional roadways could affect roadway capacity and circulation; slower movements and larger turning radii of construction trucks compared to passenger vehicles could also lessen roadway capacities.

The number and type of equipment and worker vehicles required for construction of the pump stations, pipelines, wells, and the headquarters expansion would depend on the facility type. As explained in the Project Description, the minimum number of equipment vehicle types required for a near-term project site would range from five to nine types of equipment/vehicles, with multiple vehicles of the same type. The total number of worker vehicles would range anywhere from three to 10 vehicles per site. The associated number of vehicle trips and types of vehicles required for the construction of the proposed long-term facilities is currently unknown; definitive construction schedules, workforce details, equipment lists, and material lists would be specified in the future as long-term proposed facilities are finalized, but are expected to be similar to the near-term project component vehicles required. Further, LOS designations are provided for the roadways at or adjacent to the proposed near-term facility locations, which indicate all intersections are

operating at LOS A or B (City of Palmdale 1993). According to the City of Palmdale General Plan, circulation goals indicate maintaining a LOS C or better to the extent practical; in some circumstances, a LOS D may be acceptable for a short duration during peak periods. **Mitigation Measure TR-1** would require implementation of a Traffic Control/Management Plan that would perform traffic counts to understand existing traffic conditions on roadways near project facilities at the time they are constructed. Using these traffic counts, the Plan would recommend various mitigation measures, including minimizing deliveries during the A.M. and P.M. peak travel hours, as well as alternative haul routes to avoid traffic disruption to minimize disturbance on traffic flow.

Further, the proposed project would include placement of some long-term facilities within or directly adjacent to SR-14 and SR-138, which are State ROWs. These include two long-term pump stations (FB-03 and FB-08), which would be located adjacent to SR-14. All activities encroaching onto State ROW would comply with the Caltrans Project Development Procedures Manual. Therefore, impacts associated with construction of near-term and long-term facilities would be less than significant.

Operation of the proposed pump stations, storage tanks, and wells, would not require daily staffing and only periodic maintenance. Therefore, operation of these facilities would not generate a noticeable number of vehicular trips that would affect traffic volume or circulation on local or regional roadways. The headquarters expansion may involve a minimal increase in staff to accommodate future facilities to be constructed as part of the WSMP. The number of staff would be minimal compared with baseline staff numbers and would not present a substantial increase in workers to the site. Any additional trips added by minimal staff commutes or periodic maintenance would be negligible compared to overall traffic volumes in the area. Impacts to the existing circulation system associated with operation of the proposed facilities would be less than significant.

Pipelines (Near-Term and Long-Term)

Construction of proposed near-term and long-term pipelines would involve trenching using a conventional cut and cover technique, jack-and-bore or directional drilling techniques where necessary to avoid sensitive land or hydrologic features or roadway intersections. Construction of pipelines could impede traffic flow because a large portion of the proposed pipelines would be installed within ROW and could temporarily require partial or complete road closures. However, the Traffic Control/Management Plan required by Mitigation Measure TR-1 would appropriately delineate work areas, and provide traffic control, flagging, and signage. Communication with residents and nearby school facilities as required by the Plan would help ensure potential traffic-related impacts are reduced. As a result, impacts would be less than significant.

As indicated above, the City of Palmdale General Plan circulation goals strive to maintain a LOS C or better to the extent practical; in some circumstances a LOS D may be acceptable for a short duration during peak periods. None of the short-term pipelines are to be constructed in intersections operating at LOS E or F. There are numerous intersections in the project area operating at LOS D, which is an acceptable level of service for short durations of peak hours. Some of the intersections of long-term pipelines could be characterized as operating at LOS D. However, construction of these pipelines would be temporary and would not downgrade LOS

levels to an E; intersections maintaining LOS D would be acceptable according to the City of Palmdale for "short duration during peak periods," which would describe short-term construction activities. There are several intersections that are operating at LOS E within the project area (20th St. East and Palmdale Blvd; 25th St. East and Barrel Springs Road; Avenue P and Sierra Highway; Elizabeth Lake Road and Bridge Road; Avenue R-8 and 40th St. East; and Barrel Springs Road and Pearblossom Highway). Only one of these intersections, Avenue P and Sierra Highway, is an intersection where a long-term pipeline is anticipated to be constructed. This intersection is at the northern boundary of the project area where a long-term pipeline would be installed along the southern portion of the intersection along Sierra Highway. While construction within the ROW at this location could impact traffic patterns, the short-term nature of the construction activity would not result in a negative change from LOS E to LOS F. There is only one intersection operating at LOS F (Avenue M at Sierra Highway) in the City which is approximately three miles north of the project area and would not be impacted by long-term construction. With implementation of Mitigation Measure TR-1, impacts would be reduced to a less than significant level for construction of near-term and long-term pipelines.

Further, the proposed project would include placement of some long-term pipelines within or directly adjacent to SR-14 and SR-138: a section of near-term pipeline (FF-05) would be located along SR-138. All activities encroaching onto State ROW would comply with the Caltrans Project Development Procedures Manual. Therefore, impacts associated with construction of near-term and long-term pipelines would be less than significant.

Operation of the proposed pipelines would only require periodic maintenance. Any additional trips added by periodic maintenance would be negligible compared to overall traffic volumes in the area. Impacts to the existing circulation system associated with construction and operation of the proposed near-term and long-term pipelines would be less than significant.

Mitigation Measures

TR-1: PWD shall require the construction contractor to prepare and implement a Traffic Control/Traffic Management Plan subject to approval by the City of Palmdale and/or the County of Los Angeles prior to construction. The plan shall include traffic counts on intersections near the proposed project facilities to determine existing traffic conditions. Based on these traffic counts, the Plan shall recommend mitigation to avoid impacts to existing traffic conditions. These mitigation measures shall include but shall not be limited to:

- Identification of hours of construction and hours for deliveries, potentially avoiding the A.M. and P.M. peak hours to minimize disturbance on traffic flow;
- Specification of both construction-related vehicle and oversize haul routes; alternative routes shall be proposed to avoid traffic disruption;
- Identification of limits on the length of open trench, work area delineation, traffic control, flagging, and signage requirements;
- Identification of all access and parking restrictions;
- Maintenance of access and minimize disruption to residence and business driveways at all times to the extent feasible;

- Layout of a plan for notifications and a process for communication with affected residents and businesses prior to the start of construction. Advance public notification shall include posting of notices and appropriate signage of construction activities. The written notification shall include the construction schedule, the exact location and duration of activities within each street (i.e., which lanes and access point/driveways would be blocked on which days and for how long), and a toll-free telephone number for receiving questions or complaints;
- For construction activities within one-quarter mile of a school facility, inclusion of a plan to coordinate all construction activities with the Antelope Valley Union High School District and Palmdale School District, at least two months in advance. The Antelope Valley Union High School District and the Palmdale School District shall be notified of the timing, location, and duration of construction activities. The implementing agencies shall require its contractor to maintain vehicle, pedestrian, and school bus service during construction through inclusion of such provisions in the construction contract;
- Specification of street restoration requirements pursuant to agreements with the local jurisdictions;
- Development of circulation and detour plans to minimize impact to local street circulation, including bikeways. This may include the use of signing and flagging to guide vehicles and cyclists through and/or around the construction zone; and
- Parking at staging areas to limit lane closures in the public right-of-way.

Significance Determination: Less than Significant with Mitigation

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Level of Service

Impact 3.12-2: The proposed project could conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards and travel demand measures, or other standards established by the county congestion management agency for designated road or highways.

All Facilities (Near-Term and Long-Term)

In Los Angeles County, the congestion management program agency is the LACMTA. LACMTA prepares the County CMP, which defines the network of state highways and arterials and LOS standards for these roadways. Designated CMP roadways within the project area are SR-14 and SR-138; their LOS standards are intended to regulate long-term traffic increases resulting from operation of new development and do not apply to temporary construction projects. The proposed project would not introduce any new facilities to the project area that would generate long-term changes in traffic. The proposed storage tanks, pumps, pump stations, wells would require periodic trips related to maintenance. Occasional maintenance of the pipelines would occur on an as-needed basis. Employees and maintenance work associated with the headquarters expansion building would not require a substantial increase in vehicle trips since the existing PWD headquarters and maintenance yard are adjacent to the proposed expansion location. These

maintenance activities would not constitute a substantial increase in roadway traffic in the project area. Impacts related to conflicting with an applicable congestion management program would be considered less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Air Traffic

Impact 3.12-3: The proposed project could result in change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risk.

Pipelines and Wells (Near-Term and Long-Term)

Multiple long-term pipelines, one short-term pipeline (FF-01), and long-term wells FW-04 and FW-05 would be located within the AIA associated with the Palmdale Regional Airport. Construction of the pipelines would not require substantially large or tall equipment that would interfere with air flight overhead. Construction of the wells could require large pieces of construction equipment such as cranes that could pose temporary safety hazards to aviation within the AIA. However, well construction would not change traffic patterns that would potentially impact air traffic safety (see Impact 3.7-5 for a discussion of safety hazards associated with construction within the AIA). During operation, pipelines would be located belowground and wells would be enclosed in well housing just above the ground surface and would thus not involve permanent structures that could interfere with air traffic. Impacts related to changes in air traffic patterns would be less than significant.

All Other Facilities (Near-Term and Long-Term)

All other near-term and long-term facilities besides the proposed near-term and long-term pipelines would not be located within the AIA. Storage tanks, pumps, the groundwater wells located in the eastern portion of PWD's service area, and the headquarters expansion are not of substantial size that they would disrupt air traffic patterns. Long-term wells would require nighttime lighting during construction, and near-term and long-term storage tanks and pump stations may require permanent exterior nighttime lighting. Although these facilities would introduce light to the project area, these facilities would not be in the AIA and thus would not likely interfere with airport lighting used for landing. Impacts related to changes in air traffic patterns would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Hazards

Impact 3.12-4: The proposed project could substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

All Facilities (Near-Term and Long-Term)

The proposed project would not involve any roadway improvements or alterations, and would thus not increase hazards due to a design feature like a sharp curve or dangerous intersections. The project would involve the hauling of heavy construction equipment. The use of oversize vehicles during construction could be an incompatible use and can create a hazard to the public by limiting motorist views on roadways by the obstruction of space. However, oversize loads associated with construction of the proposed project would be required to comply with applicable CVC and Caltrans requirements applicable to licensing, size, weight, load, and roadway encroachment of construction vehicles. Further, Mitigation Measure TR-1 would require the use of traffic counts to recommend construction-related oversize haul routes in the Traffic Control/Traffic Management Plan prepared for the project. Compliance with regulatory requirements to reduce hazards caused by incompatible roadway uses during construction and compliance with Mitigation Measure TR-1 would minimize the potential for hazards to other vehicles to less than significant levels.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Emergency Access

Impact 3.12-5: The proposed project could result in inadequate emergency access.

All Facilities (Near-Term and Long-Term)

Fire protection, emergency medical services, and police services within the project area are provided by the Los Angeles County Fire Department, Los Angeles County Sheriff's Department, and California Highway Patrol (See Section 3.11, *Public Services* for more details). Depending upon the timing, location, and duration of construction activities, construction of the proposed facilities could delay emergency vehicle response times or otherwise disrupt delivery of emergency services. However, **Mitigation Measure TR-2** requires coordination with emergency service providers at least one month prior to construction. Adherence to this mitigation measure would reduce any potential impacts regarding emergency services to less than significant levels.

Mitigation Measures

TR-2: PWD shall require the construction contractor to coordinate all construction activities with emergency service providers in the area at least one month in advance. Emergency service providers shall be notified of the timing, location, and duration of construction activities. All roads shall remain passable to emergency service vehicles at all times.

Significance Determination: Less than Significant with Mitigation

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Public Transit

Impact 3.12-6: The proposed project could conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance of safety of such facilities.

All Facilities (Near-Term and Long Term)

Operation of the proposed project would have no long-term impact on demand for alternative transportation or on alternative transportation facilities (i.e., for transit and bicyclists). However, construction of some of the proposed facilities could disrupt the existing AVTA bus routes within the project area due to construction activities within roadway ROW, which may result in partial lane closures, roadway closures and delays. Construction of some of the proposed facilities would also occur adjacent to an existing segment Metrolink Antelope Valley Line. Furthermore, construction of the proposed facilities could result in bike pathway and sidewalk closures in the project area. However, implementation of **Mitigation Measure TR-3** would require consultation with Metrolink and AVTA to minimize impacts to alternative transportation facilities and service. Further, implementation of **Mitigation Measure TR-4** would require consultation with local jurisdictions to develop plans to minimize any potential impacts to bicycle or pedestrian facilities. Impacts related to public transit, bicycle and pedestrian facilities would be less than significant.

Mitigation Measures

TR-3: PWD shall require the construction contractor to consult and coordinate with Metrolink and the Antelope Valley Transit Authority at least one month prior to construction of pipelines within roadways or rights-of way that coincide with bus or train routes, to determine whether construction of the proposed project would affect bus stop locations or otherwise disrupt public transit routes. A plan shall be developed to relocate bus stops or reroute buses to avoid disruption of transit service.

TR-4: PWD shall require the construction contractor to consult with the City and/or County if bicycle or pedestrian facilities would be directly affected by construction activities. This consultation shall inform the circulation and detour plans included in the Traffic Control/Traffic Management Plan designed to minimize impact to local street circulation, including bikeways.

Significance Determination: Less than Significant with Mitigation

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3.12.4 References

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3.13 Tribal Cultural Resources

This section describes and evaluates potential impacts to tribal cultural resources that could result from implementation of the proposed 2016 Water System Master Plan (WSMP or proposed project), which would include the construction and operation of new facilities and upgrades to existing facilities throughout the Palmdale Water District (PWD) service area and vicinity. These facilities include pipelines, storage tanks, pump stations, groundwater wells, and a PWD headquarters building expansion to be constructed in the near-term (before 2020) and long-term (after 2020). Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). Existing cultural conditions within the PWD and vicinity, applicable policies, ordinances, and regulations; potential environmental impacts; and mitigation measures, where appropriate, are described.

3.13.1 Environmental Setting

The following sections describe the environmental setting for tribal cultural resources within the project area, which is located almost entirely within the City of Palmdale, but also includes portions of land within unincorporated Los Angeles County. The project area includes the PWD service area plus areas adjacent to the service area where proposed facilities are located.

Ethnographic Setting

At the time of European contact, numerous groups occupied the area in and surrounding the Antelope Valley. The southeastern portion of the Valley, around the Mojave River, was inhabited by the Serrano and Vanyume. The territory of the Tataviam centered on the southwestern extent of the Antelope Valley, the Santa Clara River drainage, and possibly the Sierra Pelonas and the Palmdale area (Sutton 1988). The Kitanemuk inhabited the southern Tehachapi Mountains and the northern and central portion of the Antelope Valley. Finally, during the historic period, there is some evidence for the occupation of the Western Mojave by the Chemehuevi. The groups that are known to have lived in the vicinity of the proposed project area (Kitanemuk, Tataviam, Serrano, and Chemehuevi) are described in more detail below.

Kitanemuk

The Kitanemuk occupied a territory that extended from the Tehachapi Mountains into the western end of the Antelope Valley. While most of their recorded villages were located in the Tehachapis, their settlement pattern is poorly understood. Some scholars posit that the Antelope Valley's desert floor was used only on a seasonal basis, while others point to archaeological evidence of permanent occupation of the desert floor during the Late Prehistoric Period (Sutton 1980). While the Kitanemuk maintained friendly relations with their other neighbors such as the Chumash, historic evidence indicates that their relationship with the Tataviam was generally hostile (Blackburn and Bean 1978).

Like other Takic-speaking groups, such as the Serrano, Kitanemuk society had a patrilineal organization. Families grouped together into villages, which were headed by a team of "administrative elite" composed of a chief, messengers, and shamans. Kitanemuk subsistence was similar to their neighbors the Tataviam. Primary vegetable food sources included acorns, juniper berries, seeds, and yucca buds. Small game such as antelope and deer supplemented these foods.

Tataviam

Tataviam territory was concentrated along the upper reaches of the Santa Clara River drainage, east Piru Creek, and along the southern slopes of Sawmill and Liebre Mountains; however, their territory extended north into the southern end of the Antelope Valley (King and Blackburn 1978). Tataviam villages varied in size from larger centers with as many as 200 people, to smaller villages with only a few families. At the time of Spanish contact, the Tataviam population is estimated to have been less than 1,000. Primary vegetable food sources included acorns, juniper berries, seeds, and yucca buds. Small game such as antelope and deer supplemented these foods.

As with the Kitanemuk, there are few historical sources regarding the Tataviam. The word "Tataviam" most likely came from a Kitanemuk word that may be roughly translated as "people of the south-facing slope," due to their settlement on south-facing mountain slopes (King and Blackburn, 1978). What the Tataviam called themselves is not known.

Several Tataviam villages may have been located near the proposed project area, including Kwarun (or Quariniga) at Elizabeth Lake (King and Blackburn 1978).

Serrano

The Serrano occupied territories that ranged from low or moderately low desert to the mountain regions of the Transverse and Peninsular ranges. Serrano territory was bordered to the west roughly by the Cajon Pass in the San Bernardino Mountains, to the east by Twenty-Nine Palms and to the south by Yucaipa Valley. Their territory extended north of the San Bernardino Mountains into the desert near Victorville, along the Mojave River. According to Kroeber (1925) Serrano territory may have extended at least 20 miles to the west of Mount San Antonio.

The Serrano were organized into clans, with the clan being the largest autonomous political entity. They lived in small villages where extended families lived in circular, dome-shaped structures made of willow frames covered with tule thatching. Each clan had one or more principal villages in addition to numerous smaller villages associated with the principal village (Price et al. 2008).

Villages located at higher elevations were placed near canyons that received substantial precipitation or were adjacent to streams and springs. Villages situated at lower elevations were also located close to springs or in proximity to the termini of alluvial fans where the high water table provided abundant mesquite and shallow wells could be dug.

The Serrano subsistence strategy relied upon hunting and gathering, and occasionally fishing. Villages divided into smaller, mobile gathering groups during certain seasons to gather seasonally

available foods. The division of labor was split between women gathering and men hunting and fishing (Bean and Smith 1978; Warren 1984). Mountain sheep, deer, rabbits, acorns, grass seeds, piñon nuts, bulbs, yucca roots, cacti fruit, berries, and mesquite were some of the more common resources utilized (Bean and Smith 1978; Warren 1984).

Despite early European and Spanish contact in 1771, the Serrano remained relatively autonomous until the period between 1819 and 1834 when most of the western Serrano were removed and placed into missions (Bean and Smith 1978; Warren 1984).

Chemehuevi

The Chemehuevi, a branch of the Southern Paiute, had a territory that stretched from the Colorado River to the San Bernardino Mountains. The Chemehuevi moved into the eastern Mojave around A.D. 1500 and into the Antelope Valley in the early 19th century (Earle 2005). By the 1840s, many of the native populations of the Antelope Valley had been depleted by missionization or driven out by an increasing number of non-native settlers. In particular, the opening of the Old Spanish Trail along the Mojave River caused the displacement of Vanyme groups, and brought other native groups, such as the Chemehuevi, into their former territory (Earle 2005). Early American settlers in the Antelope Valley note the presence of "Paiutes" around Elizabeth Lake, Rosamond Dry Lake, Barrel Springs, and Big Rock Creek in the Valyermo and Littlerock areas, where there were apparently small Chemehuevi settlements (Earle 2005).

Chemehuevi material culture and subsistence was similar to the Serrano and Cahuilla. One major difference was the use of baskets instead of pottery (Bean and Vane 2002). As the Chemehuevi population movement into the Antelope Valley, cattle raiding became the predominant mode of subsistence (Earle 2005). The Chemehuevi were divided into two moieties represented by two songs, the Mountain Sheep Song and the Deer Song, which were each associated with different hunting areas. They generally lived in bands of two or three families, with each band having its own leader (Bean and Vane 2002).

3.13.2 Regulatory Framework

Assembly Bill 52 and Related Public Resources Code Sections: Assembly Bill (AB) 52 was approved by California State Governor Edmund Gerry "Jerry" Brown, Jr. on September 25, 2014. The act amended California PRC Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 applies specifically to projects for which a Notice of Preparation (NOP) or a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration (MND) will be filed on or after July 1, 2015. The primary intent of AB 52 was to include California Native American Tribes early in the environmental review process and to establish a new category of resources related to Native Americans that require consideration under CEQA, known as tribal cultural resources. PRC Section 21074(a)(1) and (2) defines tribal cultural resources as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe" that are either included or determined to be eligible for inclusion in the California Register or included in a local register of historical resources, or a resource that is determined to be a tribal

cultural resource by a lead agency, in its discretion and supported by substantial evidence. On July 30, 2016, the California Natural Resources Agency adopted the final text for tribal cultural resources update to Appendix G of the CEQA Guidelines, which was approved by the Office of Administrative Law on September 27, 2016.

PRC Section 21080.3.1 requires that within 14 days of a lead agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the lead agency provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project (as defined in PRC Section 21073) and who have requested in writing to be informed by the lead agency (PRC Section 21080.3.1(b)). Tribes interested in consultation must respond in writing within 30 days from receipt of the lead agency's formal notification and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation (PRC Sections 21080.3.1(d) and 21080.3.1(e)).

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the project's impacts on the tribal cultural resources; project alternatives or appropriate measures for preservation; and mitigation measures. Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PRC Section 21080.3.2(b)).

If a California Native American tribe has requested consultation pursuant to Section 21080.3.1 and has failed to provide comments to the lead agency, or otherwise failed to engage in the consultation process, or if the lead agency has complied with Section 21080.3.1(d) and the California Native American tribe has failed to request consultation within 30 days, the lead agency may certify an EIR or adopt an MND (PRC Section 21082.3(d)(2) and (3)).

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

California Government Code Sections 6254(r) and 6254.10: Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and

Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency."

3.5.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the level of significance of impacts to cultural resources are based on Appendix G of the *CEQA Guidelines*. The proposed project would have a significant impact on tribal cultural resources if it would:

- Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

  – Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

  – A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Methodology

The following describes the methodology used to identify the tribal cultural resources in the project area.

Sacred Lands File Search

The NAHC maintains a confidential Sacred Lands File (SLF), which contains sites of traditional, cultural, or religious value to Native American communities. The NAHC was contacted on February 9, 2017 to request a search of the SLF. The NAHC responded to the request in a letter dated February 15, 2017. The letter indicated that the search of the SLF yielded negative results. The letter also recommended that the Fernando Tataviam Band of Mission Indians, Morongo Band of Mission Indians, San Fernando Band of Mission Indians, San Manuel Band of Mission Indians, and the Serrano Nation of Mission Indians be consulted.

Native American Consultation

On March 23, 2017, PWD mailed letters to each of the five tribes identified by the NAHC inviting them to consult on the proposed project pursuant to AB 52. The San Manuel Band of Mission Indians responded in a letter dated July 14, 2017 requesting consultation. PWD

conducted consultation with the San Manuel Band of Mission Indians pursuant to AB 52. No tribal cultural resources were identified within the project area as a result of consultation. No other tribes responded to PWD's request for consultation.

Impacts Discussion

Impact 3.13-1: The Project could result in a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074.

Storage Tanks (Near-Term)

No tribal cultural resources were identified in the three near-term storage tank locations. Construction of the storage tanks would not impact tribal cultural resources.

Storage Tanks (Long-Term)

A total of 16 storage tanks could be constructed over the program's long-term planning period. The location of the proposed long-term storage tanks can be seen on Figure 2-2; however, these locations are subject to change in the future. It is possible that the construction of the storage tanks could impact tribal cultural resources. Implementation of **Mitigation Measure TCR-1** would ensure that Native American consultation occurs to satisfy the requirements of AB 52 for implementation of future project components. With implementation of this mitigation measure, the impact would be reduced to a less than significant level.

Pumps (Near-Term)

All three proposed near-term pumps would be implemented within existing pump stations that are developed. No tribal cultural resources were identified in the near-term pump station locations. Construction of the near-term pumps would not impact tribal cultural resources.

Pumps (Long-Term)

The proposed project includes four new pumps at five existing pump stations, as well as six new pump stations within the project area. Locations are preliminary in nature and it is possible that the construction of the pump stations could impact tribal cultural resources. Implementation of Mitigation Measure TCR-1 would ensure that Native American consultation occurs to satisfy the requirements of AB 52 for implementation of future project components. With implementation of this mitigation measure, the impact would be reduced to a less than significant level.

Pipelines (Near-Term)

The majority of the proposed near-term pipelines are sited within or adjacent to existing roads, and no tribal cultural resources were identified in the near-term pipeline locations. Construction of the near-term pipelines would not impact tribal cultural resources.

Pipelines (Long-Term)

Construction of long-term pipelines have the potential to impact archaeological resources. Any impacts to archaeological resources would be considered significant without mitigation. Implementation of Mitigation Measure TCR-1 would ensure that Native American consultation

occurs to satisfy the requirements of AB 52 for implementation of future project components. With implementation of this mitigation measure, the impact would be reduced to a less than significant level.

Wells (Long-Term)

The proposed wells would be located in the northern and eastern portion of the PWD service area, in an undeveloped area just east of developed land containing a high school and residential land uses (Figure 2-2). Construction of the wells could impact tribal cultural resources. Implementation of Mitigation Measure TCR-1 would ensure that Native American consultation occurs to satisfy the requirements of AB 52 for implementation of future project components. With implementation of this mitigation measure, the impact would be reduced to a less than significant level.

Headquarters Expansion (Long-Term)

The headquarters expansion would occur on developed land on the existing PWD headquarters parcel. Construction of the headquarters expansion could impact tribal cultural resources. Implementation of Mitigation Measure TCR-1 would ensure that Native American consultation occurs to satisfy the requirements of AB 52 for implementation of future project components. With implementation of this mitigation measure, the impact would be reduced to a less than significant level.

Mitigation Measures

TCR-1: **Future AB 52 Consultation:** Prior to development of all long-term WSMP components, PWD shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice. Formal notification shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the PWD contact information, and a notification that the California Native American tribe has 30 days from receipt of the letter to request consultation. PWD shall begin the consultation process within 30 days of receiving a California Native American tribe's request for consultation. The purpose of the consultation shall be to identify sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that meet the definition of tribal cultural resources provided in CEQA Sections 21074(a)(1) or 21074(a)(2) that could be affected by subsequent phases of the project. In addition, the California Native American tribe may request consultation regarding the type of environmental review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and, if necessary, project alternatives or the appropriate measures for preservation or mitigation.

In the event that tribal cultural resources are identified, PWD shall develop mitigation measures, including, but not limited to, those recommended in Section 21084.3, capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource, in consultation with the California Native

American tribe. Consultation shall be considered complete when the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource, or when a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

Significance Determination: Less than Significant with Mitigation.

3.13.4 References

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3.14 Utilities, Service Systems and Energy

This section addresses the utilities, service systems, and energy impacts associated with implementation of the proposed 2016 Water System Master Plan (WSMP or proposed project), which would include the construction and operation of new facilities and upgrades to existing facilities throughout the Palmdale Water District (PWD) service area and vicinity. These facilities include pipelines, storage tanks, pump stations and groundwater wells to be constructed in the near-term (before 2020) and long-term (after 2020). Additionally, PWD is proposing to construct a headquarters expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020). This section provides an overview of existing utilities and service systems within the project area, regulatory framework applicable to utilities and energy, and an analysis of potential utilities, service systems and energy impacts that would result from implementation of the proposed project.

3.14.1 Environmental Setting

Water Supply

PWD is the water retailer serving the southeastern portion of the City of Palmdale and areas of unincorporated Los Angeles County. PWD currently receives water from three sources: groundwater, surface water from Littlerock Dam Reservoir, and imported water from the State Water Project (SWP). Groundwater is extracted from the Antelope Valley Groundwater Basin (AVGB), treated with chlorine disinfection, and pumped directly into PWD's potable distribution system. PWD's imported water is provided by the SWP and is conveyed through the East Branch of the California Aqueduct to Lake Palmdale. Lake Palmdale can store approximately 4,129 acre-feet (AF) of SWP and Littlerock Dam Reservoir water (PWD 2016). **Table 3.14-1** presents a summary of PWD's current and projected water supply and demand.

TABLE 3.14-1
PWD CURRENT AND PROJECTED WATER SUPPLY AND DEMAND

Source	Detail	2015	2020	2025	2030	2035	2040
Groundwater	AVGB	11,200	6,280	4,140	2,770	2,770	2,770
Groundwater	Return Flow Credit	0	5,000	5,000	5,000	5,000	5,000
Surface Water	Littlerock Reservoir	500	4,000	4,000	4,000	4,000	4,000
Imported Water	State Water Project	5,800	13,200	13,000	13,000	13,000	13,000
Imported Water	Transfer Agreement	0	6,200	6,100	6,100	6,100	6,100
Recycled Water*	PRWA/LACSD	100	2,500	5,000	5,500	6,00	6,000
	Total Supply	**17,600**	**37,180**	**37,240**	**36,370**	**36,870**	**36,870**
	Total Demand	**-**	**23,300**	**26,900**	**28,400**	**29,900**	**31,000**

All values are in unit AF.

SOURCE: 2015 Urban Water Management Plan for PWD, Final 2016: Table 4-2; Table 6-1.

Local Surface Water

Local surface water production accounts for approximately one to 10 percent of PWD's water supplies. Littlerock Dam Reservoir serves as the PWD's primary local surface water supply source and is located in the hills southwest of the PWD service area. Littlerock Dam Reservoir has a storage capacity of 4,000 AF or 1.1 billion gallons of water. Littlerock Dam reservoir is fed by natural runoff from snow pack in the local San Gabriel Mountains and from rainfall. The principal tributary streams supply water to the PWD service area are Littlerock and Big Rock Creeks, which flow north from the San Gabriel Mountains along the PWD's southern boundary. Runoff from the 65 square mile watershed in the Angeles National Forest to the reservoir is seasonal and varies widely from year to year. The water is transferred from Littlerock Dam Reservoir through an eight and a half mile long open ditch to Lake Palmdale. PWD has produced an average of 1,100 AF per year (AFY) from Littlerock Reservoir (PWD 2015).

Imported Water

The PWD is one of 29 water agencies that have an SWP Water Supply Contract with the California Department of Water Resources (DWR). SWP supplies originate in northern California, primarily from the Feather River watershed. The availability of these supplies is dependent on the amount of precipitation in the watershed, the amount of that precipitation that runs off into the watershed, water use by others in the watershed and the amount of water in storage in the SWP's Lake Oroville at the beginning of the year. Variability in the location, timing, amount and form (rain or snow) of precipitation, as well as how wet or dry the previous year was, produces variability from year to year in the amount of water that is available for the SWP. Since 2011, imported water has accounted for approximately 26 to 66 percent of the PWD's water supply. PWD imported approximately 5,800 AF in 2015 and has imported an average of 10,033 AFY from the SWP from 2011 to 2015 (PWD 2016).

The PWD currently has a lease agreement with Butte County for up to 10,000 AFY of their SWP amount through 2019 and has 5-year renewal options through 2035, at which time the agreement will be renegotiated. PWD assumes this supply will continue throughout the WSMP implementation period to 2040 (PWD 2016). Supplies from this agreement are accounted for in PWD's projected supplies and an average of 6,100 AFY are anticipated to be available in future years, as shown in Table 3.14-1.

Groundwater

PWD is an entity involved in the adjudication of groundwater rights for the AVGB that began in 2004. The 2015 stipulated judgement resulted in PWD receiving a groundwater production right of 2,770 AFY, which is reflected in Table 3.14-1. Historically, groundwater pumping has accounted for approximately 50 percent of the PWD's water supply portfolio over the last five years. The AVGB contains 22 active wells currently drawing from the aquifer. PWD has produced on average 9,759 AF of groundwater per year. In 2015, PWD pumped approximately 11,200 AF of groundwater from the AVGB. That number will remain at 2,770 AFY in the future due to the stipulated judgement for adjudication. PWD is also entitled to a pumping allocation for return flow credit of imported water used. The return flow credit is equal to 39 percent of all of the SWP water utilized by the PWD either for direct use via the Palmdale Water Reclamation

Plant (WRP) or for groundwater recharge. Return flow credits are projected to be an average of 5,000 through 2040, as shown in Table 3.14-1 (PWD 2016).

Wastewater Treatment

Wastewater collection and treatment for the PWD service area are provided by Sanitation Districts of Los Angeles County (LACSD), which provides service to the Antelope Valley through its Districts No. 14 and 20. The two districts serve a combined wastewater service area of approximately 76 square miles and approximately 310,000 people. Collection is provided through a network of 104 miles of trunk sewers, which are all designed to provide wastewater conveyance through gravity flow.

LACSD No. 14 includes portions of the cities of Lancaster and Palmdale and adjacent unincorporated Los Angeles County areas. LACSD No. 14 owns and operates the Lancaster Water Reclamation Plant (WRP) and the adjoining network of trunk sewers. LACSD No. 20 serves an area that includes the majority of the City of Palmdale and portions of unincorporated County areas. LACSD No. 20 owns and operates the Palmdale WRP and a network of approximately 40 miles of trunk sewers.

The Palmdale WRP is located in the City of Palmdale and currently provides tertiary treatment for approximately 12,000 AFY of wastewater generated in and around the City of Palmdale. In 2012, the Palmdale WRP was expanded to reach its current treatment capacity of 12 million gallons per day (MGD). The WRP currently produces an effluent of about 10,700 AFY of recycled water on average, as shown in **Table 3.14-2**. The Palmdale WRP processes all wastewater solids generated within its service area, and these solids are anaerobically digested, stored, and then dewatered into biosolids. All wastewater treated at the Palmdale WRP is treated to tertiary level and is used, discharged or stored within the PWD service boundaries. Currently, the tertiary-treated effluent is discharged as agricultural irrigation for land crops, evaporates, is reused, or infiltrates into the Antelope Valley Groundwater Basin (LACSD 2017a).

TABLE 3.14-2
PWD CURRENT AND PROJECTED ANNUAL EFFLUENT FLOWS

Source	2015	2020	2025	2030	2035	2040
Palmdale WRP	10,770	11,300	11,800	12,300	12,900	13,500

All values are in unit AF.

SOURCE: PWD 2016.

Storm Water

The City of Palmdale maintains storm water drainage infrastructure within its city limits. The Los Angeles County Flood Control District manages the storm drain system in the unincorporated areas of the Antelope Valley. In the City of Palmdale, drainage flows north into the City of Lancaster along Littlerock Creek and Amargosa Creek. These creeks receive stormwater flows in the winter months and are typically dry during the summer months, and both creeks ultimately discharge to the Rosamond Dry Lake bed. The City's storm drainage system consists of numerous localized drainage systems located around developments; these local drainage systems connect to either earthen channels or drain to local retention basins. There are no major water bodies within the City that accept storm drainage (City of Palmdale 2014).

Solid Waste Management

Currently, Waste Management of Antelope Valley is the local division of Waste Management, Inc. that provides collection, disposal, recycling, and environmental services to the Antelope Valley. It operates two landfills: the Antelope Valley Recycling and Disposal Facility located at 1200 West City Ranch Road in Palmdale and the Lancaster Landfill and Recycling Center located at 600 East Avenue F in Lancaster. Materials accepted by both landfills include municipal solid wastes, industrial waste, construction and demolition material, contaminated soils, and waste tires.

The Palmdale Facility is a Class III landfill. It collects an average of 1,600 tons of waste per day and can accept a maximum of 3,500 tons per day. The facility has a remaining capacity of 18.3 million cubic yards and is estimated to remain open until January 2042 (CalRecycle 2017a). The Lancaster landfill is also a Class III landfill. The facility collects an average of approximately 1,500 tons of waste per day and can accept a maximum of 5,100 tons per day. The facility has a remaining capacity of 14.5 million cubic yards and is estimated to remain open until March 2044 (CalRecycle 2017b).

Electricity and Natural Gas

Electricity is provided to the Antelope Valley by Southern California Edison (SCE) and natural gas services are provided by the Southern California Gas Company (SCGC). SCE provides electricity to approximately 15 million people, 180 incorporated cities, 15 counties, 5,000 large businesses, and 280,000 small businesses throughout its 50,000-square-mile service area, (SCE, 2017). SCE produces and purchases its energy from a mix of conventional and renewable generating sources. **Table 3.14-3** shows the electric power mix that was delivered to SCE's retail customers in 2014 compared to the statewide power mix.

TABLE 3.14-3
ELECTRIC POWER MIX DELIVERED TO SCE RETAIL CUSTOMERS IN 2014

Energy Resources	2015 SCE Power Mix (Actual) [a]	2015 CA Power Mix [a]
Eligible Renewable	25%	22%
• Biomass & waste	1%	3%
• Geothermal	9%	4%
• Small hydroelectric	0%	1%
• Solar	7%	6%
• Wind	8%	8%
Coal	0%	6%
Large Hydroelectric	2%	5%
Natural Gas	26%	44%
Nuclear	6%	9%
Other	0%	0%
Unspecified sources of power[b]	41%	14%
TOTAL	**100%**	**100%**

[a] Percentages are estimated annually by the California Energy Commission based on the electricity sold to California consumers during the previous year.
[b] "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.

SOURCE: CEC 2016

3.14.2 Regulatory Framework

Federal

Resource Conservation and Recovery Act: The Resource Conservation and Recovery Act (RCRA) (40 CFR, Part 258 Subtitle D) established minimum location standards for siting municipal solid waste landfills. In addition, because California laws and regulations governing the approval of solid waste landfills meet the requirements of Subtitle D, the U.S. Environmental Protection Agency (USEPA) has delegated the enforcement responsibility to the State of California.

State

California Integrated Waste Management Act of 1989: The California Integrated Waste Management Act of 1989 (Public Resources Code [PRC] Division 30) enacted through AB 939 emphasized conservation of natural resources through reduction, recycling, and reuse of solid waste. AB 939 requires that all cities and counties divert 25 percent of solid waste streams from landfills by 1995 and 50 percent by 2000. In accordance with AB 939, each local agency must submit an annual report to the California Integrated Waste Management Board summarizing its progress in diverting solid waste disposal.

Protection of Underground Infrastructure: The California Government Code Section 4216-4216.9 "Protection of Underground Infrastructure" requires an excavator to contact a regional notification center (e.g., Underground Services Alert or Dig Alert) at least two days prior to excavation of any subsurface installations. Any utility provider seeking to begin a project that could damage underground infrastructure can call Underground Service Alert, the regional notification center for southern California.

Underground Service Alert will notify the utilities that may have buried lines within 1,000 feet of the project. Representatives of the utilities are then notified and are required to mark the specific location of their facilities within the work area prior to the start of project activities in the area.

Assembly Bill 341: Since the passage of AB 939 in 1989, State diversion rates are now equivalent to 65 percent, the statewide recycling rate is 50 percent, and the beverage container recycling rate is 80 percent. With the passage of AB 341 (Chesbro, Chapter 476, Statutes of 2011), the Governor and the Legislature established a policy goal for the State that a minimum of 75 percent of solid waste must be reduced, recycled, or composted by the year 2020. The State provided strategies to achieve that 75 percent goal:

1. Moving organics out of the landfill
2. Expanding the recycling/manufacturing infrastructure
3. Exploring new approaches for state and local funding of sustainable waste management programs
4. Promoting state procurement of post-consumer recycled content products
5. Promoting extended producer responsibility

To achieve these strategies, the State recommended legislative and regulatory changes including mandatory organics recycling, solid waste facility inspections, and revising packaging. With regard to construction and demolition, the State recommended an expansion of California Green Building Code standards that incentivize green building practices and increase diversion of recoverable construction and demolition materials. Current standards require 50 percent waste diversion on construction and some renovation projects, although this may be raised to 65 percent for nonresidential construction in upcoming changes to the standards. The State also recommends promotion of the recovery of construction and demolition materials suitable for reuse, compost or anaerobic digestion before residual wastes are considered for energy recovery (CalRecycle 2017c).

California Air Resources Board On-Road and Off-Road Vehicle Rules: In 2004, the California Air Resources Board (CARB) adopted an Airborne Toxic Control Measure (ATCM) to limit heavy-duty diesel motor vehicle idling. The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given location. CARB also promulgated emission standards for off-road diesel construction equipment of greater than 25 horsepower (hp) such as bulldozers, loaders, backhoes and forklifts, as well as many other self-

propelled off-road diesel vehicles. The regulation adopted by CARB on July 26, 2007 aims to reduce emissions by installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission controlled models. Compliance with this regulation is phased-in with full compliance for large and medium construction fleet operators by 2023 and small fleet operators by 2028. Refer to Section 3.2, Air Quality, for additional details regarding these regulations. While intended to reduce construction criteria pollutant emissions, compliance with these regulations would also affect construction-related energy demand.

2008 California Energy Action Plan II: The California Energy Commission (CEC) prepared the California Energy Action Plan Update in February 2008 and it serves as the state's principal energy planning and policy document (CEC 2008). The plan identifies state-wide energy goals, describes a coordinated implementation plan for state energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. In accordance with this plan, the first priority actions to address California's increasing energy demands are energy efficiency and demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable sources of power and distributed generation (i.e., the use of relatively small power plants near or at centers of high demand). To the extent that these actions are unable to satisfy the increasing energy and capacity needs, clean and efficient fossil-fired generation is supported.

Renewables Portfolio Standard: The California Renewables Portfolio Standard (RPS) was established in 2002 and required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2013. California Senate Bill 350 (Chapter 547, Statues of 2015) is the most recent update to the state's RPS requirements. The RPS requires publicly owned utilities and retail sellers of electricity in California to procure 33 percent of their electricity sales from eligible renewable sources by 2020 and 50 percent by the end of 2030.

Local

Los Angeles County Integrated Waste Management Plan: The Integrated Waste Management Plan, approved by CalRecycle on June 24, 1998, identified how, for a 15-year planning period, the County and the cities within would meet their long term disposal capacity needs to safely handle solid waste generated in the county that cannot be reduced, recycled, or composted. Annual reports prepared by the County provide an annual update to the Los Angeles County Countywide Integrated Waste Management Plan. Public Works prepares the Annual Report to summarize the changes that have taken place since its approval. The most recent annual report was released in December 2015, and describes a breakdown of the solid waste generated in the County, including its generation by city, its disposal by landfill, and how much of it was recycled onsite and landfills. The annual report also lists strategies for maintaining adequate disposal capacities, which involves projections of waste generation and disposal demand (County of Los Angeles 2016).

Los Angeles County California Green Building Code Integration: Los Angeles County adopted the State of California Green Building Code Requirements (known as "CalGreen") that took effect January 1, 2011, which sets forth recycling requirements for construction and demolition projects in the unincorporated areas of Los Angeles County. The provisions of the Code apply to any project that requires a construction permit, demolition permit, and/or grading permit. According to the Code, non-residential construction projects consisting of commercial, industrial, or retail structures, irrespective of the square footage, must recycle a minimum of 65 percent of the debris generated by weight (Los Angeles Department of Public Works 2016), which would apply to the proposed project. The County requires the completion of a Construction and Demolition Debris Recycling and Reuse Plan, which requires a project description and completion of appropriate attachments depending on the type of project.

Los Angeles County Liquid Waste Disposal: The County Sanitation Districts accept septic tank, cesspool, trailer holding tank wastes, and portable toilet wastes at four liquid waste disposal stations located in Carson, Pomona, Santa Clarita and Lancaster. In order to utilize the disposal stations for septage and portable toilet wastes disposal, liquid waste haulers must first obtain a permit for each hauling vehicle from the Sanitation Districts titled "Permit for Wastewater Transport Truck to Discharge to the Sewerage System." The nearest liquid waste disposal station to the project site is located at 1865 West Avenue D in Lancaster (LACSD 2017b).

City of Palmdale Construction Waste Management Plan: The City of Palmdale requires the applicant of a construction project to complete a Construction Waste Management Plan (CWMP), as compliant with Section 4.408.2 & 5.408.1.1of the 2016 CalGreen Code. Each applicant shall complete and submit to the Building and Safety Division a CWMP on a City-approved form. The CWMP shall indicate:

- The estimated weight of project construction waste materials to be generated;
- The maximum weight of construction waste materials that it is feasible to divert, considering cost, energy consumption and delays, via reuse or recycling;
- The facility that the applicant proposes to use to collect, divert, market, reuse or receive the construction waste materials;

PWD Strategic Plan: The PWD approved a Strategic Plan in September 2006 that includes strategic goals for the future management planning of various strategic elements, including natural resources, infrastructure, personnel, regulatory compliance, and finances. These strategic elements represent vital areas of PWD's operations and management that will be specifically addressed over the proceeding five years. The Strategic Plan includes goals to provide sustainable, high quality water to its customers, improve reliability of groundwater through local storage projects, and use renewable energy sources for all new facilities as appropriate (PWD 2006).

3.14.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to aesthetics are based on Appendix G of the *CEQA Guidelines*. The proposed project would result in a significant impact to utilities, service systems, and energy if it would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require new or expanded water supply resources or entitlements;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the projects projected demand in addition to the provider's existing commitments;
- Be served by a landfill with insufficient permitted capacity to accommodate the project solid waste disposal needs;
- Not comply with federal, state, and local statutes and regulations related to solid waste; or
- Cause a substantial increase in overall energy consumption or cause wasteful or unnecessary consumption of energy.
- Require construction of new sources of energy supplies or additional energy infrastructure capacity, the construction of which could cause significant environmental effects.
- Conflict with applicable energy efficiency policies or standards.

Methodology

The WSMP would develop PWD's potable water system over the next 25 years in order meet the water quantity, water quality, system pressure, and reliability requirements of customers. Implementation of actions under this Plan would require the construction of various aboveground facilities and support infrastructure including storage tanks, pump stations, pipelines and wells. Additionally, PWD is proposing a headquarters building expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to be constructed as part of the long-term facilities. Projects to be implemented by 2020 are considered near-term project components and are analyzed at site-specific level. Projects addressed after 2020 are considered long-term projects. Preliminary locations for the long-term facilities have been established (see Figure 2-2), although locations are subject to change based on the need of facilities in the future. As such, these long-term facilities are therefore evaluated generally and broadly.

Impacts Discussion

Wastewater Treatment Requirements

Impact 3.14-1: The proposed project could exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

All Facilities (Near-Term and Long-Term)

During construction of all of the proposed near-term and long-term facilities, a minimal amount of wastewater would be generated by construction workers and collected by portable toilet facilities. All waste generated in portable toilets would be collected by a County-permitted portable toilet waste hauler and appropriately disposed of at one of the County identified liquid waste disposal stations. These waste disposal stations have been appropriately permitted by the Regional Water Quality Control Board (RWQCB). During operation of the majority of project components, the proposed facilities would store, distribute or extract potable water within the PWD service area and would not require any full time resident employees or water for operation. The PWD headquarters expansion would tie into existing permitted connections at the PWD headquarters site and is not expected to result in a substantial increase in employees that would augment baseline wastewater generation. As a result, operation would not generate a substantial increase in wastewater and would not exceed wastewater treatment requirements. Impacts related to the exceedance of wastewater treatment requirements would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Water or Wastewater Treatment Facilities

Impact 3.14-2: The proposed project would not require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

All Facilities (Near-Term and Long-Term)

Implementation of the majority of near-term and long-term components of the proposed project would result in construction and operation of potable water facilities, such as underground pipelines, storage tanks, pump stations, and extraction wells, as described in Chapter 2. These facilities do not involve construction of new water or wastewater treatment facilities or the expansion of existing facilities. The PWD headquarters expansion would tie into existing permitted connections at the PWD headquarters site and is not expected to result in a substantial increase in employees that would increase the baseline water or wastewater generation. Therefore, the proposed project would not require the expansion or construction of new water or wastewater treatment facilities, and no impact would occur.

Mitigation Measures

None required.

Significance Determination: No Impact

Stormwater Drainage Facilities

Impact 3.14-3: The proposed project could require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

All Facilities (Near-Term and Long-Term)

Stormwater drainage facilities are not included as part of the WSMP. The construction of the aboveground components, like storage tanks, pump stations, well houses, and the PWD headquarters building expansion may require onsite drainage features; however, these are built into the project design and included as part of the project. There would be no substantial increase in runoff from project sites that would lead to a requirement for expanding offsite storm water drainage facilities. Additionally, all facilities would be required to comply with construction best management practices (BMPs) within Mitigation Measure HYD-1, which would include erosion and sediment control. During operation, the proposed facilities would not include any component that would generate excessive runoff. Therefore, impacts to stormwater drainage facilities would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Water Supplies

Impact 3.14-4: The proposed project could require new or expanded water supply resources or entitlements.

All Facilities (Near-Term and Long-Term)

Construction of the proposed near-term and long-term facilities would require minimal water for dust control and concrete washout activities. Water demand during construction would not require new or expanded water supply resources.

Operation of the majority of the WSMP facilities would store, distribute and extract potable water to various end users within the PWD service area. The WSMP facilities would provide the infrastructure necessary to meet the projected growth and water demand of the PWD service area. The PWD headquarters expansion would tie into existing permitted connections at the PWD headquarters site and is not expected to result in a substantial increase in employees that would

generate additional demand for water onsite for bathrooms or kitchens. As such, there would be no need for expanded water supply entitlements. As shown in Table 3.14-1, projected water supplies from existing resources and entitlements are expected to exceed demand through the year 2040 within the PWD service area. No additional water supply resources or entitlements are required for implementation of the WSMP. Impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Wastewater Treatment Capacity

Impact 3.14-5: The proposed project could result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the projects projected demand in addition to the provider's existing commitments.

All Facilities (Near-Term and Long-Term)

Implementation of all near-term and long-term components of the proposed project would result in construction and operation of potable water facilities, such as underground pipelines, storage tanks, pump stations, and extraction wells. The majority of the WSMP facilities would not store, convey, or produce wastewater or recycled water and would therefore not generate any wastewater or recycled water. The PWD headquarters expansion would tie into existing connections at the PWD headquarters site and would not result in a substantial increase in employees to support the WSMP. As a result, operation of the proposed expansion would not generate additional wastewater above the baseline condition that would require an increase in wastewater treatment capacity. Therefore, the proposed project would not result in a determination by LACSD, as one of the providers of wastewater treatment and recycled water within the project area, that it has inadequate wastewater treatment capacity to serve the proposed project; impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Landfill Capacity

Impact 3.14-6: The proposed project would not be served by a landfill with insufficient permitted capacity to accommodate the project solid waste disposal needs.

All Facilities (Near-Term and Long-Term)

The construction of all project components would generate solid waste, including residual construction packaging materials and excavated soils. Based on remaining capacities, it is expected that Antelope Valley Landfill and Lancaster Landfill would both have sufficient

capacity to receive solid waste generated during construction of the proposed project in the near-term and long-term phases. The WSMP long-term facilities would be built though 2040 and the local landfills have capacity to receive solid waste through 2042. Excavated soils would be stockpiled and reused onsite to the extent feasible in accordance with Mitigation Measure GEO-3. Operation of the proposed facilities would involve the storage, distribution and extraction of potable water, and thus would not generate solid waste during operation. Therefore, there would be no impact to landfill capacity.

Mitigation Measures

None required.

Significance Determination: No Impact

Compliance with Solid Waste Regulations and Statutes

Impact 3.14-7: The proposed project would comply with federal, state, and local statutes and regulations related to solid waste.

All Facilities (Near-Term and Long-Term)

The proposed project facilities would comply with the Chapter 20.87 of LA County Code requiring recycling of at least 65 percent of the waste generated during construction and with Section 4.408.2 & 5.408.1.1of the 2016 CalGreen Code, which requires preparation of a Construction Waste Management Plan that would disclose how much waste would be deterred from the waste stream and submittal to the City Building and Safety Division. The proposed project facilities would not generate solid waste during operation. Therefore, the proposed project would comply with all applicable solid waste regulations, and impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Energy

Impact 3.14-8: The proposed project could require additional energy use that could result in wasteful consumption or affect local and regional energy supplies.

All Facilities (Near-Term and Long-Term)

Construction

Construction of the near-term and long-term project components would require the temporary use of construction equipment. The majority of construction equipment would likely be diesel-fueled; however, smaller equipment, such as welders and pumps may be electric-, gasoline-, or natural

gas-fueled and tower cranes would likely be electric. However, this assessment assumes all equipment would be diesel-fueled to represent the most conservative scenario for maximum potential energy use during construction. Based on the number and type of construction equipment that would be used during the near-term project construction phase, heavy-duty construction equipment would use approximately 39,431 total gallons of diesel fuel and an annual average of 13,144 gallons of diesel fuel per year during the three-year construction duration of the near-term project components.[1] Based on this annual diesel fuel usage, it is estimated that construction equipment would use up to 302,306 total gallons of diesel fuel over the 23-year construction period of the long-term project components (see Appendix AQ for energy calculations).

The number of construction workers that would be required would vary based on the phase of construction and activity taking place. The transportation fuel required by construction workers to travel to and from the project sites would depend on the total number of worker trips estimated for the duration of construction activity. According to the EMFAC2014 model, passenger vehicles operating in the state of California would have an average fuel economy of approximately 23.7 miles per gallon averaged over the 2017 through 2020 construction timeframe.[2] Based on engineering estimates provided in the California Emissions Estimator Model (CalEEMod) used for the air quality and greenhouse gas emissions assessment, construction workers would travel approximately 14.7 miles per trip. Assuming construction worker automobiles have an average fuel economy consistent with the EMFAC2014 model and given the total vehicle miles traveled for construction workers, based on engineering estimates provided in CalEEMod, workers would travel a total of approximately 91,772 miles and would use approximately 3,873 total gallons of fuel (primarily gasoline) for construction worker trips during construction of the near-term project components. On an annual average basis, construction workers would use approximately 1,291 gallons of gasoline fuel per year. Based on this annual gasoline fuel usage, it is estimated that construction workers would use approximately 29,691 total gallons of gasoline fuel over the 23-year construction period of the long-term project components (see Appendix AQ for energy calculations). Furthermore, the project would seek to hire construction workers from the local workforce, which would minimize commuting distances and overall vehicle miles traveled based on the conservative assumptions presented above. Hiring from the local workforce would reduce fuel consumption and reduce the wasteful, inefficient, and unnecessary consumption of energy.

In 2014, California consumed a total of 343.568 million barrels (equivalent to 14.4 billion gallons) of gasoline for transportation. For diesel, California consumed a total of 79.756 million barrels of diesel for transportation (equivalent to 3.3 billion gallons) (U.S. Energy Information Administration 2015).

[1] Fuel consumption is estimated based on fuel consumption factors in the OFFROAD2011 emissions model and the equipment horsepower and load factor ratings in CalEEMod.

[2] Mobile source emissions are estimated based on CARB's updated version of the on-road vehicle emissions factor (EMFAC) model. The most recent version is EMFAC2014, which represents CARB's current understanding of motor vehicle travel activities and their associated emission levels.

Based on the conservatively estimated fuel usage amounts presented above, construction of the project would use approximately 1,291 gallons of gasoline and 13,144 gallons of diesel on an annual average basis during the potential 23-year construction timeframe (depending on which long-term projects are implemented in which years), assuming worker automobiles are primarily gasoline fueled and heavy-duty construction equipment and trucks are primarily diesel-fueled. To put these numbers into perspective, the estimated annual average construction fuel usage would represent a very small fraction of the State's annual fuel usage (about 0.000009 percent of the Statewide annual gasoline consumption and 0.0004 percent of the Statewide annual diesel consumption). A comparison of the proposed project's estimated fuel usage and the state's annual fuel usage is provided in **Table 3.14-4** below.

TABLE 3.14-4
ESTIMATED PROJECT CONSTRUCTION FUEL USAGE

Source	Gallons of Diesel Fuel per Year	Gallons of Gasoline Fuel per Year
Project Construction Duration: 23 Years		
Proposed Project	13,144	1,291
State of California (Transportation Sector)	3,300,000,000	14,400,000,000
Percent of State (Transportation Sector)	0.0004%	0.000009%

SOURCE: ESA 2017

Based on the above, construction of the near-term and long-term project components would have minimal demand for gasoline and diesel resources relative to the State's annual fuel usage. There would be adequate capacity for the State's gasoline and diesel fuel resources to serve the proposed project. As such, construction of the proposed project would not affect local and regional energy supplies. In addition, the future long-term projects may be required to meet even more stringent emissions and fuel economy standards. Therefore, the temporary construction energy impacts of the near-term and long-term project components would be less than significant.

Operation

Pump station facilities would be powered by electricity served by SCE as the local energy provider. Implementation of the proposed project would involve the installation and operation of three pumps with horsepowers (hp) of 350 hp, 25 hp, and 75 hp. Based on a pump power conversion factor of 1 hp/0.75 kW, the near-term pumps would require 338 kW of total power for operation. Over the long-term phase, seven new pumps would be installed at five existing pump stations and six new pump stations would be constructed. The pump efficiencies and horsepower of future long-term pumps are not known at this time. However, based on the provided pump capacities and total dynamic head of all future long-term pumps, it can be estimated as a worst-case scenario that the long-term pumps would consume approximately 1,369 kW of total power, if the proposed pumps operated at maximum horsepower with a 0.6 pump efficiency (see Appendix AQ for energy calculations).

Most groundwater wells are powered by electric motors, but other energy types could include natural gas, propane, gasoline, or diesel fuel. Implementation of the proposed project during the long-term phase would involve the installation and operation of five production wells. Given the head and capacities of each well, operation of the five wells would require approximately 407 kW of total power for operation (see Appendix AQ for energy calculations).

According to a report by the National Ground Water Association (NGWA), water production wells require approximately 3,450 kWh of energy per million gallons (MG) to deliver and treat extracted groundwater. The annual national energy consumption to supply groundwater for public supply purposes is 19,770,225,000 kWh (NGWA 2017). Operation of the storage tanks and pipelines would require minimal electricity to function since the energy needed to transmit and store water would be primarily supplied to the pump stations and groundwater wells to which the pipelines and tanks are connected.

PWD's electricity usage for groundwater wells and pump stations was 10,773,830 kilowatt hours (kWh) in 2017. The proposed project's pumps, groundwater wells, and other facilities that consume electricity, such as the expanded headquarters building, would use between 853,000 to 1,615,000 kWh annually to operate the project, which would represent approximately 1/10 of the current usage for similar facilities. PWD would continue to work closely with electricity and natural gas providers to ensure consumption is not wasteful and can be handled by the electricity grid.

SCE supplies electricity to its customers through extensive transmission and distribution networks. Its transmission facilities, which include sub-transmission facilities and are located primarily in California but also in Nevada and Arizona, deliver power from generating sources to the distribution network. In 2016, SCE provided a net physical electrical capacity of 6,323.4 MW to its customers (SCE 2016). Implementation of the proposed project may slightly increase PWD's electricity purchases; however, it is not anticipated that additional power generation facilities would be required to serve the proposed facilities, or that the demand would exceed the electrical capacity of SCE. As stated above, PWD would continue to work closely with electricity and natural gas providers to ensure consumption is not wasteful and can be handled by the electricity grid. In addition, PWD uses its own energy plan for off-peak pumping through site operation and a supervisory control and data acquisition (SCADA) system. Therefore, operation of the proposed near-term and long-term facilities would result in less than significant impacts to regional energy supplies and energy consumption.

Mitigation Measures

None required.

Significance Determination: Less than Significant

Compliance with Energy Efficiency Standards

Impact 3.14-9: The proposed project could conflict with applicable energy efficiency policies or standards.

All Facilities (Near-Term and Long-Term)

Construction

The proposed project would utilize construction contractors who demonstrate compliance with applicable state regulations governing the accelerated retrofitting, repowering, or replacement of heavy duty diesel on- and off-road equipment. As discussed in Section 3.3, Air Quality and Greenhouse Gas Emissions, CARB adopted an ATCM to limit heavy-duty diesel motor vehicle idling. This measure prohibits diesel-fueled commercial vehicles greater than 10,000 pounds from idling for more than five minutes at any given time. According to the CARB staff report that was prepared at the time the anti-idling ATCM was proposed for adoption in late 2004/early 2005, the regulation was estimated to reduce non-essential idling and associated emissions of diesel particulate matter and NO_X emissions by 64 and 78 percent respectively in analysis year 2009 (CARB 2004). These reductions in emissions are directly attributable to overall reduced idling times and reduced idling fuel combustion as a result of compliance with the regulation. With respect to the In-Use Off-Road Diesel-Fueled Fleets regulation, a field testing program by an engine manufacturer that included a wide range of equipment types has shown that an off-road engine meeting the Tier 4 off-road emissions standards results in up to 10 percent lower fuel consumption than an equivalent Tier 3 off-road engine based on the overall results of the program (Cummins 2014). Another manufacturer has shown an 18 percent increase in fuel efficiency with a Tier 4 lift truck (i.e., forklift) as compared to the previous generation (MCF 2015). Compliance with these regulations would reduce the inefficient, wasteful, and unnecessary consumption of construction equipment energy demand. Construction of the proposed project would not conflict with applicable energy efficiency policies or standards.

Operation

Management strategies would be implemented to lessen the impact on local power supply providers while also supporting policies of the California Energy Action Plan II to reduce the State's overall energy users. Specifically, the California Energy Action Plan II includes the Energy Efficiency Key Action #14, which aims to "identify opportunities and support programs to reduce electricity demand related to the water supply system during peak hours and opportunities to reduce the energy needed to operate water conveyance and treatment systems" (CEC 2008). The proposed project would be consistent with Key Action #14 as the project would include energy efficient equipment such as system pumps and lighting to minimize energy impacts. Proposed facilities would also be scheduled to operate as much as possible during off-peak energy demand periods in accordance with PWD's energy plan for off-peak pumping which involves use of a SCADA system. Additionally, PWD has developed alternatives for providing electrical generation using wind, hydraulic, natural gas and sun resources, which could be used to promote energy efficiency throughout PWD's operations. These energy efficiency measures would reduce the overall energy requirements associated with all facilities included in the proposed project. Operation of the proposed project would not conflict with applicable energy efficiency policies or standards.

Mitigation Measures

None required.

Significance Determination: Less than Significant

3.14.4 References

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CHAPTER 4
Cumulative Impacts

4.1 Introduction

CEQA requires that an environmental impact report (EIR) assess the cumulative impacts of a project with respect to past, current, and probable future projects within the region. *CEQA Guidelines* (Section 15355) define cumulative effects as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The cumulative impact from several projects is the change in environment which results from the incremental impact of the proposed project when added to other closely related and reasonably foreseeable future projects. Pertinent guidance for cumulative impact analysis is given in Section 15130 of the *CEQA Guidelines*:

- An EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable", (i.e., the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of current projects, and the effects of probable future projects, including those outside the control of the lead agency, if necessary).
- An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.
- A project's contribution is less than cumulatively considerable, and thus not significant, if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.
- The discussion of impact severity and likelihood of occurrence need not be as detailed as for effects attributable to the project alone.

The analysis of cumulative effects in this Program EIR focuses on the effects of concurrent construction and operation of the proposed project with other spatially and temporally proximate projects as described below. As such, this cumulative analysis relies on a list of related projects that have the potential to contribute to cumulative impacts in the project area.

4.2 Related Projects

Cumulative effects could result when considering the effects of the proposed project in combination with the effects of other related projects in the area. For this analysis, other past, present, and reasonably-foreseeable future related projects have been identified. Table 4-2 lists projects in the proposed project vicinity that are included in the analysis of cumulative impacts. More details as to the geographic and temporal scope used in generating this list of cumulative projects are included below.

Geographic Scope

Cumulative impacts were assessed for related projects within a similar geographic area. This geographic area may vary, depending on the environmental issue area discussed and the geographic extent of the potential impact. For example, the geographic area associated with construction noise impacts is typically limited to areas directly adjacent to construction sites, whereas, the geographic area that is affected by construction-related air emissions is the larger air basin. Construction impacts associated with increased noise, dust, erosion and access limitations tend to be localized but could be exacerbated if development of other improvement projects occurs within the same or adjacent locations as the proposed project. **Table 4-1** summarizes the geographic scope of the analyses for cumulative impacts for each environmental resource area discussed in Chapter 3 of this Program EIR.

Geographically, the proposed project is located in the Antelope Valley in both the City of Palmdale and unincorporated portions of Los Angeles County. The Antelope Valley is located within the western Mojave Desert and encompasses northern Los Angeles County, southern Kern County and western San Bernardino County (AVC 2017). For the purposes of this analysis, we considered projects within the PWD boundary shown on Figure 2-2, and within the Greater Antelope Valley depending on the environmental resource being considered, when evaluating potential cumulative impacts due to construction and operation of the proposed project. **Table 4-2** includes a list of the cumulative projects considered in this analysis. These projects are depicted on **Figure 4-1** (pages 1 and 2).

TABLE 4-1
GEOGRAPHIC SCOPE OF CUMULATIVE IMPACT ANALYSES

Environmental Issue	Geographic Scope of Cumulative Impact Analyses
Aesthetics	Viewsheds surrounding hillsides within the Antelope Valley, and foreground views of specific project components
Agriculture and Forestry Resources	City of Palmdale and surrounding unincorporated areas within northern Los Angeles County
Air Quality and Greenhouse Gas Emissions	Mojave Desert Air Basin (Air Quality) and Global (GHG)
Biological Resources	Project area and surrounding desert habitat, including drainages that flow into the project area
Cultural Resources	Antelope Valley and surrounding areas as manifested through cultural resources
Geology, Soils, Seismicity and Mineral Resources	Project area and immediately adjacent areas
Hazards and Hazardous Materials	Focused on particular locations within the project area where facilities will be constructed and within the public rights-of-ways (ROWs) within the project area
Hydrology and Water Quality	Project area and downstream receiving waters; Antelope Valley Groundwater Basin
Land Use, Planning and Recreation	Antelope Valley; extent of area served by parks or other recreational facilities, e.g., State/City/County parks
Noise	Immediate vicinity of specific project components within the project area
Public Services	Antelope Valley
Traffic and Transportation	Roadways within the project area
Tribal Cultural Resources	Antelope Valley and surrounding areas as manifested through tribal resources
Utilities, Service Systems and Energy	Antelope Valley

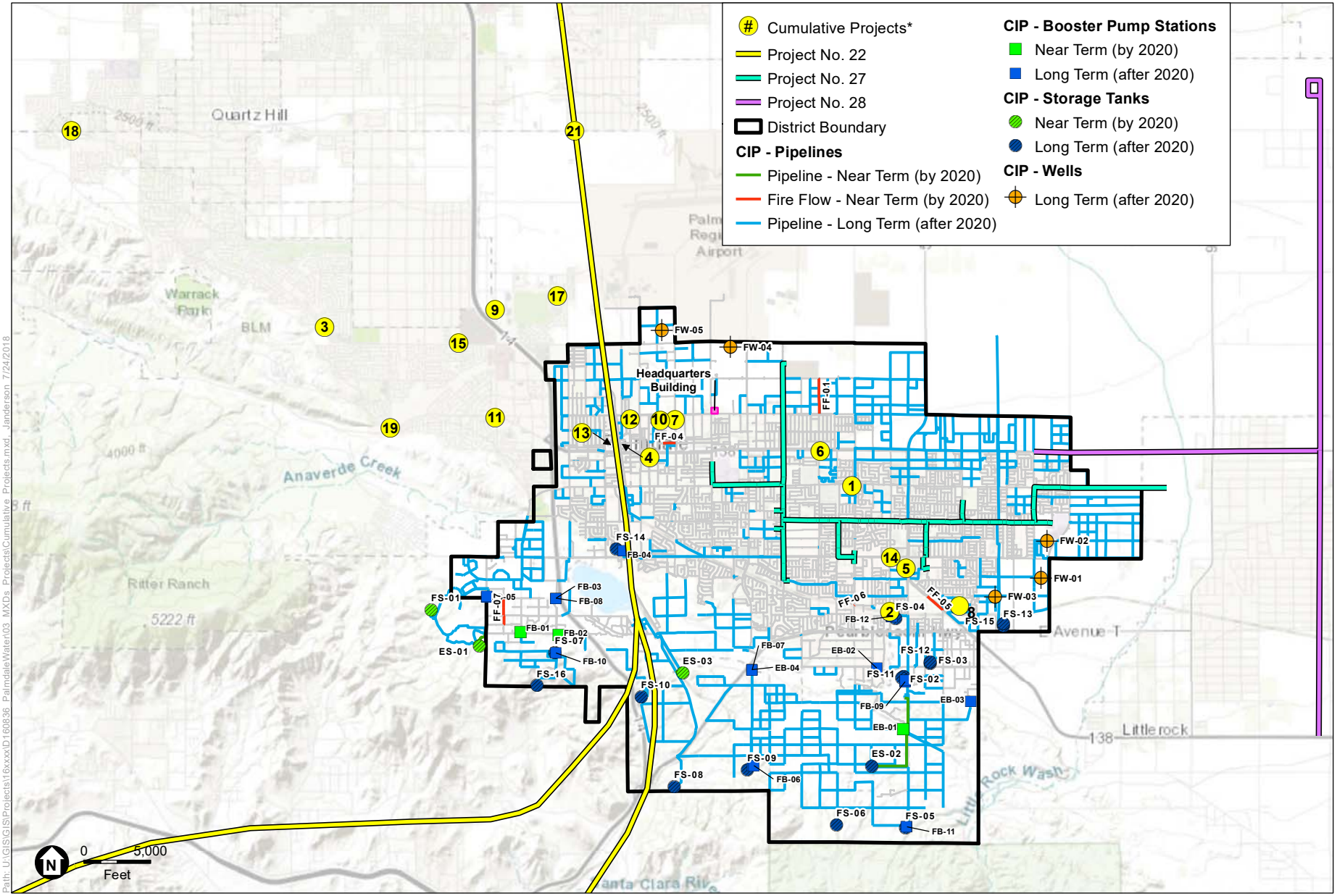
TABLE 4-2
RELATED PROJECTS FOR CUMULATIVE ANALYSIS

Project No.	Lead Agency	Name	Location	Project Type	Applicant	Project Description	Status
1	City of Palmdale	CUP16-011	Southwest corner of Avenue R and 40th Street East	School	Guidance Charter School	Public high school	Approved 9/8/16
2	City of Palmdale	PA16-025	Northwest corner of 45th Street East and Pearblossom	Commercial and residential	Pink Management Group	Gas station, car wash and condos	Applied 10/20/16
3	City of Palmdale	PA16-026	Rancho Vista Blvd, south of Avenue O-8	Residential	LA DF Investment Fund 78 LLC	244 single family residences	Applied 11/10/16
4	City of Palmdale	PA16-028	Avenue Q-6 and 8th Street East	Commercial and residential	Alejandro Chavez	Outdoor recreation center with 1,014 sf building and 188 square foot patio	Applied 11/21/16
5	City of Palmdale	PA17-001	500 feet south of Avenue S and west of 47th Street East	Commercial	Royal Investors Group	Commercial center including 5 standalone buildings and 1 anchor building totaling approximately 40,000 square feet	Applied 2/6/17
6	City of Palmdale	PA17-002	35th Street East and Palmdale Boulevard	School	Paul Bierlein	Charter school	Applied 2/9/17
7	City of Palmdale	PA17-005	38730 15th Street East	N/A	Adel Mikhail	Develop 8 buildings on 2.25 acres	Applied 3/8/17
8	City of Palmdale	PA17-006	Kingman Drive and 55th Street East	Residential	Global Investment and Development	165 single family residences on 40.6 acres	Applied 3/8/17
9	City of Palmdale	CUP16-009	Avenue O-8 and 10th Street West	Commercial	HFC / PRP Palmdale, LLC	18,000 square foot health club	Approved 8/11/16
10	City of Palmdale	SPR15-004	12th Place East and East Avenue Q-2	Residential	Global Premier America LLC	Assisted living facility within a 57,935 square foot building	Approved 6/9/16
11	City of Palmdale	SPR15-006	Southwest corner of Palmdale Boulevard and Tierra Subida Avenue	Commercial	MPA Inc.	420,000 square feet of commercial buildings on 12.2 acres	Approved 1/12/17
12	City of Palmdale	PA16-010	38715 9th Street East	Residential	Hanbali & Associates	1 apartment building on 0.84 acres totalling 14,490 square feet	Completed 6/2/16
13	City of Palmdale	PA16-016	38470 6th Street East	Commercial	Roger Roberts	7,200 square foot warehouse/office building on 0.34 acres	Completed 7/27/16

Project No.	Lead Agency	Name	Location	Project Type	Applicant	Project Description	Status
14	City of Palmdale	PA16-017	45th Street East and Avenue S	Commercial	Civil Design and Drafting	6 commercial buildings totaling 28,000 square feet on 14.8 acres	Completed 11/8/16
15	City of Palmdale	PA16-019	Northwest corner of Rancho Vista Boulevard and 15th Street West	Commercial	MS Palmdale, LLC	2 commercial buildings	Completed 11/8/16
16	City of Palmdale	PA16-020	Unknown	Commercial	Pink Commercial Group	40 condominiums totaling 25,000 square feet on 4.1 acres	Completed 11/8/16
17	City of Palmdale	PA16-021	East of Pevero Court	Residential	John Johnson	Subdivision of 6.98 acres into single-family residence lots	Completed 11/8/16
18	City of Palmdale	PA16-027	Avenue M and 70th Street West	Residential	Frontier Enterprises	Subdivision of 97 residential lots within 39.8 acres	Completed 12/16/16
19	City of Palmdale	Upper Amargosa Creek Flood Control, Recharge & Habitat Restoration	Near 25th Street West, north side of Elizabeth Lake Road	Water supply	N/A	Groundwater recharge	Construction began in early 2017; completion expected late 2017
20	City of Palmdale	10-Year Capital Improvement Program	Citywide	Municipal infrastructure	N/A	Parks, streets, traffic and watershed projects	2016-2026
21	City of Palmdale	Palmdale Energy Project	Near intersection of E Avenue M and Sierra Highway	Energy		Natural gas power plant	Licensed and petition to amend in review as of June 2017
22	California High Speed Rail Authority	High-Speed Rail Project	Cross sections of Avenue P, Avenue P-8, Palmdale Boulevard, Avenue R, and Avenue S that cross the Union Pacific Railroad	Transportation	High-Speed Rail Project	High speed rail	2015-2035
23	City of Lancaster	5-Year Capital Improvement Program	Citywide	Municipal infrastructure	N/A	Roadway maintenance and improvements	2016-2020

Project No.	Lead Agency	Name	Location	Project Type	Applicant	Project Description	Status
24	LACWWD40	North Los Angeles/Kern County Regional Recycled Water Project	Various locations throughout cities of Palmdale and Lancaster	Water supply	N/A	Recycled water backbone pipeline, pump stations, storage tanks, and agricultural application	One backbone section connecting LA County Treatment Plant Nos. 14 and 20 constructed; construction pending funding and additional Antelope Valley urban sprawl for remainder of facilities
25	California Public Utilities Commission	Tehachapi Renewable Transmission Project	Western Palmdale and Lancaster	Energy	N/A	Transmission line	Completed in 2016
26	Caltrans District 7	Northwest 138 Corridor Improvement Project	SR-138 from I-5 to SR-14	Roadway	N/A	Roadway improvements to accommodate future demand	Final EIR will be released by spring 2017
27	Palmdale Recycled Water Authority (PRWA)	Recycled Water Facilities Plan	Various locations throughout City of Palmdale	Water supply	PRWA	Recycled water project that would produce 1,325 AFY tertiary-treated recycled water and potentially 9,450 AFY recycled water for groundwater recharge	MND published in January 2015
28	Palmdale Water District	Regional Recharge and Recovery Project	Northeast City of Palmdale (south of East Avenue L, west of 110th Street East, north of Avenue M, and east of 95th Street)	Water supply	PWD	Groundwater recharge project. Project would include a new 80-acre recharge basin on an undeveloped 160-acre site, a 2-acre distribution site, 16 recovery wells, and 25 miles of pipeline.	Final EIR published in June 2016
29	Palmdale Water District	Strategic Plan	Various locations in the City of Palmdale	Water supply	PWD	A variety of water supply projects including improving existing Palmdale Water Treatment Plant, groundwater storage, recycled water, development of a headquarters/maintenance yard.	2017-2019

SOURCE: Cassell 2016, CEC 2011, City of Palmdale 2017, City of Palmdale 2016, City of Lancaster n.d., LADPW 2008, LADPW 2012, LADPW 2017; LA Metro 2007, PWD 2016, SCE n.d.



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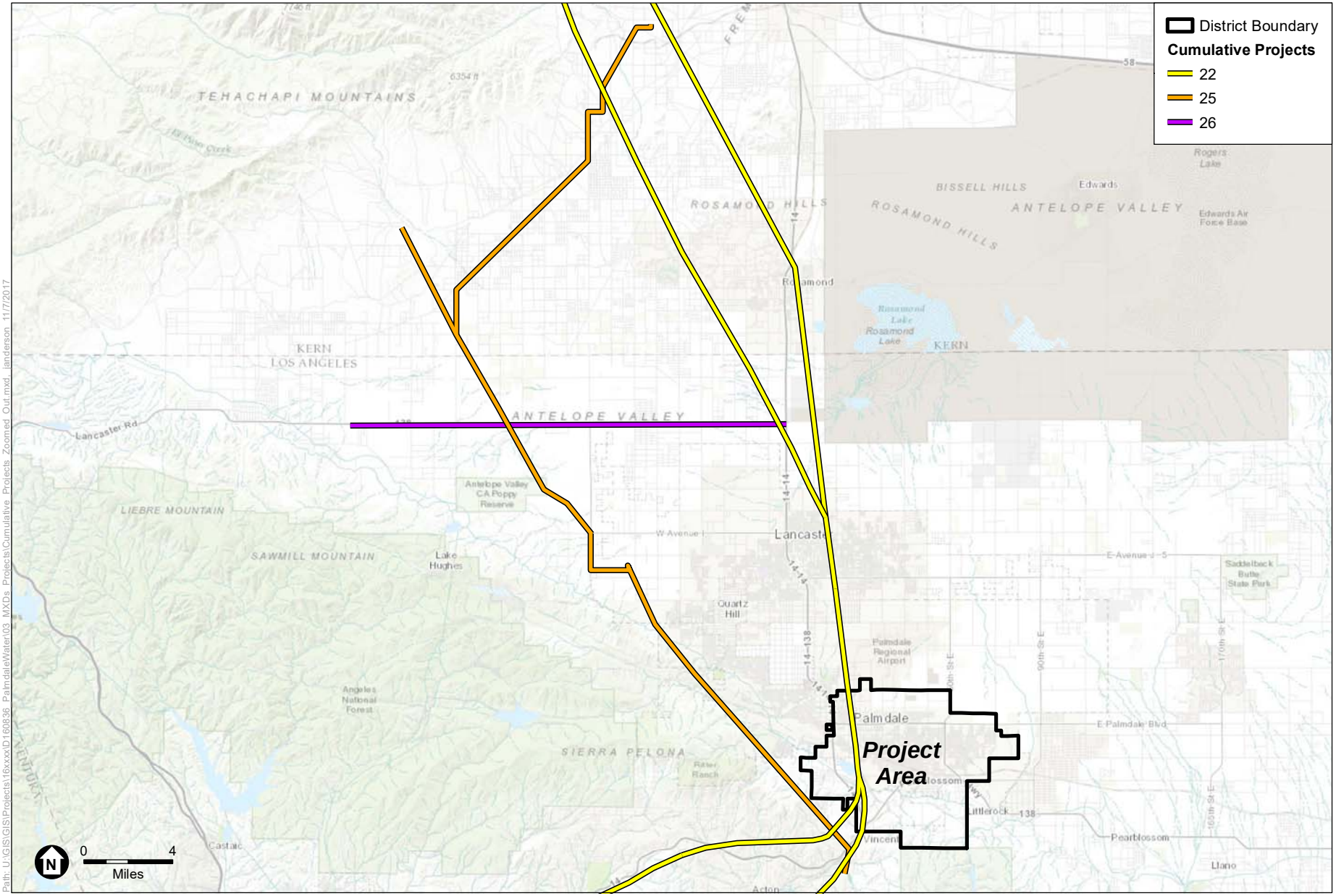
SOURCE: Palmdale Water 2017

** Project Nos. 20, 23, and 24 as identified in Table 4.2 of the EIR include several components covering a large area, and are thus not pictured in the above map.*

Palmdale Water District

Figure 4-1
Cumulative Projects – Page 1

ESA



SOURCE: Palmdale Water 2017

Palmdale Water District

Figure 4-1
Cumulative Projects - Page 2

ESA

Temporal Scope

In addition to the geographic scope, cumulative impacts must also consider the temporal scope of other projects relative to the proposed project. Schedule is particularly relevant to the consideration of cumulative construction-related impacts, since construction impacts tend to be relatively short-term. It can be assumed that the construction of near-term projects would begin from 2018 to 2020; the construction of long-term projects could occur any time between 2020 and 2040. Therefore, the temporal scope for selecting related projects was defined as any project that were completed no earlier than 2016, any project currently under construction, and all large-scale future projects that would likely be constructed before 2040 (the WSMP planning horizon). It should be noted that construction schedules are often broadly estimated and can be subject to change due to schedule changes or other unknown factors. Therefore, the analysis of cumulative impacts assumes that all related projects could be on-going simultaneously with either the near-term or long-term projects.

4.3 Impacts and Mitigation Measures

Implementation of the proposed project is expected to occur in two planning stages: by 2020 and after 2020. Project addressed by 2020 are considered near-term; projects addressed after 2020 are considered long-term projects. These related projects, which include various types of development projects in the PWD service area, may contribute to certain types of cumulative impacts, as described below.

GHG emissions are analyzed in Section 3.3, *Air Quality and Greenhouse Gas Emissions*. GHG-related impacts are considered to be exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. As a result, the cumulative analysis of GHG emissions is not repeated here. As described in Section 3.3 and more specifically Impact 3.3-6, the proposed project's GHG emissions resulting from the long-term projects would not exceed AVAQMD's screening threshold or conflict with state goals for GHG reductions.

Aesthetics

Impact 4-1: Concurrent construction of the proposed project and related projects in the geographic scope could result in cumulative long-term impacts to aesthetics.

The geographic scope for potential cumulative impacts to aesthetics includes foreground views immediately surrounding project components, as well as the long-distance viewshed of the hills and mountains surrounding the Antelope Valley. In desert areas, such as the vicinity of the proposed Project, the texture of landscape features such as rock outcroppings as well as built elements may be noticeable and appear prominent depending on the vantage point. The project area includes the City of Palmdale, which includes built-up areas as well as undeveloped areas, and undeveloped portions of Los Angeles County in the west and northern portions of the project area. Project components could be constructed anywhere within PWD's service area and portions of unincorporated Los Angeles County as shown on Figure 2-2. For the proposed WSMP, as described in Section 3.1, *Aesthetics*, components like pipelines would be constructed belowground and would have no long-term visual impacts. Pump stations, well houses, and the

PWD headquarters facility expansion would be constructed as single-story units dispersed within open space land and residential/commercial communities. While visible in the foreground, these facilities would not impact distant views of the surrounding hillsides. Some storage tanks and pump stations would be constructed in undeveloped open space within the hillsides that make up the viewshed within the Antelope Valley. While the construction of storage tanks would not obstruct views of the scenic distant mountains, foreground views of low-lying hillsides could be adversely affected from nearby residences or public roadways depending on the location within the project area.

When combined, projects in the cumulative scenario listed above (Table 4-2) have the potential to affect key views and sensitive aesthetic resources in the geographic scope. In particular, this includes Projects 3 and 18, which are both residential subdivisions consisting of 244 and 97 houses/lots, respectively, and occur along the undeveloped low-lying hillsides of the Palmdale area. The large-scale nature of these residential projects in undeveloped areas would be visible to affected viewers in the geographic scope. Depending on the project element and viewing location, mitigating landscape elements, and other factors, such as the presence of vegetation, screening could minimize the actual visibility. Given the pace and extent of planned development within the Palmdale area within the last 20-30 years, these visual changes would not result in a significant cumulative visual impact, as they would be constructed to be generally low profile and blend into the surrounding landscape. For these reasons, the combined visual effects from Projects 3 and 18 within the geographic scope of the visual analysis would not be considered cumulatively significant.

When added to the cumulative scenario described above, the effects of the proposed project would contribute incrementally to the cumulative impacts on aesthetic resources. For some of the project components, such as storage tanks constructed on hillsides in currently undeveloped areas, the project would represent a permanent incremental change that would alter the composition or character of existing landscape views of the hillsides surrounding the Antelope Valley. Mitigation Measures AES-1 through AES-6 would include a landscape plan, lighting requirements, and design parameters to ensure features blend into the surrounding landscapes and are constructed in such a way as to preserve view corridors. These mitigation measures would ensure that proposed project facilities do not significantly affect views of the hillsides surrounding the project area. These measures would reduce the Project's contribution to significant cumulative aesthetic impacts. Therefore, when considered in addition to the anticipated impacts of other projects in the cumulative scenario, the Project's incremental contribution to aesthetic impacts would not be cumulatively considerable. With implementation of mitigation measures, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures AES-1 through AES-6.

Significance Determination: Less than Significant with Mitigation

Agriculture and Forestry Resources

Impact 4-2: Concurrent construction of the proposed project and related projects in the geographic scope would not result in cumulative long-term impacts to agriculture and forestry resources.

The geographic scope for agricultural resources is Northern Los Angeles County where agricultural activities would be similar. The project would have no impact with respect to Farmland, Williamson Act contracts, land zoned for agricultural use, forest land, or timberland. Therefore, it could not contribute to cumulative effects related to these resources. No impact would occur.

Mitigation Measures

None required.

Significance Determination: No Impact

Air Quality

Impact 4-3: Concurrent construction of the proposed project and related projects in the geographic scope could result in cumulative short-term impacts to air quality.

The geographic scope for potential cumulative impacts to air quality is the MDAB. Because the MDAB is currently classified as nonattainment area for ozone, PM_{10}, and $PM_{2.5}$, cumulative development consisting of the proposed project along with other reasonably foreseeable future projects in the MDAB as a whole could violate an air quality standard or contribute to an existing or projected air quality violation. Section 3.3, *Air Quality and Greenhouse Gas Emissions*, addresses potential impacts related to the cumulatively considerable net increase in criteria pollutants. This section expands on the same information presented in Impact 3.3-3. For the proposed WSMP, construction or operation of near-term project components including storage tanks, pump stations and pipelines, would not exceed any AVAQMD air quality significance thresholds and therefore would not violate a regional air quality standard. Construction and operation of long-term project components are not expected to generate regional daily construction emissions in excess of the regional daily construction emissions thresholds. However, since construction would occur from 2020 through 2040, much of the detail about the timing, construction equipment, and disturbed area are unknown, which presents potential for impacts related to air quality standards and impacts to sensitive receptors.

When combined, all of the projects in the cumulative scenario listed above (Table 4-2) have the potential to affect air quality emissions in the geographic scope. These projects are large-scale commercial, residential, and transportation-related projects that may generate construction and operational emissions that would exceed AVAQMD's air quality significance thresholds for any criteria pollutant. Therefore, the construction and operation emissions generated by the projects within the cumulative scenario could potentially result in emissions that may not be able to be reduced via mitigation to below AVAQMD's significance thresholds. As a result, the combined

air quality impacts from all cumulative projects listed in Table 4-2 would be considered cumulatively significant.

When added to the cumulative scenario described above, the effects of the proposed project's long-term project construction could contribute incrementally to cumulative impacts on air quality resources. Individual projects to be implemented under the short-term phase would not exceed any AVAQMD air quality significance thresholds and therefore would not incrementally contribute to cumulative impacts. Individual projects to be implemented under the long-term phase of the proposed project may require intensive construction efforts, and given the as-needed basis for implementation, certain long-term projects would coincide temporally with other projects in the cumulative scenario. Long-term projects that would be of similar size, construction duration, and construction equipment mix as evaluated under the near-term would not be expected to generate regional daily construction emissions in excess of the regional daily construction emissions thresholds. Long-term components of the proposed project that are unable to demonstrate that construction emissions would be below the applicable AVAQMD thresholds would require implementation of mitigation measures (either AQ-1 and AQ-2 or other measures required by future CEQA) to reduce to less than significant impact. Therefore, cumulative air quality impacts associated with construction-related pollutant emissions from the long-term phase of the proposed project, in conjunction with all of the projects listed in Table 4-2 of the cumulative scenario, would not be cumulatively considerable. With respect to operational emissions, implementation of the proposed project would not result in substantial long-term regional emissions of criteria air pollutants and would not exceed the AVAQMD significance thresholds for criteria pollutants. Therefore, the proposed project's operational emissions would not be cumulatively considerable. With implementation of mitigation measures, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures AQ-1 and AQ-2.

Significance Determination: Less than Significant with Mitigation

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Biological Resources

Impact 4-4: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative short- and long-term impacts to biological resources.

The geographic scope for potential cumulative impacts to biological resources includes the open-space areas within the City of Palmdale and surrounding environs that support native habitats and plant and wildlife species. This region is located in the Antelope Valley, which comprises the western tip of the Mojave Desert, opening up to the Victor Valley to the east and the Great Basin to the northeast. The Antelope Valley is north of the San Gabriel Mountains and southeast of the Tehachapi Mountains and the Diablo Range of the Coast Ranges. This biogeographic transition zone historically supported a variety of plants and wildlife that whose contact in the region is

unique. For the proposed WSMP, as described in Section 3.4, *Biological Resources*, habitat exists in the project area for sensitive species such as silvery legless lizard, coast horned lizard; and special-status bird species such as Cooper's hawk, burrowing owl, southern California rufous-crowned sparrow, and loggerhead shrike. Four special-status plant species, slender mariposa lily, Robbins' nemacladus, short-joint beavertail, and Mason's neststraw, were determined to have some potential to occur within the southern portion of the project area based on the presence of suitable habitat and recent local records. Near-term and long-term WSMP facilities are located on undeveloped land and therefore could impact riparian habitat and jurisdictional water features. Construction of the pipeline along 47th Street East would be located in habitat that supports Joshua tree and California juniper and would therefore impact the two species. Long-term pipelines would be located within the San Andreas Rift Zone Significant Ecological Area.

Development in the Antelope Valley has substantially altered native habitats and adversely affected native plant and wildlife. Historic agricultural use, the expansion of urban areas in the region, and ongoing renewable energy project development has resulted in the loss of open space and the degradation of natural areas that historically supported populations of unique or rare species and habitats. The majority of projects listed in Table 4-2 are located in areas that are already substantially developed, or the sites have previously been altered due to grading or agricultural practices, and would not contribute significantly to direct impacts to biological resources. Projects 3 and 18, which are both residential subdivisions consisting of 244 and 97 houses/lots, respectively, and occur along the undeveloped low-lying hillsides of the Palmdale area, could potential result in the loss of natural habitat and could directly and indirectly impact plant and wildlife species. However, project design features and mitigation measures would likely reduce these impacts and it would not be considered cumulatively significant.

When added to the cumulative scenario described above, the effects of the proposed project would not contribute incrementally to the cumulative impacts on biological resources. Impacts to sensitive species within the project area would be localized to the specific project component areas and would not interact with Projects 3 and 18, which are located outside of the WSMP project area but form the basis of the geographic scope for biological resources. The implementation of Mitigation Measures BIO-1 through BIO-6 would reduce the project’s contribution to special-status species, riparian habitat/jurisdictional features, and the San Andreas Rift Zone Significant Ecological Area. Therefore, when considered in addition to the anticipated impacts of other projects in the cumulative scenario, the project’s incremental contribution to biological resources impacts would not be cumulatively considerable. With implementation of mitigation measures, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures BIO-1 through BIO-6.

Significance Determination: Less than Significant with Mitigation

Cultural Resources

Impact 4-5: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative long-term impacts to cultural resources.

The geographic scope for potential cumulative impacts to historic, archaeological and paleontological resources includes the near-term and long-term project areas. The general project area is located within the City of Palmdale (which includes built-up areas as well as undeveloped areas) and undeveloped portions of Los Angeles County. Project components could be constructed anywhere within PWD's service area and portions of unincorporated Los Angeles County. The region of the project area is located in the Antelope Valley, which comprises the western tip of the Mojave Desert, opening up to the Victor Valley to the east and the Great Basin to the northeast. The Antelope Valley is north of the San Gabriel Mountains and southeast of the Tehachapi Mountains and the Diablo Range of the Coast Ranges. Historic resources include resources listed in, or determined to be eligible for listing in the California Register. A significant cumulative impact would occur if construction projects collectively destroyed historical resources that provide historic cultural information to the extent that such information would be permanently lost pursuant to Section 15064.5 of the CEQA Guidelines. As discussed in Section 3.5, *Cultural* Resources, one newly historic architectural resource (ESA-PWD-001B, a railroad segment) was identified and recorded during the survey efforts for the proposed project. This resource is located within a near-term project area (ES-03) and is actively in use as part of the Metrolink system. The project would not directly or indirectly impact the integrity of the resource, as it would be avoided through the use of jack-and-bore or directional drilling construction methods. Therefore, the project would not result in a substantial adverse change in the significance of resource ESA-PWD-001B and would not contribute to a cumulatively significant impact to historical resources.

The projects listed in Table 4-2 are located in areas that are either developed, or in undeveloped areas used for agricultural practices. Cumulative impacts to archaeological resources could occur if any of these projects, in conjunction with the proposed project, would have impacts on resources that, when considered together, would be significant; however, the current project would not significantly affect archaeological resources. Further, while there is the potential for impacts to unknown archaeological resources, such as those that might be discovered during ground-disturbing activities during project construction, Mitigation Measures CUL-1 through CUL-6, which provide for cultural resources sensitivity training, and treatment protocols for unanticipated discoveries, would ensure that impacts are reduced to a less than significant level. Taken together, implementation of these mitigation measures would ensure that the project would not have an impact on archaeological resources. Therefore, cumulative impacts during construction would not be cumulatively considerable.

The project has the potential to disturb geological units that are conducive to retaining paleontological resources in the Pleistocene older alluvium, Anaverde Formation, Punchbowl Formation, and Holocene alluvium. Generally, projects such as those listed in Table 4-2 with the potential for substantial excavation would be subject to environmental review. Because of the potential for significant impacts on paleontological resources resulting from the project,

Mitigation Measures CUL 7 through CUL-9, are required. These measures include the retention of a qualified paleontologist, and full-time paleontological monitoring. Implementation of these measures would reduce the potential for adverse effects on fossil resources individually and cumulatively; and would preserve and maximize the potential of these resources to contribute to the body of scientific knowledge. Therefore, the cumulative effects from this project are considered less than significant.

No known human remains have been identified in the project area as a result of the cultural resources assessment. In the event that human remains are encountered during project implementation, Mitigation Measure CUL-10 would ensure that the remains are treated in accordance with relevant state laws and that impacts would be reduced to a less-than-significant level. It is assumed that any other projects in the geographic scope of analysis (such as the projects listed in Table 4-2) would also follow state law. Therefore, cumulative impacts on human remains during construction would not be cumulatively considerable.

Mitigation Measures

Implement Mitigation Measures CUL-1 through CUL-10.

Significance Determination: Less than Significant with Mitigation

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Geology, Soils, Seismicity, and Mineral Resources

Impact 4-6: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative short-term and long-term impacts to geology, soils, seismicity, and mineral resources.

The geographic scope for potential cumulative impacts to geology, soils, seismicity and mineral resources includes the project area and areas immediately adjacent. The project area is located in the Antelope Valley in the western portion of the Mojave Desert, north of the San Gabriel Mountains. The topography of the project area varies from relatively flat with occasional drainages and sand dunes on the valley floor to steep foothill and mountain areas in the south portion of the project area. The project area is considered a seismically active region. The San Andreas Fault is the dominant seismic feature in the project area. Some portions of the project area are located in a State-identified landslide hazard and liquefaction zone (see Figures 3.6-1). The eastern portion of the project area is located in a State-designated MRZ-2, which is an active mining area for sand and gravel. For the proposed WSMP, as described in Section 3.6, *Geology, Soils, Seismicity, and Mineral Resources*, construction of near-term and long-term project components involves excavation and grading that would disturb soils and potentially expose them to erosion or topsoil loss. The proposed facilities also have the ability to be located on expansive soils, which could damage aboveground structures. Active mineral resource zones are located primarily east of the project area, although two long-term storage tanks (FS-13 and FS-15) would be located within State-designated MRZ-2.

Projects in the cumulative scenario listed above (Table 4-2) have the potential to be affected by the geology, soils, and seismicity of the geographic scope, and could be affected by seismicity in the geographic scope. In particular, this includes Projects 1, 2, 4, 5, 6, 7, 8, 10, 12, 13, 14, 27, and 28 within the geographic scope, which consist of commercial, residential, and water supply projects within the project areas and areas immediately adjacent. Based on a comparison of the project locations identified on Figure 4-1 and the geological hazards within the project area identified on Figure 3.6-1, none of the projects located within the geographic scope for geology would be located within a State-identified landslide hazard and liquefaction zone. In addition, the impacts associated with geology, soils and seismicity are site-specific and only affect the site itself and adjacent areas; as such impacts associated with geology, soils and seismicity for related projects would not combine to create greater cumulative impacts.

When added to the cumulative scenario described above, the effects of the proposed Project could contribute incrementally to the cumulative impacts on geology, soils, and seismicity. Construction of storage tanks, pump stations, pipelines, wells, and the PWD headquarters building expansion would result in grading and excavation, which would result in impacts related to erosion, expansive soil, and liquefaction. Mitigation Measures GEO-1, GEO-2, and HYD-1 would require topsoil preservation, preparation of a geotechnical report, and soil stabilization for near-term and long-term projects. These mitigation measures would ensure that proposed project facilities do not significantly impact geologic features in the project area. As stated above, these impacts are site specific and when considered together with related projects would not combine to create greater cumulative impacts due to geology, soils, or seismicity. Therefore, the proposed project's impacts to geology and soils would not be cumulatively considerable. With implementation of mitigation measures, impacts would be less than significant.

Cumulative projects 27 and 28 would be located within the MRZ-2 located in the eastern portion of the project area, and could potentially contribute to the cumulative scenario for mineral resources. Both projects are water supply projects that would involve excavation of multiple miles of pipelines as shown on Figure 4-1. While these projects would be located in a MRZ-2, they would be located north of the six active sand and gravel mining locations presented in Figure 3.6-2 and would therefore not contribute to the cumulative scenario in such a way that would impede active mining operations by reducing the availability of known mineral resources. When added to this cumulative scenario, the effects of the proposed project would not contribute incrementally to the cumulative impacts on mineral resources. None of the WSMP facilities would be located within a MRZ-2 except for long-term storage tanks (FS-13 and FS-15). However, all six existing and active sand and gravel mining locations in the project area are located east of the storage tanks; therefore, the storage tanks would not impede active mining operations. As such the proposed project would not have impacts to mineral resources that would be cumulatively considerable. Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure GEO-1, GEO-2, and HYD-1 for geology, soils and seismicity. No mitigation measures are required for mineral resources.

Significance Determination: Less than Significant with Mitigation for geology, soils and seismicity. Less than Significant for mineral resources

Hazards and Hazardous Materials

Impact 4-7: Concurrent construction of the proposed project and related projects in the geographic scope could result in cumulative short-term impacts to hazards and hazardous materials.

The geographic scope for potential cumulative impacts to hazards and hazardous materials includes the particular locations in the project area within which facilities would be constructed. The geographic scope also includes the public roadways and streets in the project area on which hazardous materials could be transported. The project area includes the City of Palmdale, which includes built-up areas as well as undeveloped areas, and undeveloped portions of Los Angeles County in the west and northern portions of the project area. Project components could be constructed anywhere within PWD's service area and portions of unincorporated Los Angeles County as shown on Figure 2-2. For the proposed WSMP, as described in Section 3.7, *Hazards and Hazardous Materials,* construction activities would require the use of heavy equipment that would contain oil, gasoline, or other fluids, and would likely be stored and transported to the various project locations in the project area. PWD would be required to comply with all federal, State and local laws regarding the use and transport of hazardous materials. Construction of several long-term pipelines, short-term pipeline FF-01, and two of the northern groundwater extraction wells would occur within the airport influence area (AIA) for the Palmdale Regional Airport. Construction of these proposed pipelines and wells could be in close proximity to the Palmdale Regional Airport and have the potential to disrupt airport operations. Further, long-term pipelines would be constructed within public ROWs within the project area and could potentially block access to roadways and driveways for emergency vehicles. Construction of various short-term facilities and long-term facilities would be located in areas with high risks of wildland fires. The use of spark-producing construction machinery within these fire risk areas could create hazardous fire conditions and expose construction workers to wildfire risks.

When combined, projects in the cumulative scenario listed above (Table 4-2) have the potential to affect hazards and hazardous materials in the geographic scope. In particular, projects 1, 2, 5, 6, 7, 8, 10, 12, 13, 14, 27, and 28 would be located in the vicinity of proposed pipelines and storage tanks in the project area. Similar to the proposed project, construction of these projects in the cumulative scenario would temporarily require the transport, use, and disposal of hazardous materials including gasoline, diesel fuel, hydraulic fluids, paint, and other similarly related materials. Also similarly, these projects would be required to comply with applicable federal, State and local regulations regarding the handling, storage, transportation, and disposal of hazardous materials. The High Speed Rail Project (Project 22) and the Palmdale Energy Project (Project 21) are both located within two miles of the Palmdale Regional Airport and within the AIA. Both projects would require coordination with the County of Los Angeles Airport Land Use Commission (ALUC) to prepare an airport construction safety plan and participate in the Federal Aviation Administration's (FAA) 7460 process to ensure that the proposed construction

equipment does not pose hazards to aviation. Given the timeline and location of these projects within the Palmdale area, and due to the requirement to comply with existing regulations, the combined impacts to hazards and hazardous materials within the geographic scope would not be considered cumulatively significant.

When added to the cumulative scenario described above, the effects of the proposed project would not contribute incrementally to the cumulative impacts on hazards and hazardous materials. Compliance with applicable federal, State and local regulations regarding the handling, storage, transportation, and disposal of hazardous materials, would reduce the likelihood of hazardous materials accidental spills and releases. Compliance with local and federal laws regarding airport hazards required through Mitigation Measures LU-1, LU-2, and LU-3 would also ensure that the project does not pose hazards to aviation associated with the AIA for the Palmdale Regional Airport. Completion of a Traffic Control Plan required by Mitigation Measure HAZ-1 would include comprehensive strategies to reduce disruption to emergency access for construction of the long-term pipelines. Implementation of fire reduction measures as prescribed in Mitigation Measure HAZ-2 would ensure that fire hazard reduction measures are conducted during construction in areas designated as very high fire hazard severity zones to reduce the potential for wildfire impacts on people or structures. Therefore, when considered in addition to the anticipated impacts of other projects in the cumulative scenario, the Project's incremental contribution to hazards and hazardous material impacts would not be cumulatively considerable. With implementation of mitigation measures, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures LU-1, LU-2, LU-3, HAZ-1 and HAZ-2.

Significance Determination: Less than Significant with Mitigation

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Hydrology and Water Quality

Impact 4-8: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative short-term and long-term impacts to hydrology and water quality.

The geographic scope for potential cumulative impacts to hydrology and water quality includes project sites, downstream receiving waters of the project sites and the entire Antelope Valley Groundwater Basin. Natural drainage channels run generally north and northeast across the project area toward the Rosamond and Rogers dry lakes. The City of Palmdale's storm drainage system consists of numerous localized drainage systems located around developments; these local drainage systems connect to either earthen channels or drain to local retention basins. The California Aqueduct traverses through the project area in the vicinity of several pipelines and one storage tank to be constructed as part of the near-term projects. For the proposed WSMP, as described in Section 3.8, *Hydrology and Water Quality*, construction activities could introduce sediment and chemicals to stormwater and site runoff that could potentially violate water quality standards within or downstream of the project area, consequentially degrading water quality.

Additionally, construction activities such as grading and foundation installation for storage tanks, pump stations, pipelines, and wells, could would alter the topography and drainage patterns of the proposed project locations.

When combined, projects in the cumulative scenario listed above (Table 4-2) have the potential to affect hydrology and water quality in the geographic scope. Projects 1, 2, 5, 6, 7, 8, 10, 12, 13, and 14 would be located in the vicinity of proposed pipelines and storage tanks in the project area. Construction and operation of these projects could introduce sediment and other pollutants to surface waters or groundwater and impact water quality, or disrupt the existing drainage and flood patterns in the project area, causing damage to structures or people. The projects in the cumulative scenario would be required to comply with local and State regulations, such as the MS4 Permit, Local Storm Water Pollution Prevention Plan, Wet Weather Erosion Control Plan, and source best management practices (BMPs) to regulate water quality and drainage patterns such that receiving water bodies are not impaired. As a result of adherence to these regulations, the combined effects from the construction of Projects 1, 2, 4, 5, 6, 7, 8, 10, 12, 13, and 14 within the geographic scope related to water quality, drainage, and groundwater would not be considered cumulatively significant.

The cumulative scenario includes several groundwater recharge and recovery projects that could contribute to cumulative impacts to groundwater levels when considered together with operation of the proposed long-term groundwater wells in the WSMP. All such recharge and storage projects will be subject to a Storage Agreement with the Antelope Valley Watermaster pursuant to Section 14 of the Judgement. Project 19 is the Upper Amargosa Creek Flood Control, Recharge & Habitat Restoration Project, located entirely outside of the PWD service area, which is a groundwater recharge project that could affect groundwater levels and groundwater quality within the Antelope Valley Groundwater Basin. Project 27 is the Recycled Water Facilities Plan which would construct facilities that would convey recycled water for recharge into the Antelope Valley Groundwater Basin. Project 28 is the Palmdale Regional Groundwater Recharge and Recovery Project that would involve groundwater recharge, using recycled water and surface water, and recovery by PWD. While Projects 19, 27 and 28 would all involve groundwater recharge, Project 28 would also involve pumping of groundwater for use in PWD's service area and could therefore contribute to the cumulative scenario for groundwater pumping. Similar to the proposed WSMP, Project 28 would adhere to the current adjudication pumping rights within the Antelope Valley Groundwater Basin. Therefore, the combined impacts to groundwater within the geographic scope would not be considered cumulatively significant.

When added to the cumulative scenario described above, the effects of the proposed Project would not contribute incrementally to the cumulative impacts on hydrology and water quality. Compliance with applicable federal, State and local regulations would reduce the likelihood of impacts to water quality, drainage, and groundwater management. Implementation of Mitigation Measures HYD-1 through HYD-3, which would require post-construction stabilization of project sites in addition to source control BMPs and coordination regarding future groundwater extraction, would reduce impacts to water quality standards and drainage patterns to a less than significant level. Since groundwater pumping is regulated by current adjudication rights in the Antelope Valley Groundwater Basin, impacts to groundwater levels would not rise to the level of

significance. Therefore, when considered in addition to the anticipated impacts of other projects in the cumulative scenario, the Project's incremental contribution to hydrology and water quality would not be cumulatively considerable. With implementation of mitigation measures, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure HYD-1 through HYD-3.

Significance Determination: Less than Significant with Mitigation

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Land Use, Planning, and Recreation

Impact 4-9: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative short-term and long-term impacts to land use, planning, and recreation.

The geographic scope for potential cumulative impacts to land use and recreation includes the Antelope Valley, particularly the City of Palmdale, and portions of the County of Los Angeles. The City of Palmdale experienced increased growth from 1980 to 1990, when its annual population growth rate peaked at approximately 50 percent in 1990. However, by 1992, the City's annual growth rate was down to only about 8 percent. Population growth has subsequently been lower than expected. As a result, much of the project area is zoned for residential use but has not yet been developed. The project area contains a variety of land use designations, most notably Low Density Residential (LDS) in the southern portion of the project area, Single Family Residential (SFR) in the northern portion of the project area, and Open Space (OS) and Public Facility (PF) land use designations dispersed throughout the project area. The project area also contains parks, trails, open space and facilities which residents use for recreation. For the proposed WSMP, as described in Section 3.9, *Land Use, Planning, and Recreation*, construction and operation would not involve aboveground linear features and could therefore not create a barrier or physically divide an established land use community. Since portions of the project are located within the Palmdale Regional Airport's AIA, as discussed above for Hazards and Hazardous Materials, they could be proximate enough to potentially impact airport operations. Construction and operation of the proposed project would generally not impact recreational facilities; however some of the short-term facilities would be constructed in land designated as Open Space (OS), which is considered by the City of Palmdale to be a recreational use. Additionally, placement of long-term pipelines in roadways would temporarily disrupt cyclists using these paths for recreation.

Many of the projects in the cumulative scenario would be residential developments (Projects 2, 3, 4, 8, 10, 12, 17, 18) that would require expanded recreational opportunities for new residents. Project 20 is the City of Palmdale's CIP which includes construction and operation of additional parks within the project area. As a result of the new recreational facilities that would accommodate residential users of these new residential developments, the cumulative scenario for recreation would be considered cumulatively significant. Regarding land use and planning, the

majority of projects in the cumulative scenario are consistent with the City of Palmdale's land use designations in that they are residential and commercial developments that accommodate planned growth. The project in the cumulative scenario that has the greatest potential to affect land use and recreation within the geographic scope is Project 22, the California High Speed Rail Project. This project would connect the Antelope Valley and San Fernando Valley in 15-20 minutes via a Palmdale train station, and would provide increased opportunities for economic and residential growth in the Palmdale area. Further, this project is also located within the Palmdale Regional Airport's AIA. Because of this potentially regionally-transformational project and potential conflicts with local land use plans, the land use effects from Project 22 alone could be considered cumulatively significant.

When added to the cumulative scenario described above, the effects of the proposed Project could contribute incrementally to the cumulative impacts on land use and recreation. Because several of the project facilities would be located within the AIA, land use impacts could occur. However, Mitigation Measures LU-1 and LU-2 would require that PWD coordinate directly with the County of Los Angeles ALUC to prepare an airport construction safety plan, in addition to Mitigation Measure LU-3 which would require PWD to coordinate with the FAA's 7460 process to ensure that the proposed construction equipment does not pose hazards to aviation. As a result of these measures, any proposed conflicts with an airport land use plan would be reduced to a less than significant level. Several of the proposed facilities would be constructed within areas designated by the City of Palmdale as Open Space (OS), which is considered a recreational use by the City of Palmdale and could potentially limit the amount of recreational locations available to residents. Mitigation Measure REC-1 would require PWD to coordinate with the City to identify ways to limit impacts to the recreational locations. In addition, Mitigation Measure REC-2 would ensure that potential impacts associated with temporary disruptions to bikeways would be mitigated to less than significant levels. Further, the purpose of the proposed project is to supply adequate and reliable water systems to support future growth within the PWD service area, and as a result, the project itself would not cause land use conflicts but would instead support land use and planning within the region. Therefore, when considered in addition to the cumulatively significant impacts of the California High Speed Rail Project, the project's smaller and acutely scaled incremental contribution to land use and planning would not be cumulatively considerable. With implementation of mitigation measures, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures LU-1, LU-2, and LU-3.

Implement Mitigation Measures REC-1 and REC-2.

Significance Determination: Less than Significant with Mitigation

Noise

Impact 4-10: Concurrent construction of the proposed project and related projects in the geographic scope could result in cumulative short-term impacts to noise.

The geographic scope for potential cumulative impacts to noise is the immediate vicinity of specific project components within the project area. This is due to noise attenuation principals which generally reduce the volume of noise with increasing distance from the noise generating location. The project area is located in the City of Palmdale as well as portions of unincorporated Los Angeles County. The majority of proposed WSMP pipelines would be constructed within or near city streets which generate noise due to operation of construction equipment and vehicles. The majority of the pump stations and storage tanks would be constructed within open space in the southern portion of the project area; these WSMP components are not located near any of the projects included in the cumulative scenario (see Figure 4-1). For the proposed WSMP, as described in Section 3.10, *Noise*, construction-generated noise and vibration of near-term and long-term storage tanks, pump stations, pipelines, wells, and the headquarters facility expansion would result in noise levels as high as 89 dBA, which would therefore exceed City of Palmdale and County of Los Angeles permissible noise and vibration thresholds. Under circumstances where facilities are located immediately adjacent to existing sensitive land uses, particularly for construction of near-term facilities EB-01, FB-01, FB-02, pipelines, and certain long-term facilities, the noise impacts related to a substantial temporary or periodic increase in ambient noise levels above existing levels could be a potentially significant and unavoidable impact not able to be reduced by mitigation measures.

Projects in the cumulative scenario listed above (Table 4-2) could generate noise that would affect temporarily existing ambient noise conditions in the region. Construction noise would be localized, affecting areas in the immediate vicinity of construction sites. Construction of some capital improvement (CIP) projects, such as the City of Palmdale 10-Year Capital Improvement Program (Project 20), could occur simultaneously and within the same streets as the proposed project. As a result, the combined effects of the projects in the geographic scope for noise could be cumulatively significant.

When added to the cumulative scenario described above, the effects of the proposed project would contribute incrementally to the cumulative impacts on noise and vibration because WSMP pipelines, storage tanks, pump stations, wells, and the headquarters expansion might be constructed simultaneously and within exactly the same streets as the CIP Project 20. Because daytime construction noise is exempt from maximum noise thresholds identified in local noise ordinances, noise associated with daytime construction activities would not violate noise ordinances. Implementation of Mitigation Measure NOISE-1 and NOISE-2 would restrict construction activities to daytime hours, between 7:00 a.m. and 7:00 p.m., Monday through Saturday, and would require other measures to reduce the effects of construction noise on sensitive receptors to less than significant levels. Mitigation Measure NOISE-3 would reduce ground-borne vibration and noise levels when construction activities occur adjacent to sensitive receptors and would result in less than significant impacts to sensitive receptors. Mitigation Measure NOISE-4 would ensure that operations of new facilities are in compliance with local noise ordinances. With implementation of these mitigation measures (notwithstanding the local noise ordinance

exemption), the impacts associated with construction of the proposed project would be less than significant. However, due to the immediate proximity of some WSMP near-term and long-term components to sensitive receptors, noise impacts related to a substantial temporary or periodic increase in ambient noise levels above existing levels would be a potentially significant and unavoidable impact even after implementation of mitigation measures. As a result, when added to the cumulative scenario of CIP Project 20, which would be constructed within the same streets and potentially simultaneously with the WSMP components, the cumulative impact would be cumulatively considerable. **Mitigation Measure CUM-1** would require PWD to coordinate construction of the WSMP with other agencies in the Antelope Valley to minimize temporary impacts to ambient noise levels where projects occur simultaneously and within exactly the same streets. Nevertheless, if projects are not able to be reconsidered to avoid the temporary ambient impacts, based on CIP requirements and other commitments, the project's incremental contribution to this noise impact would be cumulatively considerable. Even with implementation of mitigation measures, impacts would be potentially significant and unavoidable.

Mitigation Measures

Implement Mitigation Measures NOISE-1 through NOISE-4.

> **CUM-1**: PWD shall communicate and coordinate project construction activities with other municipalities (e.g., City of Palmdale, County of Los Angeles) and agencies (e.g., Caltrans, LA County DPW) in the Antelope Valley. Phasing of project construction shall be coordinated to minimize cumulative impacts to noise and vibration and traffic and transportation.

Significance Determination: Potentially Significant and Unavoidable with Mitigation

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Public Services

Impact 4-11: Concurrent construction and operation of the proposed project and related projects in the geographic scope would not result in cumulative short-term and long-term impacts to public services.

The geographic scope for public services is the Antelope Valley and associated fire and police protection, schools, and parks. The proposed project would not involve construction or operation of any new residential or commercial uses that would require increased fire or police protection, or new parks or schools. Therefore, it could not contribute to cumulative effects related to these resources. No impact would occur.

Mitigation Measures

None required.

Significance Determination: No Impact

Traffic and Transportation

Impact 4-12: Concurrent construction of the proposed project and related projects in the geographic scope could result in cumulative short-term impacts to traffic and transportation.

The geographic scope for potential cumulative impacts to traffic and transportation are the local roadways within the project area. This includes public ROWs and bike paths. The project area includes State Route 14 (SR-14) and State Route (SR-138), which are the two State roadways that pass through the project area. There is also a local arterial system which includes major arterials spaced at approximately one-mile intervals. A series of bikeways exists within the City of Palmdale but not the larger County. Because the proposed project is a system-wide network of pipelines, pump stations and storage tanks, many of these features intersect with local and regional transportation networks. For the proposed WSMP, as discussed in Section 4.12, *Traffic and Transportation*, construction would involve increased vehicle trips that could affect roadway capacity. Additionally, construction of all near-term and long-term pipelines would occur within rights-of-way (ROWs) which would temporarily impede traffic flow through road closures. Construction of the proposed facilities could delay emergency vehicle response times or otherwise disrupt delivery of emergency services that use roadways potentially impacted by the WSMP. Regarding public transit and bicycle transportation, construction of near-term and long-term WSMP facilities would disrupt the existing Antelope Valley Transportation Authority public transit routes and could result in bicycle pathway closures.

All of the projects in the cumulative scenario listed above (Table 4-2) have the potential to temporarily affect traffic and transportation during the construction stage. The effects of construction activities on traffic are due to an increase in the number of vehicles on local roadways (due to material delivery and worker commutes) and physical constraints on roadways if lane or street closures are required. The construction-related traffic trips associated with all of the projects listed in Table 4-2 would be short-term and temporary in nature. Construction of some CIP projects, such as the City of Palmdale 10-Year Capital Improvement Program (Project 20), could occur simultaneously, resulting in combined effects that would be cumulatively significant.

Some of the larger developments, including Projects 3 and 18 which are both residential subdivisions consisting of 244 and 97 houses/lots, respectively, would permanently affect traffic in the area due to a greater number of people living in the area and traveling to/from the residences in their cars. The permanent increase in daily trips associated with new large-scale residential development (Projects 3 and 18) are part of the planned growth within the City of Palmdale and would not be expected to increase stress on traffic systems and transportation routes that would reduce the effectiveness of the circulation system.

Construction of the proposed project, along with the identified related projects in the geographic scope, could affect traffic and circulation in the region. Some of the identified related projects could be constructed simultaneously in areas proximate to, or overlapping geographically with the proposed project. Construction of CIP Project 20 described above could occur simultaneously and within the same streets as the proposed project. This could result in a cumulative impact to

traffic, particularly since the proposed pipelines would involve construction activities within roadways and ROWs. As required by Mitigation Measure TR-1, PWD would implement a Traffic Control/Traffic Management Plan for each project component as necessary to reduce construction-related effects of the proposed project to less than significant levels. The Traffic Control/Traffic Management Plan should also take into consideration the effects other construction activities occurring simultaneously in the same geographic area. Mitigation Measure TR-2 would require PWD to coordinate all construction activates with emergency service providers to ensure adequate access to emergency services is maintained during construction. Mitigation Measures TR-3 and TR-4 would require PWD to coordinate with Metrolink, the Antelope Valley Transit Authority, and the City and County to determine whether the project would disrupt public transit routes or bicycle or pedestrian facilities. Although WSMP-related traffic and transportation impacts are able to be reduced to a less than significant level with implementation of mitigation, when added to the cumulative scenario of CIP Project 20, which would be constructed within the same streets and potentially simultaneously with the WSMP components, the cumulative impact could potentially be cumulatively considerable. Mitigation Measure CUM-1 would require PWD to coordinate construction of the WSMP with other agencies in the Antelope Valley to minimize temporary impacts to traffic and transportation. As a result, the project's incremental contribution to traffic and transportation would not be cumulatively considerable. With implementation of mitigation measures, impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure TR-1, TR-2, TR-3, and TR-4.

Implement Mitigation Measure CUM-1.

Significance Determination: Less than Significant with Mitigation

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Tribal Cultural Resources

Impact 4-13: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative short-term and long-term impacts to tribal cultural resources.

No known tribal cultural resources have been identified in the vicinity of near-term project components. For the cumulative projects listed in Table 4-2, future AB 52 consultations with Native American tribes in order to identify tribal cultural resources would be required for related projects that have the potential to cause significant impacts to tribal cultural resources. For future near-term projects, implementation of Mitigation Measure TCR-1 would ensure that Native American consultation occurs to satisfy the requirements of AB 52 for implementation of future project components. Therefore, cumulative impacts would be less than significant with implementation of mitigation measures.

Mitigation Measures

Implement Mitigation Measure TCR-1.

Significance Determination: Less than Significant with Mitigation

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Utilities, Service Systems, and Energy

Impact 4-14: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative short-term and long-term impacts to utilities, service systems, and energy.

The geographic scope for potential cumulative impacts to utilities, service systems, and energy is the Antelope Valley. PWD is the water retailer serving the geographic scope and provides groundwater, surface water, and imported water to the area. Wastewater in the geographic scope is provided by the Sanitation Districts of Los Angeles County (LACSD), which provides service to the Antelope Valley through its Districts No. 14 and 20. Waste Management of Antelope Valley is the local division of Waste Management, Inc. that provides collection, disposal, recycling, and environmental services to the Antelope Valley. Electricity is provided to the Antelope Valley by Southern California Edison (SCE) and natural gas services are provided by the Southern California Gas Company (SCGC). The proposed WSMP, as discussed in Section 3.14, *Utilities, Service Systems, and Energy*, would not involve water or wastewater generation unable to be accommodated by permitted disposal stations. The WSMP would also not require construction of new or expanded water or wastewater treatment facilities. All construction-generated debris would be supported by a local landfill. Regarding energy usage, the WSMP would result in minimal demand for gasoline and diesel resources relative to the State's annual fuel usage for construction. For operation, the electricity usage required for the proposed project would constitute approximately 1/10 of the current usage for similar facilities; PWD would continue to work with electricity and natural gas providers to ensure consumption can be handled by the electricity grid. Additionally, PWD has developed alternatives for providing electrical generation using wind, hydraulic, natural gas and sun resources, which could be used to promote energy efficiency throughout PWD's operations.

When combined, all of the projects in the cumulative scenario listed above in Table 4-2 have the potential to affect the utilities, service systems and energy consumption within the geographic scope. The projects are a mix of schools, commercial and residential developments, transportation, water supply, and CIP projects. All of the projects in the geographic scope would require some form of public utilities, whether it be water, wastewater, trash disposal, or require energy for construction and/or operation. For these reasons, the combined effects from all projects within the geographic scope related to utilities, service systems, and energy could be cumulatively significant.

When added to the cumulative scenario described above, the effects of the proposed project would not contribute incrementally to the cumulative impacts on utilities, service systems, and energy. The proposed project would not exceed wastewater treatment requirements and would not

result in new wastewater treatment or stormwater drainage facilities. Any solid waste would be accommodated by local landfills. Although the proposed project would involve the use of increased electricity and fuel during construction and operation, it is intended to improve or replace aging water system infrastructure with newer, more efficient machinery in order to provide a reliable future water infrastructure necessary to meet the projected growth of PWD service area. Therefore, when considered in addition to the anticipated impacts of other projects in the cumulative scenario related to utilities, service systems, and energy usage, the project's incremental contribution to energy would not be cumulatively considerable. Impacts would be less than significant.

Mitigation Measures

None required.

Significance Determination: Less than Significant

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CHAPTER 5
Growth Inducement

5.1 Introduction

The California Environmental Quality Act (CEQA) Guidelines (Section 15126.2(d)) require that an environmental impact report (EIR) include a discussion regarding the potential for project-related growth inducing impacts. The CEQA Guidelines provide the following guidance for the discussion and consideration of growth-inducing impacts:

> *Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.*

A project can have direct and/or indirect growth inducement potential. An example of a project that is directly growth-inducing is one that involves construction of new housing. An example of an indirectly growth-inducing project is one that require a substantial new permanent or temporary new employment demand that would then stimulate the need for additional housing and services. A project would also indirectly induce growth if it would remove an obstacle to additional growth and development, including a constraint on a required public service.

Water supply availability and service is one of the chief, though not the only, public services needed to support development. Implementation of the proposed Water System Master Plan (WSMP) would provide the water system infrastructure necessary to convey water supply to meet projected growth of the Palmdale Water District (PWD) service area through 2040. As such, implementation of the proposed project may help to remove water supply availability as one obstacle to further development and population growth (as projected by local planning documents) within PWD boundaries and adjacent areas of Los Angeles county, which are expected to experience new development and growth by 2040. While available water supply would play a role in supporting project growth in the PWD service area, it would not be the single impetus to such growth. Other factors, including general plans and policies, the availability of wastewater disposal capacity, public schools, transportation services, and other important public

infrastructure, also influence business and residential or population growth. Economic factors, in particular, greatly affect development rates and locations.

5.2 Methodology

In accordance with the CEQA Guidelines, implementation of the proposed project could have an indirect growth inducement potential. As indicated in the CEQA Guidelines excerpt above, growth inducement itself is not necessarily an adverse impact. Rather, it is the potential consequences of growth, the secondary effects of growth, which may result in environmental impacts. Potential secondary effects of growth include increased demand on other public services; increased traffic and noise; degradation of air quality; loss of plant and animal habitats; and the conversion of agriculture and open space to developed uses. Growth inducement may result in adverse impacts if the growth is not consistent with local land use plans and growth management plans and policies for the area; this "disorderly" growth could indirectly result in additional adverse environmental impacts. Thus, it is important to assess the degree to which the growth accommodated by a project would or would not be consistent with applicable land use plans.

This section analyzes the nature and extent of growth inducement potential for the proposed project. The analysis includes an assessment of existing and projected population levels, and existing and projected water supply and demand, as well as a discussion of conformance with pertinent general plans. Growth inducement potential is then assessed.

5.3 Project Area Population and Water Demand Projections

5.3.1 Population Projections

PWD's primary service area covers approximately 46 square miles and includes the central and southern portions of the City of Palmdale and adjacent unincorporated areas of Los Angeles County, while the entire PWD service area consist of about 140 square miles overlying more than thirty non-contiguous areas scattered throughout the Antelope Valley. The PWD distribution system encompasses approximately 400 miles of pipeline, multiple well sites, booster pump stations, and water storage tanks maintaining a total storage capacity of over 50 million gallons. PWD serves approximately 26,500 active connections, 96 percent of which are residential, 3 percent of which are commercial, and 1 percent of which are landscape irrigation connections (PWD 2016).

The City of Palmdale experienced increased growth from 1980 to 1990, when its annual population growth rate peaked at approximately 50 percent in 1990. However, by 1992, the City's annual growth rate was down to only about 8 percent. The City of Palmdale's 1993 General Plan identified limits to urban development as a major issue relating to the City's continued expansion, and also identified inability to assure adequate water resources due to the overdrafted groundwater basin as a potential impediment to the City maintaining the high rate of growth experienced from 1980-1990 (City of Palmdale 1993). Nonetheless, the population of the City of Palmdale grew from 138,423 in 2005 to 152,622 in 2010, according to the 2010 U.S. Census, and

was the third fastest growing city in Los Angeles County between 2009 and 2010, with a 1.2 percent growth rate (Department of Finance 2010). The 2016 Regional Transportation Plan (RTP) prepared by the Southern California Association of Governments (SCAG) included the most recent finalized population projections for the City of Palmdale, which are show in in **Table 5-1**.

Since PWD's primary service area boundary does not coincide with the City boundary, only a portion of the City of Palmdale residents reside within the PWD service area. Therefore, population estimates for the City do not accurately portray the population within PWD's service area. To estimate a population specific to PWD boundaries, PWD used SCAG growth rates for the City of Palmdale and applied them to the population recorded in the 2010 census within the PWD boundary. These estimates are included in the 2015 PWD Urban Water Management Plan (UWMP) (PWD 2016) and are presented in Table 5-1. According to the 2015 UWMP, Population within PWD's service area has increased by 20 percent from 2000 to 2015 for a total of approximately 118,227 people (PWD 2016). Both SCAG and PWD projection estimates included in Table 5-1 predict that the population in the City and PWD's service area will increase from 23-25 percent between 2015 and 2040, which is the planning horizon for the long-term projects included in the CIP for the WSMP.

TABLE 5-1
POPULATION PROJECTIONS

	2015	2020	2025	2030	2035	2040
City of Palmdale (2016 RTP)	154,200	166,500	--	--	183,100	201,500
PWD (2015 UWMP)	118,227	131,200	137,700	144,300	150,800	157,300

SOURCE: SCAG 2017; PWD 2016a; PWD 2016b.

5.3.2 Water Supply and Demand

PWD currently receives water from three sources: imported water from the State Water Project (SWP), groundwater, and surface water from Littlerock Dam Reservoir. PWD's 2015 UWMP anticipates that, on track with the rest of California, the total demand trend of water supplies is expected to continue to rise in the Antelope Valley because of population growth, planned development, economic activity, and water quality needs (PWD 2016). Water demand projections are shown in **Table 5-2**, which show that demand will grow at a similar rate to the population projections through 2040 (approximately 24% throughout the 20-year planning horizon) (PWD 2016). Supply and demand of the three sources of PWD's water supply are discussed below.

PWD is one of 29 water agencies that have an SWP Water Supply Contract with the California Department of Water Resources (DWR). The availability of these imported supplies is dependent on the amount of precipitation in the watershed, the amount of that precipitation that runs off into the watershed, water use by others in the watershed and the amount of water in storage in the SWP's Lake Oroville at the beginning of the year. Variability in the location, timing, amount and form (rain or snow) of precipitation, as well as how wet or dry the previous year was, produces variability from year to year in the amount of water that is available for the SWP. Since 2011, imported water has accounted for approximately 26 to 66 percent of the PWD's water supply. As

shown in Table 5-2, imported water is anticipated to increase by 2020, but then stay at relatively stable levels through 2040.

TABLE 5-2
PWD CURRENT AND PROJECTED WATER SUPPLY AND DEMAND

Source	Detail	2015	2020	2025	2030	2035	2040
Groundwater	AVGB	11,200	6,280	4,140	2,770	2,770	2,770
Groundwater	Return Flow Credit	0	5,000	5,000	5,000	5,000	5,000
Surface Water	Littlerock Reservoir	500	4,000	4,000	4,000	4,000	4,000
Imported Water	State Water Project	5,800	13,200	13,000	13,000	13,000	13,000
Imported Water	Transfer Agreement	0	6,200	6,100	6,100	6,100	6,100
Recycled Water*	PRWA/LACSD	100	2,500	5,000	5,500	6,00	6,000
	Total Supply	**17,600**	**37,180**	**37,240**	**36,370**	**36,870**	**36,870**
	Total Demand	**-**	**23,300**	**26,900**	**28,400**	**29,900**	**31,000**

Note: All values are in unit AF.

Source: 2015 Urban Water Management Plan for PWD, Final 2016: Table 4-2; Table 6-1.

PWD agreed to a stipulated judgement in 2015 regarding the adjudication of the Antelope Valley Groundwater Basin, which resulted in PWD receiving a groundwater production right of 2,770 AFY. This is a significant reduction of PWD's prior rights, which previously allowed pumping up to 12,000 AFY on an annual basis. Although the stipulated judgment is currently undergoing an appeals process, PWD anticipates it is unlikely that its groundwater production will change significantly as a result of the appeal (PWD 2016). The PWD is also entitled to a pumping allocation for return flow credit of imported water used, which is equal to 39% of all of the SWP water utilized by the PWD, which are projected to be an average of 5,000 AF through 2040. Table 5-2 demonstrates that groundwater production, based on the conditions included in the stipulated judgement, is anticipated to decrease from 2015 to 2040.

Local surface water production accounts for approximately one to 10 percent of PWD's water supplies. Littlerock Dam Reservoir serves as the PWD's primary local surface water supply source and is located in the hills southwest of the PWD service area. PWD anticipates that 50 percent of the average available historic yield (8,000 AF), or 4,000 AF, will be available for all future years through 2040.

PWD is taking proactive steps to include water recycling in its water supply portfolio. In 2012, PWD and the City of Palmdale joined together to form the Palmdale Recycled Water Authority (PRWA) to manage recycled water within PWD's service area. Anticipated non-potable and indirect reuse recycled water supplies would be used for landscape irrigation at parks, schools, and golf courses, as well as for recharge in the Lancaster subbasin. PWD, in conjunction with LACSD, has proposed a Recycled Water Backbone System, which would connect the Lancaster Water Reclamation Plant (WRP) and the Palmdale WRP (operated by LACSD) to allow recycled water from both plants to be used throughout the Antelope Valley. In 2015, the Palmdale WRP produced 10,700 AFY of Title 22 recycled water. PWD anticipates that number will grow linearly at the same rate as potable demands from 2020 to 2040 (PWD 2016). By 2040, PWD anticipates

6,000 AFY of recycled water will be used to meet demand within its service area and offset the need for potable supplies. Recycled water represents an area of water supply growth for PWD.

5.4 Palmdale General Plan Goals and Policies

Given its dramatic historical increase in population and continued projected future growth, the 1993 City of Palmdale General Plan recognized the need to identify policies and programs designed to address and manage its future growth.

5.4.1 City of Palmdale General Plan

Land Use Element

The City of Palmdale General Plan identifies the types of development that will be allowed, the spatial relationships among land uses, and the general pattern of future development in the city. The City of Palmdale General Plan also addresses planning issues that may affect or be affected by areas outside of the existing city limits. The following is a selected list of General Plan goals, objectives, and polices that are applicable to the proposed project (City of Palmdale 1993; City of Palmdale 2003).

Land Use Element

Goal ER4: Protect the quality and quantity of local water resources.

Objective ER4.1: Ensure that ground water supplies are recharged and remain free of contamination.

Objective ER4.2: Minimize the impacts of urban development on groundwater supplies.

Policy ER4.2.4: Coordinate with local water agencies to monitor ground water levels, State water allocations and development approvals, to assure that development does not outpace long-term water availability. In the event applicable water agencies notify the City that ground water levels and State water allocations are insufficient to serve existing development or projected development, the City will determine whether it is appropriate to reevaluate this General Plan and take other appropriate actions, as permitted by law.

Objective ER4.3: Maintain and further the City's commitment to long-term water management within the Antelope Valley by promoting and encouraging planning for the conservation and managed use of water resources, including groundwater, imported water, and reclaimed water.

Public Services Element

According to the City of Palmdale Public Services Element, the City is “committed to pursuing all available means of providing adequate services and facilities to meet the demands of the community’s needs, so as to maintain and enhance the quality of life for its residents.” The following goal, objective and policy pertain to water services within the City (City of Palmdale 1993):

Objective PS2.1: Require that all development be serviced by water supply systems meeting minimum standards for domestic and emergency supply and quality.

Policy PS2.1.4: Support water suppliers and other jurisdictions within the Antelope Valley in studying the current status and projected needs for water supply and delivery.

5.4.2 Palmdale Strategic Plan

In addition to the General Plan, the Palmdale Strategic Plan was developed to chart a course and create a vision for the future of the city that will ensure financial viability and standards of living. The Strategic Plan identifies long-term direction, short-term goals, and action steps to manage future population growth.

Strategic Goal Water 1: Comprehensively address all sources of water (State Water Project supplies, groundwater, surface runoff and conservation efforts) to maximize the resources available to both sustain existing development and promote future growth.

Strategic Goal G1: Review Zoning Ordinance standards of development with the intent of upgrading; specifically, focus on adding measures to increase the degree to which future development adds to a sustainable community by conserving water and energy and minimizing environmental impacts.

Strategic Goal G2: Review application and impact fees to ensure that new development is not subsidized by existing residents.

5.5 Growth Inducement Potential

Implementation of the WSMP would not have a direct growth inducement effect, as it does not propose development of new housing that would attract additional population to the area. Further, implementation of the proposed project would not result in substantial permanent employment that could indirectly induce population growth. Although construction of the near-term and long-term facilities would create some short-term construction employment opportunities over the duration of project activities through 2040, the amount of opportunities created would not require persons outside of the existing Antelope Valley work force.

Two of the proposed project's objectives are to provide future water system infrastructure necessary to meet projected growth of the PWD service area, as well as to ensure a potable water supply capable of meeting overall annual water demand by 2040. The proposed project expects to achieve these goals by implementing the recommended projects in the WSMP's CIP that will address existing system deficiencies, replace aging infrastructure and provide facilities necessary to meet future growth. However, the WSMP would not be creating a new or expanded water supply that could create an indirect growth inducement potential (like construction of a new water treatment plant might). The WSMP does not include infrastructure to convey recycled water to end users for beneficial reuse.

The local jurisdictions that govern land use and development in PWD include the City of Palmdale and the County of Los Angeles. The adopted General Plan documents guide the type, location, and level of land use and development. Both of these jurisdictions have assessed the

growth-related impacts associated with planned land use and growth allowed under their General Plans and the CEQA EIRs they have prepared for those plans. In addition, SCAG, the regional authority charged with providing a framework for coordination of orderly regional growth and development, prepared the Regional Comprehensive Plan (RCP) (SCAG 2008), which combines regional planning efforts into a single focused document. The RCP addresses growth management as well as several core elements including housing, transportation, air quality, and water. The principal objectives of the RCP are to coordinate regional and local decisions with respect to future growth and development and to minimize future environmental impacts. SCAG has also prepared the 2016 RTP (SCAG 2016). The RTP acts as a long-term planning and management plan for the regional transportation system, providing mitigation measures to off-set the impacts of growth projected in the RCP. The Draft RTP/Sustainable Communities Strategy (SCS) PEIR identifies significant unavoidable impacts in a number of issue areas, and concludes that when population and employment growth is held constant, many adverse environmental impacts will be significant and unavoidable regardless of whether the RTP is approved (SCAG 2015).

PWD does not have the authority to make land use decisions to halt or alter growth and development patterns or approvals, nor does it have the authority to address many of the potentially significant, secondary effects of planned growth. Authority to implement those measures lies with the City of Palmdale and the County of Los Angeles. PWD does have the authority to take actions and implement projects to help mitigate the secondary effects of growth on water resources and water supply services within the service area.

While the WSMP would provide future water system infrastructure to meet future growth within PWD's service area, the components to be constructed as part of the project would support planned population growth that has been identified within the service area. The WSMP would not be creating a new water supply that would induce future growth. Rather, as a capital improvement plan, the improvements would accommodate the population growth already planned by SCAG and the City of Palmdale such that water infrastructure reliability would not be an impediment to already-planned growth. Additionally, the majority of the proposed facilities would be implemented in phases after 2020. As such, the most up-to-date current and projected water demand estimates would be assessed by PWD prior to implementing long-term facilities in future phases. Facilities would not be implemented if they are not determined necessary to deliver water to meet demand. For instance, many of the long-term projects would support future residential neighborhoods identified by the City of Palmdale and SCAG. If those residential neighborhoods are never built, water supply provided by PWD to those neighborhoods would not be needed, and associated WSMP infrastructure would not be constructed. As a result, the WSMP neither supports nor encourages growth within the PWD service area to a greater degree than presently estimated by the City of Palmdale and SCAG as described above, as land use jurisdictions over the project area. The WSMP would not remove any obstacles to growth and would not indirectly have a significant impact on growth inducement. As a result, impacts to growth inducement would be less than significant.

5.6 References

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CHAPTER 6
Alternatives Analysis

6.1 CEQA Requirements for Alternatives Analysis

The California Environmental Quality Act (CEQA) requires that an environmental impact report (EIR) describe and evaluate a reasonable range of feasible alternatives to a project, or to the location of a project, that would attain most of the project objectives and avoid or substantially lessen significant project impacts. The alternatives analysis must also include the "No Project Alternative" as a point of comparison. The No Project Alternative includes existing conditions and reasonably foreseeable future conditions that would exist if the project were not approved (*CEQA Guidelines* Section 15126(d)). The environmental impacts associated with the alternatives are evaluated relative to the impacts associated with the proposed project.

CEQA Guidelines (§15126.6) set forth the following criteria for alternatives:

- **Identifying Alternatives.** The range of alternatives is limited to those that would avoid or substantially lessen any of the significant effects of the project, are feasible, and would attain most of the basic objectives of the project. Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site. An EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote and speculative. The specific alternative of 'no project' shall also be evaluated along with its impact.
- **Range of Alternatives.** An EIR need not consider every conceivable alternative, but must consider a reasonable range of alternatives that will foster informed decision-making and public participation. The "rule of reason" governs the selection and consideration of EIR alternatives, requiring that an EIR set forth only those alternatives necessary to permit a reasoned choice.
- **Evaluation of Alternatives.** EIRs are required to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. Matrices may be used to display the major characteristics of each alternative and significant environmental effects of each alternative to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed but in less detail than the significant effects of the project.

6.1.1 Project Objectives

The primary objectives of Palmdale Water District's (PWD) proposed 2016 Water System Master Plan (WSMP) are to:

- Provide cost-effective and fiscally responsible water services that meet the water quantity, water quality, system pressure, and reliability requirements of PWD customers;
- Improve or replace existing PWD water system infrastructure;
- Provide future water system infrastructure necessary to meet projected growth of PWD service area; and
- Ensure a potable water supply capable of meeting overall annual water demand that is projected to double over the next 25 years.

6.1.1 Key Impacts of the Proposed Project

Chapter 3 of this program environmental impact report (PEIR) identifies potential impacts associated with the proposed project for each environmental issue area in Appendix F and Appendix G of the CEQA Guidelines, including near-term components analyzed at the project-level and long-term components analyzed at the program-level. Chapters 4 and 5 address cumulative impacts and those anticipated related to growth-inducement. Mitigation measures were identified to reduce the majority of impacts to a less than significant level. Potentially significant and unavoidable impacts were found for temporary construction-related ambient noise levels and to cumulative noise impacts. A summary of the significance of the greatest impacts for each environmental resource analyzed in Chapters 3, 4, and 5 is presented below in **Table 6-1**. Specific impacts and all mitigation measures are provided in Table ES-1 in the Executive Summary of this Draft PEIR.

6.2 Alternatives to the Project

6.2.1 Reduced Project Alternative

Under the Reduced Project Alternative, PWD would only implement the WSMP near-term project components which address existing water system deficiencies that critically affect the ability of PWD to provide a reliable water supply to its customers. These components are the highest priority for PWD and are planned to be constructed prior to 2020. The Reduced Project Alternative would be implemented by PWD if growth projections in the service area do not materialize as planned. Many of the long-term components would be constructed to support future growth (i.e. new residential developments), and if this growth does not occur, the need for long-term components becomes less necessary. Components in the Reduced Project Alternative include Storage Tanks ES-01, FS-01, and ES-03; Pumps EB-01, FB-01, and FB-02 to be constructed at existing pump stations; Fire flow pipelines FF-01, FF-04, FF-05, FF-06, and FF-07 and other age-based pipeline improvements and expansions (see Figures 2-2a through 2-2e). The long-term project components are not considered to be immediately critical or high priority to PWD, and would not be constructed as part of the Reduced Project Alternative.

TABLE 6-1
SUMMARY OF PROJECT IMPACT ANALYSIS

Environmental Resource	Significance Determination
Aesthetics	LSM
Agriculture and Forestry Resources	LTS
Air Quality and Greenhouse Gases	LTM
Biological Resources	LSM
Cultural Resources	**LSM**
Geology, Soils, Seismicity, and Minerals	LSM
Hazards and Hazardous Materials	LSM
Hydrology and Water Quality	LSM
Land Use and Recreation	LSM
Noise	Potentially SU
Public Services	LSM
Traffic and Transportation	LSM
Tribal Cultural Resources	**LSM**
Utilities and Energy	LTS
Cumulative Impacts	LSM + Potentially SU

LTS = Less than Significant
LSM = Less than Significant with Mitigation
SU = Significant and Unavoidable

SOURCE: ESA 2018.

Ability to Meet Project Objectives

Implementation of the Reduced Project Alternative would meet some of the project objectives because, fundamentally, this alternative would be implemented only if population growth and associated water demand was less than anticipated. The highest-priority components would be constructed in order to improve and replace existing PWD water system infrastructure. However, without construction of WSMP long-term components, the Reduced Project Alternative would not meet the project objective of providing infrastructure to meet future growth within PWD's service area. Implementation of the Reduced Project Alternative would not holistically address PWD's need for ensuring a reliable water supply capable of meeting increased water demand within its service area.

Impact Analysis

Aesthetics

Under the Reduced Project Alternative, fewer components would be constructed as part of the proposed project because only the WSMP near-term components would be implemented. Of the aboveground components associated with the WSMP long-term components, 16 storage tanks, 13 pumps/pump stations, and the headquarters building expansion would not be constructed, most of which are on the southern boundary of PWD's service area within highly undeveloped upgradient

parcels that could be seen from developments farther north towards the center of Palmdale. As shown on Figure 3.1-5, several storage tanks and pump stations would be located in the vicinity of State Scenic Highways. As a result, the Reduced Project Alternative would have fewer impacts to aesthetics than the proposed project.

Agriculture and Forestry Resources

The Reduced Project Alternative, like the proposed project, would similarly result in no impacts to agriculture and forestry resources.

Air Quality and Greenhouse Gases

Under the Reduced Project Alternative, none of the of 16 storage tanks, 7 new pumps at five existing pump stations, 6 new pump stations, 5 production wells, over 700,000 feet of transmission pipelines, or the headquarters building expansion that are part of the long-term project components would be constructed. Although the same types of equipment would be used to construct the Reduced Project Alternative as the proposed project, the amount of emissions generated would be reduced under the Reduced Project Alternative because fewer facilities would be constructed over a shorter period of time. Due to the reduced timeframe for potential impacts to air quality (two years of near-term only versus up to 25 years for the long-term components), the Reduced Project Alternative would result in fewer instances of maximum daily emissions from potentially overlapping phases. As such, impacts to air quality and greenhouse gas emissions would be fewer under the Reduced Project Alternative when compared to the proposed project.

Biological Resources

The Reduced Project Alternative and proposed project would implement the same near-term components – storage tanks, pumps, and pipelines. The Reduced Project Alternative would not implement the long-term components, which also includes 16 additional storage tanks, 7 new pumps at five existing pump stations, 6 new pump stations, 5 groundwater wells, over 700,000 feet of pipelines, and the headquarters building expansion. The Reduced Project Alternative would result in less land disturbance because fewer facilities would be built. The Reduced Project Alternative would result in construction and operation on fewer acres of disturbed habitat that supports biological resources. As a result, the impacts to sensitive and special-status plant and terrestrial species would be fewer under the Reduced Project Alternative when compared to the proposed project.

Cultural Resources

The Reduced Project Alternative and proposed project would implement the same near-term components – storage tanks, pumps, and pipelines. The Reduced Project Alternative would not implement the long-term components, which also includes 16 additional storage tanks, 7 new pumps at five existing pump stations, 6 new pump stations, 5 groundwater wells, over 700,000 feet of pipelines, and the headquarters building expansion. The Reduced Project Alternative would result in less land disturbance because fewer facilities would be built. The Reduced Project Alternative would result in construction and operation on fewer acres with potential to impact

cultural resources or convey cultural significance. As a result, the impacts to cultural resources would be fewer under the Reduced Project Alternative when compared to the proposed project.

Geology, Soils, Seismicity, and Minerals

The geologic features of the project area include a liquefaction and fault zone which extends along the southern portion of the project area as shown in Figure 3.6-1. This area includes equal amounts of near-term and long-term facilities. Implementation of the Reduced Project Alternative would involve construction and operation of near-term project facilities that would be located within these fault and liquefaction zones. As a result, the Reduced Project Alternative would not result in reduced impacts to fault rupture and ground shaking, loss of topsoil, geologic instability and soil expansiveness, given the similarity of geologic characteristics throughout PWD's service area as shown on Figure 3.6-1. Therefore, impacts to geology, soils, and seismicity would be similar under the Reduced Project Alternative when compared to the proposed project.

Mineral resources are generally located in the eastern portion of PWD's service area (see Figure 3.6-2) where three of the five long-term production wells would be located. Implementation of the Reduced Project Alternative would completely avoid construction of wells within the MRZ-2 area. However, as explained in Section 3.6, the proposed project would not impact these mineral-rich areas; therefore, the proposed project and the Reduced Project Alternative would not impact mineral resources and would result in similar impacts.

Hazards and Hazardous Materials

The Reduced Project Alternative and proposed project would implement the same near-term components – storage tanks, pumps, and pipelines. The Reduced Project Alternative would not implement the long-term components, which also includes 16 additional storage tanks, 7 new pumps at five existing pump stations, 6 new pump stations, 5 groundwater wells, over 700,000 feet of pipelines, and the headquarters building expansion. Because the Reduced Project Alternative and near-term proposed project components would be constructed and operated in the same locations, the Reduced Project Alternative and proposed project would generally result in the same impacts associated with the near-term components involving the release of hazardous materials, emission of hazardous materials near schools, inclusion of project facilities near hazardous materials sites and airports, conflicts with emergency plans, and risk of wildland fires. However, because so many fewer components would be constructed as part of the Reduced Project Alternative, the likelihood of accidental spills and releases of hazardous materials would be lower than under the proposed project. As a result, impacts to hazards and hazardous materials would be fewer under the Reduced Project Alternative when compared to the proposed project.

Hydrology and Water Quality

The Reduced Project Alternative and proposed project would implement the same near-term components – storage tanks, pumps, and pipelines. The Reduced Project Alternative would not implement the long-term components, which also includes 16 additional storage tanks, 7 new pumps at five existing pump stations, 6 new pump stations, 5 groundwater wells, over 700,000 feet of pipelines, and the headquarters building expansion. Because the Reduced Project Alternative and near-term proposed project components would be constructed and operated in the

same locations, the Reduced Project Alternative and proposed project would generally result in the same impacts associated with near-term components to water quality standards and waste discharge requirements, drainage patterns, stormwater drainage capacity, and flood hazards. The Reduced Project Alternative would avoid construction and operation of pipelines to be constructed as part of the long-term components within the Lake Palmdale Dam Inundation Area and 100-year flood zone. Additionally, groundwater production wells proposed under the long-term components would not be constructed or operated under the Reduced Project Alternative. Although the Antelope Valley Groundwater Basin is currently adjudicated which limits the amount of groundwater PWD is allowed to pump annually, the reduced pumping amount under the Reduced Project Alternative would result in fewer impacts to groundwater resources. As a result, impacts to hydrology and water quality would be fewer under the Reduced Project Alternative when compared to the proposed project.

Land Use and Recreation

Given the vast location of proposed facilities throughout PWD's service area, which includes multiple kinds of land uses and recreation areas, the proposed project and the Reduced Project Alternative would generally result in similar impacts. Neither would divide an establish community or conflict with a habitat conservation plan. Similar impacts could result from constructing components within or adjacent to airport land use areas and near recreational facilities. Regarding recreation, the proposed near-term storage tank ES-03 and the proposed near-term pipeline along Sierra Highway would be implemented within areas designated as open space (refer to Figure 3.9-1). According to the City of Palmdale General Plan, land designated as open space is considered to be a recreational land use. Depending on the area required for the facility, an individual project could result in the removal of a portion of open space that could be used for recreational activities, which is the case for near-term storage tank ES-03 and the pipeline along Sierra Highway. Because the proposed project and the Reduced Project Alternative both include construction of near-term components, potential impacts to recreation would be similar. However, long-term components could also be constructed within open space areas, which could result in greater impacts to recreation for the proposed project. As a result, impacts to land use and recreation would be slightly greater under the proposed project when compared to the Reduced Project Alternative.

Noise

The Reduced Project Alternative and proposed project would implement the same near-term components – storage tanks, pumps, and pipelines. The Reduced Project Alternative would not implement the long-term components, which also includes 16 additional storage tanks, 7 new pumps at five existing pump stations, 6 new pump stations, 5 groundwater wells, over 700,000 feet of pipelines, and the headquarters building expansion. As such, the types of equipment to be used to construct and operate the facilities under the Reduced Project Alternative would be the same when compared to the near-term components of the proposed project. In addition, distances from proposed facilities to sensitive receptors under the Reduced Project Alternative and the proposed project would be the same. The Reduced Project Alternative would avoid construction of long term components including over 700,000 feet of pipelines, and storage tanks and pump stations near sensitive receptors, thus reducing (but not eliminating) the potential number of

individual exceedances of temporary ambient noise level increases within the project area. As a result, the Reduced Project Alternative would still result in potentially significant and unavoidable impacts due to construction-related temporary ambient noise level impacts. Therefore, impacts to noise would be similar under the Reduced Project Alternative and the proposed project.

Public Services

Similar to the proposed project, the Reduced Project Alternative would not directly induce substantial population growth, therefore additional fire or police protection, schools, or parks would not be required to accommodate additional population. As a result, impacts to public services would be similar under the Reduced Project Alternative when compared to the proposed project.

Traffic and Transportation

The Reduced Project Alternative and proposed project would implement the same near-term components – storage tanks, pumps, and pipelines. The Reduced Project Alternative would not implement the long-term components, which also includes 16 additional storage tanks, 7 new pumps at five existing pump stations, 6 new pump stations, 5 groundwater wells, over 700,000 feet of pipelines, and the headquarters building expansion. The majority of impacts to traffic and transportation would be the same under the Reduced Project Alternative when compared to the proposed project. However, the proposed project includes up to 700,000 feet of transmission pipelines which would occur under the long-term components compared to approximately 15,000 feet under the Reduced Project Alternative. As a result, the Reduced Project Alternative, which includes only near-term components, would result in fewer temporary impacts to local traffic and circulation as a result of installation of approximately 15,000 feet of pipelines within rights-of-ways compared with the proposed project. As a result, the Reduced Project Alternative would result in fewer construction-related impacts to traffic and transportation when compared to the proposed project.

Tribal Cultural Resources

The Reduced Project Alternative and proposed project would implement the same near-term components – storage tanks, pumps, and pipelines. The Reduced Project Alternative would not implement the long-term components, which also includes 16 additional storage tanks, 7 new pumps at five existing pump stations, 6 new pump stations, 5 groundwater wells, over 700,000 feet of pipelines, and the headquarters building expansion. The Reduced Project Alternative would result in less land disturbance because fewer facilities would be built. The Reduced Project Alternative would result in construction and operation on fewer acres with potential to impact tribal cultural resources. As a result, the impacts to tribal cultural resources would be fewer under the Reduced Project Alternative when compared to the proposed project.

Utilities, Service Systems, and Energy

The Reduced Project Alternative and proposed project would implement the same near-term components – storage tanks, pumps, and pipelines. The Reduced Project Alternative would not

implement the long-term components, which also includes 16 additional storage tanks, 7 new pumps at five existing pump stations, 6 new pump stations, 5 groundwater wells, over 700,000 feet of pipelines, and the headquarters building expansion. Impacts to wastewater treatment, stormwater drainage facilities, and landfill capacity would be similar under the Reduced Project Alternative and proposed project since facilities constructed are not anticipated to cause significant environmental effects in these areas. As a result, impacts to utilities and service systems would be similar under the Reduced Project Alternative when compared to the proposed project.

However, impacts to energy consumption would differ for the Reduced Project Alternative and the proposed project. The duration of project construction for the proposed project would last from 2019 through 2040, while construction for the Reduced Project alternative would only be two years. As such, energy consumption would be greater for the proposed project than the two years anticipated to construct the near-term components under the Reduced Project Alternative. Operation of the proposed project would involve additional pump stations and storage tanks that would require more energy. Additionally, the proposed project includes operation of five groundwater production wells which would require approximately 407 kW of total power to each operate. Based on the duration of construction and fewer facilities to operate, the Reduced Project Alternative would result in less energy consumption than the proposed project.

Cumulative Impacts

In general, because the Reduced Project Alternative would result in the construction of fewer components, the alternative's contribution to the cumulative scenario analyzed in Chapter 4 of this PEIR would be reduced compared to the proposed project. In addition, since construction of the Reduced Project Alternative would take place from 2019 to 2020, the cumulative contribution would only occur for two years, compared with the proposed project which would last up to 25 years. While operation of the Reduced Project Alternative and the proposed project facilities would occur under similar timeframes (until PWD replaces or decommissions the facilities), the Reduced Project Alternative would create less of a cumulative operational contribution because there are fewer facilities in total to operate which would result in fewer overall emissions, truck trips and consumption of energy. As a result, the Reduced Project Alternative would result in fewer construction and operational-related cumulative impacts that the proposed project.

6.2.2 No Project Alternative

According to Section §15126.6(e) of the CEQA Guidelines, discussion of the No Project Alternative must include a description of existing conditions and reasonably-foreseeable future conditions that would exist if the project were not approved. Under the No Project Alternative, PWD would not implement their Capital Improvement Program (CIP), which would hinder PWD's ability to holistically address existing hydraulic system deficiencies, replace aging infrastructure, or provide the facilities necessary to meet future growth. PWD would continue to use the existing water distribution system to convey water throughout its service area. Existing PWD facilities include 21 storage reservoirs, 17 booster pump stations, 23 active groundwater wells, 14 pressure reducing stations, and approximately 412 miles of pipelines (PWD 2016).

PWD would continue to maintain existing infrastructure, and facilities specifically included in the CIP that are aging, required to meet fire flow requirements or address system deficiencies, would be constructed or modified individually on an ad hoc basis. While PWD could continue to replace or modify infrastructure as needed, the benefits of a comprehensive approach to project implementation under the CIP would not occur under the No Project Alternative. Without the holistic approach and associated benefits of CIP project implementation, PWD could encounter delays in implementing projects related to environmental reviews, local approvals, and other factors not envisioned at this time. Under the No Project Alternative, PWD's ability to provide potable water to its customers could be at risk, due to delay of individual project implementation and other obstacles.

Ability to Meet Project Objectives

Implementation of the No Project Alternative would not provide the benefits of improving and replacing existing PWD water system infrastructure, or provide new infrastructure to meet future growth within PWD's service area. Implementation of the No Project Alternative would not meet any of the stated project objectives and would not address PWD's need for ensuring a reliable water supply capable of meeting increased water demand in the Antelope Valley.

Impact Analysis

Under the No Project Alternative, the identified impacts associated with constructing and operating the proposed project would be avoided for all resource areas. Under the No Project Alternative, potable water would continue to be conveyed through existing PWD infrastructure. Large-scale use of existing facilities without replacement or upgrade could render PWD's service area subject to breakdown or failure. Under the No Project Alternative, PWD would be more vulnerable to water supply disruptions caused by infrastructure failures. Additionally, the No Project Alternative would not be able to support planned future growth within the City of Palmdale and larger Antelope Valley region of Los Angeles County. While the No Project Alternative would not necessarily prohibit construction of water infrastructure to accommodate future housing developments and population growth, it would be conducted on an ad-hoc basis and not as part of the CIP.

6.3 Environmentally Superior Alternative

As stated above, the No Project Alternative would avoid many of the environmental impacts of the proposed project and would not meet any of the project objectives. CEQA requires that an EIR identify the environmentally superior alternative of a project other than the No Project Alternative (CEQA Guidelines Section 15126.6(e)(2). A comparison of the proposed project to the Reduced Project Alternative presents a tradeoff between achieving project objectives and impacting the environment. The Reduced Project Alternative would meet some of the project objectives by constructing the highest-priority components in order to improve and replace existing PWD water system infrastructure. However, without construction of long-term components, the Reduced Project Alternative may not meet the project objective of providing infrastructure to meet future growth within PWD's service area. In terms of impacts, the Reduced Project Alterative results in the same impacts as the near-term components of the proposed

project for many of the resources above. However, since the Reduced Project Alternative does not include the long-term components of the proposed project, it results in fewer environmental impacts to aesthetics, air quality and greenhouse gas emissions, biological resources, hazards and hazardous materials, hydrology and water quality, traffic and transportation, utilities and energy, and cumulative impacts. The reductions in impacts are based in large part on the fewer number of components to be built over a shorter period of time than the proposed project (see **Table 6-2**). It should be noted that while the Reduced Project Alternative lessens noise impacts, it does not eliminate altogether the potentially significant and unavoidable impact conclusion reached for the proposed project regarding temporary increases in ambient noise levels during construction. Nonetheless, the Reduced Project Alternative would therefore be considered the environmentally superior alternative.

TABLE 6-2
SUMMARY OF ALTERNATIVES ANALYSIS
RELATIVE IMPACTS AS COMPARED TO THE PROPOSED PROJECT

Environmental Resource	Proposed Project	Reduced Project Alternative	No Project Alternative
Meets All Project Objectives?	Yes	No	No
Environmental Impacts			
Aesthetics	LSM	-	-
Agriculture and Forestry Resources	LTS	0	-
Air Quality and Greenhouse Gas	LTM	-	-
Biological Resources	LSM	-	-
Cultural Resources	**LSM**	**-**	-
Geology, Soils, Seismicity, and Minerals	LSM	0	-
Hazards and Hazardous Materials	LSM	-	-
Hydrology and Water Quality	LSM	-	-
Land Use and Recreation	LSM	+	-
Noise	Potentially SU	0	-
Public Services	LSM	0	-
Traffic and Transportation	LSM	-	-
Tribal Cultural Resources	**LSM**	**-**	-
Utilities and Energy	LSM	-	-
Cumulative Impacts	LSM + Potentially SU	-	-

LTS = less than significant
LSM = less than significant with mitigation
+ = more severe/more intense
- = less severe/less intense
0 = no change

SOURCE: ESA 2017.

6.4 References

PWD 2016. *2016 Water System Master Plan.* Final Report. Prepared September 2016.

CHAPTER 7
List of Preparers

7.1 Project Sponsor/Lead Agency

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CHAPTER 8
List of Acronyms

8.1 Acronyms

AADT	Average Annual Daily Trips
AB	Assembly Bill
AC	acres
AF	acre-feet
AFP	United States Air Force Plant
AFY	acre-feet per year
AGR	agricultural supply
AIA	airport influence area
AICUZ	Air Installation Compatibility Use Zone
ALA	American Lifelines Alliance
ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
ALUCs	Airport Land Use Commissions
ALUP	Airport Land Use Plan
ANSI	American National Standards Institute
AQMP	Air Quality Management Plan
AR	Airport and Related Uses
AR4	*Fourth Assessment Report*
ASCE	American Society of Civil Engineers
ASF	Age Sensitivity Factors
ATCM	Airborne Toxic Control Measure
AVA	Antelope Valley Areawide
AVAQMD	Antelope Valley Air Quality Management District
AVC	Antelope Valley Conservancy
AVGB	Antelope Valley Groundwater Basin
AVRWMG	Antelope Valley Regional Water Management Group
AVUHSD	Antelope Valley Union High School District
AWWA	American Water Works Association
BACT	Best Available Control Technology
BAU	Business-as-Usual
BMPs	best management practices
CAA	Clean Air Act
CAFE	Corporate Average Fuel Economy

Cal/OSHA	California Division of Occupational Safety and Health
CalARP	California Accidental Release Prevention
CalEPA	California Environmental Protection Agency
CARB	California Air Resources Board
CASQA	California Stormwater Quality Association
CAT	Climate Action Team
CBC	California Building Code
CC	Community Commercial
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDOT	California Department of Transportation
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGC	California Government Code
CGS	California Geologic Society
CH4	methane
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CIP	Capital Improvement Plan
CIWMB	California Integrated Waste Management Board
CM	Commercial Manufacturing
CMP	Congestion Management Plan
CNDDB	*California Natural Diversity Database*
CNPS	California Native Plant Society
CO	carbon monoxide
CO2	carbon dioxide
COLD	Cold Freshwater Habitat
COMM	Commercial and Sportfishing
CUP	conditional use permit
CUPA	Certified Unified Program Agency
CVC	California Vehicle Code
CWA	Clean Water Act
CWMP	Construction Waste Management Plan
D	Distance
DNL	day-night average nose level
DOC	California Department of Conservation
DPFs	diesel particulate filters
DPH	U.S. Department of Public Health
DPM	diesel particulate matter
DPR	direct potable reuse
DTSC	California Department of Toxic Substances Control

DWR	Department of Water Resources
EDU	equivalent dwelling unit
EIR	Environmental Impact Report
EOP	*Emergency Operations Plan*
ESA	Environmental Science Associates
FAA	Federal Aviation Administration
FED	Functional Equivalent Document
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FIP	Federal Implementation Plan
FMMP	Farmland Mapping and Monitoring Program
FRSH	Freshwater Replenishment
FTA	Federal Transit Administration
GAP	Gap Analysis Program
GHG	greenhouse gas
GIS	geographic information systems
GVWR	gross vehicle weight ratings
GWPs	global warming potentials
GWR	Groundwater Recharge
HAPs	hazardous air pollutants
HFCs	hydrofluorocarbons
HMBP	Hazardous Materials Business Plan
HRAs	health risk assessments
IBC	International Building Code
IND	Industrial Service Supply
IPaC	Information, Planning, and Conservation System
IPCC	Intergovernmental Panel on Climate Change
LACFD	Los Angeles County Fire Department
LACM	Natural History Museum of Los Angeles County
LACSD	The Sanitation Districts of Los Angeles County
LADPW	Los Angeles Department of Water and Power
LARWQCB	Los Angeles Regional Water Quality Control Board
LASD	Los Angeles County Sherriff's Department
LDR	Low Density Residential
LOS	Level of Service
LRA	Local Responsibility Area
LRWQCB	Lahontan Regional Water Quality Control Board
LSWPPP	Local Stormwater Pollution Prevention Plan
MBTA	Migratory Bird Treaty Act
MDAB	Mojave Desert Air Basin
MFR	Multifamily Residential
MG	million gallons

MGD	million gallons per day
MLD	Most Likely Descendant
MMRP	Mitigation Monitoring and Reporting Program
MMT	million metric tons
MND	Mitigated Negative Declaration
MRE	Mineral Resource Extraction
MRZ-2	Mineral Resource Zones 2
MS4	municipal separate storm sewer system
MS4s	municipal separate storm sewer systems
MT	metric tons
MUN	Municipal and Domestic Supply
N2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	California Native American Heritage Commission
NC	Neighborhood Commercial
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NGWA	National Ground Water Association
NH3	ammonia
NHTSA	National Highway Traffic Safety Administration
NIMS	National Incident Management System
NMFS	National Marine Fisheries Service
NO	nitric monoxide
NO2	nitrogen dioxide
NOP	Notice of Preparation
NOX	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPPA	National Plant Protection Act
NRCS	National Resource Conservation Service
O3	ozone
OAP	Ozone Attainment Plan
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OHWM	ordinary high water mark
OS	Open Space
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PEIR	Program Environmental Impact Report
PF	Public Facility
PFCs	perfluorocarbons
PM10	fine particulate matter with an aerodynamic resistance diameter of 10 micrometers or less
PM2.5	fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less
PPV	peak particle velocity

PRC	Public Resources Code
PRWA	Palmdale Recycled Water Authority
PSD	Prevention of Significant Deterioration
PWD	Palmdale Water District
RCP	Regional Comprehensive Plan
RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Plan
RMS	root mean square
ROG	reactive organic gas
ROGs	reactive organic gases
ROW	right-of-way
ROWD	report of waste discharge
ROWs	right-of-ways
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
RWQCBs	Regional Water Quality Control Boards
SB	Senate Bill
SCADA	supervisory control and data acquisition
SCAG	Southern California Association of Governments
SCAQMD	Southern California Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SCGC	Southern California Gas Company
SCS	Sustainable Communities Strategy
SEA	Significant Ecological Area
SEACUP	Significant Ecological Area Conditional Use Permit
SEAs	Significant Ecological Areas
SEATAC	Significant Ecological Areas Technical Advisory Committee
SEMS	California Standardized Emergency Management System
SF	square feet
SF6	sulfur hexafluoride
SFR	Single Family Residential
SIP	State Implementations Plan
SLF	Sacred Lands File
SMARA	Surface Mining and Reclamation Act
SNMP	Salt and Nutrient Management Plan
SO2	sulfur dioxide
SO3	sulfur trioxide
SOX	sulfur oxides
SP	Specific Plan
SPWN	Spawning, Reproduction, and Development
SR	State Route
SR-138	State Route 138

SR-14	State Route 14
SRA	State Responsibility Area
STPs	Shovel Test Probes
SVP	Society for Vertebrate Paleontology
SWANCC	Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (2001) 121 S.Ct. 675
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminant
TCE	trichloroethylene
U.S.	United States of America
UCMP	University of California Paleontology
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UWMP	Urban Water Management Plan
VDECS	Verified Diesel Emission Control Strategies
VHFHZ	very high fire hazard severity zones
VOCs	volatile organic compounds
WARM	Warm Freshwater Habitat
WILD	Wildlife Habitat
WRP	Water Reclamation Plant
WSMP	Water System Master Plan
WWECP	Wet Weather Erosion Control Plant

Appendix AQ

Air Quality, Greenhouse Gas and Energy Calculation Worksheets

ESA

AQ-1: Air Quality

Palmdale Water District Water System Master Plan
Air Quality and Greenhouse Gas Emissions Appendix
Construction Assumptions, Calculations and Emissions Summaries

Project Characteristics

Project Location:	Los Angeles County	Climate Zone:	9
Air District:	Antelope Valley AQMD	Operational Year:	2020
Land Use Setting:	Urban	Utility Provider:	SoCal Edison

STORAGE TANKS

Tank Construction Schedule

Construction Phase	Phase Type	Start Date	End Date	Work Days	Workers/Tank	Worker Trips/Day	Vendor Trips/Day
Site Prep/Grading	Grading	1/1/2018	2/3/2018	30	5	15	5
Foundation Installation	Construction	2/4/2018	3/8/2018	28	5	15	0
Tank Installation	Construction	3/9/2018	6/22/2018	91	7	21	0
Tank Finishes	Arch Coating	6/23/2018	9/6/2018	65	4	12	0
Landscaping	Paving	9/7/2018	9/17/2018	9	4	12	0

Tank Dimensions

Tank ES-01		Tank FS-01		Tank ES-03	
Radius	38 ft	Radius	77 ft	Radius	33 ft
Diameter	76 ft	Diameter	154 ft	Diameter	66 ft
Height	30 ft	Height	30 ft	Height	30 ft
Surface Area	11,693 sq ft	Surface Area	33,124 sq ft	Surface Area	9,637 sq ft
Footprint	4,536 sq ft	Footprint	18,627 sq ft	Footprint	3,421 sq ft
Capacity	1.0 MG	Capacity	4.2 MG	Capacity	0.75 MG

Total Grading Footprint:	26,584 sq ft	**Total Exterior Surface**	
Total Acres of Grading:	0.61 acres	**Area for Paint Coating:**	54,454 sq ft
Soil Import/Export:	0 / 0 cy		

Equipment List	Equipment	Amount	Hours/Day	HP	Load Factor
Site Prep/Grading:	Heavy Equipment Transporter (18 wheeler)	1	4	402	0.38
	Backhoe	2	8	97	0.37
	Bulldozer	2	8	247	0.40
	Excavator	2	8	158	0.38
	Dump Truck	1	4	402	0.38
Foundation Installation:	Mixer Truck	2	8	9	0.56
	Backhoe	2	8	97	0.37
	Plate Compactor	2	8	8	0.43
Tank Installation:	Welder	2	8	46	0.45
	Crane	2	8	231	0.29
	Boom Lift	2	8	63	0.31
	Generator	2	8	84	0.74
	Forklift	2	8	89	0.2
Tank Finishes:	Sandblaster	2	8	13	0.3
	Compressor	2	8	78	0.48
	Sprayer	2	8	13	0.3
	Forklift	2	8	89	0.2
Landscaping:	Trencher	2	8	78	0.5
	Backhoe	2	8	97	0.37

Equipment list assumes same equipment will be used at FS-01 and ES-01 given their close proximity. Therefore, two of each equipment will be used in the construction of the storage tanks

PUMP STATIONS

Pumps Construction Schedule

Construction Phase	Phase Type	Start Date	End Date	Work Days	Workers/ Pump Station	Worker Trips/Day	Vendor Trips/Day
Site Preparation	Site Prep	1/1/2018	1/6/2018	5	3	9	4
Yard Piping	Trenching	1/7/2018	1/10/2018	3	5	15	0
Excavation/Grading	Grading	1/11/2018	1/13/2018	3	7	21	0
Foundation Installation	Construction	1/14/2018	1/19/2018	5	6	18	4
Pump House Construction	Construction	1/20/2018	2/23/2018	30	5	15	0
Site Restoration	Paving	2/24/2018	3/1/2018	5	4	12	0

Pump Dimensions

Pump EB-01		Pump FB-01		Pump FB-02	
Footprint	21 sq ft	Footprint	8 sq ft	Footprint	8 sq ft
Capacity	3,500 gpm	Capacity	300 gpm	Capacity	650 gpm

Total Grading Footprint:	37 sq ft

Equipment List	Equipment	Amount	Hours/Day	HP	Load Factor
Site Preparation:	Heavy Equipment Transporter (18 wheeler)	1	4	402	0.38
Yard Piping:	Backhoe	2	8	97	0.37
	Water Truck	2	2	402	0.38
	Excavator	2	8	158	0.38
Excavation/Grading:	Backhoe	2	8	97	0.37
	Bulldozer	2	8	247	0.4
	Excavator	2	8	158	0.38
	Dump Truck	1	4	402	0.38
Foundation Installation:	Mixer Truck	2	6	9	0.56
	Backhoe	2	8	97	0.37
	Concrete Compactor	2	8	8	0.43
Pump House Construction:	Welder	2	8	46	0.45
	Crane	2	8	231	0.29
	Boom Lift	2	8	63	0.31
	Generator	2	8	84	0.74
Site Restoration:	Trencher	2	8	78	0.5
	Backhoe	2	8	0.97	0.37

Equipment list assumes same equipment will be used at FB-01 and FB-02 given their close proximity. Therefore, two of each equipment will be used in the construction of the booster pump stations.

PIPELINES

Pipeline Construction Schedule

Construction Phase	Phase Type	Start Date	End Date	Work Days	Workers/ Pipeline	Worker Trips/Day	Vendor Trips/Day
Site Preparation	Site Prep	1/1/2018	1/4/2018	4	3	9	3
Traffic Control	Site Prep	1/5/2018	3/9/2018	55	5	15	0
Pothole	Trenching	1/5/2018	1/17/2018	11	4	12	0
Pipe Installation	Construction	1/18/2018	2/28/2018	36	6	18	5
Paving	Paving	3/1/2018	3/9/2018	8	5	15	0
Site Restoration	Paving	3/10/2018	3/15/2018	5	4	12	0

Pipline Installation: Main Replacement (Provided by Client)	
2,800	ft
36	days of pipe install
78	ft/day of pipe install
6	ft trench width (assumed)
467	sq ft graded/day
16,800	total sq ft graded
0.39	acres

Pipeline Dimensions

Fire Flow Pipelines			**Expansion/Improvement**		
Pipe FF-01	2,675	ft	**Pipe ES-01**	2390	ft
Pipe FF-04	965	ft	**Pipe ES-03**	3540	ft
Pipe FF-05	1,570	ft	**Pipe EB-01**	8028	ft
Pipe FF-06	48	ft	**Pipe 4th St**	561	ft
Pipe FF-07	1,400	ft		14,519	ft
			Total Pipeline	21,177	ft

Pipeline installation assumes approximately 78 ft of pipeline will be installed each day,
given an example scenario of 2,800 ft of pipeline installation over a 36 day installation period.

Equipment List	Equipment	Amount	Hours/Day	HP	Load Factor
Site Preparation:	Heavy Equipment Transporter (18 wheeler)	1	4	402	0.38
Traffic Control:	Signal Boards	4	8	6	0.82
Pothole:	Pothole Machine	1	8	78	0.48
Pipe Installation:	Backhoe	1	8	97	0.37
	Water Truck	1	4	402	0.38
	Excavator	1	8	158	0.38
	Dump Truck	1	8	402	0.38
	Generator	1	8	84	0.74
	Plate Compactor	1	8	8	0.43
	Cement Mixer	1	8	9	0.56
Paving:	Paver	1	8	130	0.42
	Dump Truck	1	8	402	0.38
	Roller	1	8	80	0.38
Site Restoration:	Trencher	1	8	78	0.5
	Backhoe	1	8	97	0.37

Palmdale Water District Water System Master Plan
Air Quality and Greenhouse Gas Emissions Appendix
Storage Tank Unmitigated Construction Emissions

Site Prep / Grading

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Fugitive Dust					7.05E+00	3.87E+00
Off-Road	4.216	44.8961	24.1794	4.68E-02	2.1979	2.0221
On Site Total	**4.216**	**44.8961**	**24.1794**	**0.0468**	**9.2522**	**5.896**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0.0228	0.6715	0.1522	1.48E-03	0.0386	0.0143
Worker	0.0855	0.0612	0.7911	1.27E-03	0.1243	0.0337
Off Site Total	**0.1083**	**0.7327**	**0.9433**	**0.00275**	**0.1629**	**0.048**
Total Emissions	**4.3243**	**45.6288**	**25.1227**	**0.04955**	**9.4151**	**5.944**

Foundation Installation

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Off-Road	0.7299	6.4984	5.7112	8.61E-03	0.4211	0.3913
On Site Total	**0.7299**	**6.4984**	**5.7112**	**0.00861**	**0.4211**	**0.3913**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0	0	0	0.00E+00	0	0
Worker	0.0855	0.0612	0.7911	1.27E-03	0.1243	0.0337
Off Site Total	**0.0855**	**0.0612**	**0.7911**	**0.00127**	**0.1243**	**0.0337**
Total Emissions	**0.8154**	**6.5596**	**6.5023**	**0.00988**	**0.5454**	**0.425**

Tank Installation

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Off-Road	3.476	29.8028	20.8603	3.62E-02	1.6322	1.5617
On Site Total	**3.476**	**29.8028**	**20.8603**	**0.0362**	**1.6322**	**1.5617**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0	0	0	0.00E+00	0	0
Worker	0.1197	0.0857	1.1075	1.78E-03	0.1741	0.0472
Off Site Total	**0.1197**	**0.0857**	**1.1075**	**0.00178**	**0.1741**	**0.0472**
Total Emissions	**3.5957**	**29.8885**	**21.9678**	**0.03798**	**1.8063**	**1.6089**

Tank Finishes

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Arch Coating	9.7075				0.00E+00	0.00E+00
Off-Road	1.2928	9.4733	8.1058	1.26E-02	0.7017	0.6816
On Site Total	**11.0003**	**9.4733**	**8.1058**	**0.0126**	**0.7017**	**0.6816**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0	0	0	0.00E+00	0	0
Worker	0.0636	0.049	0.5126	1.02E-03	0.0995	0.027
Off Site Total	**0.0636**	**0.049**	**0.5126**	**0.00102**	**0.0995**	**0.027**
Total Emissions	**11.0639**	**9.5223**	**8.6184**	**0.01362**	**0.8012**	**0.7086**

Landscaping

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Off-Road	1.4375	13.397	9.9765	0.013	9.92E-01	9.12E-01
Paving	0				0	0
On Site Total	**1.4375**	**13.397**	**9.9765**	**0.013**	**0.9916**	**0.9123**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0	0	0	0.00E+00	0	0
Worker	0.0636	0.049	0.6329	1.02E-03	0.0995	0.027
Off Site Total	**0.0636**	**0.049**	**0.6329**	**0.00102**	**0.0995**	**0.027**
Total Emissions	**1.5011**	**13.446**	**10.6094**	**0.01402**	**1.0911**	**0.9393**

Storage Tank Daily Emissions

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Site Prep / Grading	4.32	45.63	25.12	0.05	9.42	5.94
Foundation Installation	0.82	6.56	6.50	0.01	0.55	0.43
Tank Installation	3.60	29.89	21.97	0.04	1.81	1.61
Tank Finishes	11.06	9.52	8.62	0.01	0.80	0.71
Landscaping	1.50	13.45	10.61	0.01	1.09	0.94
Maxmum Daily Emission	**11.06**	**45.63**	**25.12**	**0.05**	**9.42**	**5.94**

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Pump Stations Unmitigated Construction Emissions

Site Preparation

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Fugitive Dust					0.00E+00	0.00E+00
Off-Road	0.7733	8.325	4.2017	1.32E-02	0.3039	0.2796
On Site Total	**0.7733**	**8.325**	**4.2017**	**0.0132**	**0.3039**	**0.2796**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0.0139	0.3936	0.0887	8.60E-04	0.0219	8.11E-03
Worker	0.0598	0.0483	0.6263	1.03E-03	0.1015	0.0275
Off Site Total	**0.0737**	**0.4419**	**0.715**	**0.00189**	**0.1234**	**0.03561**
Total Emissions	**0.847**	**8.7669**	**4.9167**	**0.01509**	**0.4273**	**0.31521**

Yard Piping

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Off-Road	1.4972	15.6137	13.3256	2.32E-02	0.8248	0.7588
On Site Total	**1.4972**	**15.6137**	**13.3256**	**0.0232**	**0.8248**	**0.7588**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0	0	0	0.00E+00	0	0
Worker	0.2087	0.1611	2.0877	3.44E-03	0.6298	0.1632
Off Site Total	**0.2087**	**0.1611**	**2.0877**	**0.00344**	**0.6298**	**0.1632**
Total Emissions	**1.7059**	**15.7748**	**15.4133**	**0.02664**	**1.4546**	**0.922**

Excavation/Grading

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Fugitive Dust					7.05E+00	3.87E+00
Off-Road	3.8294	40.7336	22.0785	4.02E-02	2.046	1.8823
On Site Total	**3.8294**	**40.7336**	**22.0785**	**0.0402**	**9.0932**	**5.7554**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0	0	0	0.00E+00	0	0.00E+00
Worker	0.1461	0.1128	1.4614	2.41E-03	0.2368	0.0641
Off Site Total	**0.1461**	**0.1128**	**1.4614**	**0.00241**	**0.2368**	**0.0641**
Total Emissions	**3.9755**	**40.8464**	**23.5399**	**0.04261**	**9.33**	**5.8195**

Foundation Installation

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Off-Road	0.7006	6.3143	5.557	8.25E-03	0.4139	0.3841
On Site Total	**0.7006**	**6.3143**	**5.557**	**0.00825**	**0.4139**	**0.3841**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0	0	0	0.00E+00	0	0
Worker	0.1252	0.0967	1.2526	2.06E-03	0.2029	0.055
Off Site Total	**0.1252**	**0.0967**	**1.2526**	**0.00206**	**0.2029**	**0.055**
Total Emissions	**0.8258**	**6.411**	**6.8096**	**0.01031**	**0.6168**	**0.4391**

Pump House Construction

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Off-Road	3.6252	30.7672	22.185	0.0397	1.64E+00	1.59E+00
On Site Total	**3.6252**	**30.7672**	**22.185**	**0.0397**	**1.6429**	**1.5925**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0	0	0	0.00E+00	0	0
Worker	0.1043	0.0806	1.0439	1.72E-03	0.1691	0.0458
Off Site Total	**0.1043**	**0.0806**	**1.0439**	**0.00172**	**0.1691**	**0.0458**
Total Emissions	**3.7295**	**30.8478**	**23.2289**	**0.04142**	**1.812**	**1.6383**

Site Restoration

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Off-Road	1.4375	13.397	9.9765	0.013	9.92E-01	9.12E-01
Paving	0				0	0
On Site Total	**1.4375**	**13.397**	**9.9765**	**0.013**	**0.9916**	**0.9123**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0	0	0	0.00E+00	0	0
Worker	0.0835	0.0644	0.8351	1.38E-03	0.1353	0.0367
Off Site Total	**0.0835**	**0.0644**	**0.8351**	**0.00138**	**0.1353**	**0.0367**
Total Emissions	**1.521**	**13.4614**	**10.8116**	**0.01438**	**1.1269**	**0.949**

Pump Station Daily Emissions

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Site Preparation	0.85	8.77	4.92	0.02	0.43	0.32
Yard Piping	1.71	15.77	15.41	0.03	1.45	0.92
Excavation/Grading	3.98	40.85	23.54	0.04	9.33	5.82
Foundation Installation	0.83	6.41	6.81	0.01	0.62	0.44
Pump House Construction	3.73	30.85	23.23	0.04	1.81	1.64
Site Restoration	1.52	13.46	10.81	0.01	1.13	0.95
Maxmum Daily Emission	**3.98**	**40.85**	**23.54**	**0.04**	**9.33**	**5.82**

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Pipelines Unmitigated Construction Emissions

Site Preparation

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Fugitive Dust					0.00E+00	0.00E+00
Off-Road	0.7858	9.7572	4.2514	9.76E-03	0.418	0.3846
On Site Total	**0.7858**	**9.7572**	**4.2514**	**0.00976**	**0.418**	**0.3846**
Hauling	0	0	0	0.00E+00	0	0
Vendor	9.54E-03	0.2686	0.0609	5.90E-04	0.0154	5.71E-03
Worker	0.0159	0.0122	0.1582	2.50E-04	0.0249	6.74E-03
Off Site Total	**0.02544**	**0.2808**	**0.2191**	**0.00084**	**0.0403**	**0.01245**
Total Emissions	**0.81124**	**10.038**	**4.4705**	**0.0106**	**0.4583**	**0.39705**

Traffic Control

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Fugitive Dust					0.00E+00	0.00E+00
Off-Road	0.2294	1.4377	1.2041	2.78E-03	0.0559	0.0559
On Site Total	**0.2294**	**1.4377**	**1.2041**	**0.00278**	**0.0559**	**0.0559**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0	0	0	0.00E+00	0	0.00E+00
Worker	0.0265	0.0204	0.2637	4.20E-04	0.0414	0.0112
Off Site Total	**0.0265**	**0.0204**	**0.2637**	**0.00042**	**0.0414**	**0.0112**
Total Emissions	**0.2559**	**1.4581**	**1.4678**	**0.0032**	**0.0973**	**0.0671**

Potholing

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Off-Road	0.3982	2.6743	2.4723	3.96E-03	0.2007	0.2007
On Site Total	**0.3982**	**2.6743**	**2.4723**	**0.00396**	**0.2007**	**0.2007**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0	0	0	0.00E+00	0	0.00E+00
Worker	0.0228	0.0163	0.211	3.40E-04	0.0332	8.99E-03
Off Site Total	**0.0228**	**0.0163**	**0.211**	**0.00034**	**0.0332**	**0.00899**
Total Emissions	**0.421**	**2.6906**	**2.6833**	**0.0043**	**0.2339**	**0.20969**

Pipe Installation

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Fugitive Dust					4.48E-03	4.80E-04
Off-Road	2.6474	26.7403	17.9734	4.18E-02	1.216	1.1404
On Site Total	**2.6474**	**26.7403**	**17.9734**	**0.0418**	**1.22048**	**1.14088**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0.0228	0.6715	0.1522	1.48E-03	0.0386	1.43E-02
Worker	0.0342	0.0245	0.3164	5.10E-04	0.0497	0.0135
Off Site Total	**0.057**	**0.696**	**0.4686**	**0.00199**	**0.0883**	**0.0278**
Total Emissions	**2.7044**	**27.4363**	**18.442**	**0.04379**	**1.30878**	**1.16868**

Paving

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Fugitive Dust	1.4162	14.7951	9.3721	0.0213	6.66E-01	6.14E-01
Off-Road	0.1277				0	0
On Site Total	**1.5439**	**14.7951**	**9.3721**	**0.0213**	**0.6663**	**0.6141**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0	0	0	0.00E+00	0	0.00E+00
Worker	0.0285	0.0204	0.2637	4.20E-04	0.0414	0.0112
Off Site Total	**0.0285**	**0.0204**	**0.2637**	**0.00042**	**0.0414**	**0.0112**
Total Emissions	**1.5724**	**14.8155**	**9.6358**	**0.02172**	**0.7077**	**0.6253**

Site Restoration

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Off-Road	0.7188	6.6985	4.9883	6.48E-03	4.96E-01	4.56E-01
Paving	0.2044				0	0
On Site Total	**0.9232**	**6.6985**	**4.9883**	**0.00648**	**0.4958**	**0.4561**
Hauling	0	0	0	0.00E+00	0	0
Vendor	0	0	0	0.00E+00	0	0
Worker	0.0228	0.0163	0.211	3.40E-04	0.0332	8.99E-03
Off Site Total	**0.0228**	**0.0163**	**0.211**	**0.00034**	**0.0332**	**0.00899**
Total Emissions	**0.946**	**6.7148**	**5.1993**	**0.00682**	**0.529**	**0.46509**

Pipelines Daily Emissions

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Site Preparation	0.81	10.04	4.47	0.01	0.46	0.40
Traffic Control	0.26	1.46	1.47	0.00	0.10	0.07
Potholing	0.42	2.69	2.68	0.00	0.23	0.21
Pipe Installation	2.70	27.44	18.44	0.04	1.31	1.17
Paving	1.57	14.82	9.64	0.02	0.71	0.63
Site Restoration	0.95	6.71	5.20	0.01	0.53	0.47
Maxmum Daily Emission	**2.70**	**27.44**	**18.44**	**0.04**	**1.31**	**1.17**

Palmdale Water District Water System Master Plan
Air Quality and Greenhouse Gas Emissions Appendix
Emissions Summaries

Storage Tank Daily Emissions	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Site Prep / Grading	4.32	45.63	25.12	0.05	9.42	5.94
Foundation Installation	0.82	6.56	6.50	0.01	0.55	0.43
Tank Installation	3.60	29.89	21.97	0.04	1.81	1.61
Tank Finishes	11.06	9.52	8.62	0.01	0.80	0.71
Landscaping	1.50	13.45	10.61	0.01	1.09	0.94
Maxmum Daily Emission	11.06	45.63	25.12	0.05	9.42	5.94

Pump Station Daily Emissions	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Site Preparation	0.85	8.77	4.92	0.02	0.43	0.32
Yard Piping	1.71	15.77	15.41	0.03	1.45	0.92
Excavation/Grading	3.98	40.85	23.54	0.04	9.33	5.82
Foundation Installation	0.83	6.41	6.81	0.01	0.62	0.44
Pump House Construction	3.73	30.85	23.23	0.04	1.81	1.64
Site Restoration	1.52	13.46	10.81	0.01	1.13	0.95
Maxmum Daily Emission	3.98	40.85	23.54	0.04	9.33	5.82

Pipelines Daily Emissions	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Site Preparation	0.81	10.04	4.47	0.01	0.46	0.40
Traffic Control	0.26	1.46	1.47	0.00	0.10	0.07
Potholing	0.42	2.69	2.68	0.00	0.23	0.21
Pipe Installation	2.70	27.44	18.44	0.04	1.31	1.17
Paving	1.57	14.82	9.64	0.02	0.71	0.63
Site Restoration	0.95	6.71	5.20	0.01	0.53	0.47
Maxmum Daily Emission	2.70	27.44	18.44	0.04	1.31	1.17

Peak Daily Emissions	**17.74**	**113.91**	**67.10**	**0.14**	**20.05**	**12.93**

Palmdale Water District Water System Master Plan
Air Quality and Greenhouse Gas Emissions Appendix
Greenhouse Gas Emissions

All below units in MT/yr, unless otherwise specified.

Construction Emissions

Phase	Bio-CO2	NBio- CO2	Total CO2	CH4	N20	CO2e
Storage Tanks	0.00	274.01	274.01	0.0606	0.00	275.53
Pump Stations	0.00	73.03	73.04	0.0147	0.00	73.40
Pipelines	0.00	90.60	90.60	0.0228	0.00	91.17
Total CO2e Construction Emissions						440.10
Annual Construction Emissions (amortized over 30 years)						**15**

Palmdale WSMP Pipelines

Antelope Valley APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	16.80	1000sqft	0.39	16,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Grading - .

Trips and VMT - .

Construction Off-road Equipment Mitigation - AVAQMD Rule 403

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	1008	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	1.00	4.00
tblConstructionPhase	NumDays	1.00	55.00
tblConstructionPhase	NumDays	2.00	36.00
tblConstructionPhase	NumDays	5.00	8.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	2.00	0.00
tblGrading	AcresOfGrading	0.00	0.39
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors

tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00
tblTripsAndVMT	WorkerTripNumber	10.00	5.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	5.00	3.00
tblTripsAndVMT	WorkerTripNumber	10.00	5.00

tblTripsAndVMT	WorkerTripNumber	3.00	4.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	2.9624	28.8934	19.9098	0.0472	0.1357	1.2773	1.4130	0.0349	1.2015	1.2365	0.0000	4,613.3224	4,613.3224	1.1682	0.0000	4,642.5275
Maximum	**2.9624**	**28.8934**	**19.9098**	**0.0472**	**0.1357**	**1.2773**	**1.4130**	**0.0349**	**1.2015**	**1.2365**	**0.0000**	**4,613.3224**	**4,613.3224**	**1.1682**	**0.0000**	**4,642.5275**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	2.9624	28.8934	19.9098	0.0472	0.1287	1.2773	1.4060	0.0342	1.2015	1.2357	0.0000	4,613.3224	4,613.3224	1.1682	0.0000	4,642.5275
Maximum	**2.9624**	**28.8934**	**19.9098**	**0.0472**	**0.1287**	**1.2773**	**1.4060**	**0.0342**	**1.2015**	**1.2357**	**0.0000**	**4,613.3224**	**4,613.3224**	**1.1682**	**0.0000**	**4,642.5275**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**5.17**	**0.00**	**0.50**	**2.18**	**0.00**	**0.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2018	1/4/2018	6	4	
2	Traffic Control	Site Preparation	1/5/2018	3/9/2018	6	55	
3	Potholing	Trenching	1/5/2018	1/17/2018	6	11	
4	Pipe Installation	Grading	1/18/2018	2/28/2018	6	36	
5	Paving	Paving	3/1/2018	3/9/2018	6	8	
6	Site Restoration	Paving	3/10/2018	3/15/2018	6	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.39

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Pipe Installation	Cranes	0	4.00	231	0.29
Pipe Installation	Forklifts	0	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Traffic Control	Graders	0	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Site Restoration	Pavers	0	7.00	130	0.42
Paving	Rollers	1	8.00	80	0.38
Site Restoration	Rollers	0	7.00	80	0.38
Pipe Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Site Restoration	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Traffic Control	Tractors/Loaders/Backhoes	0	8.00	97	0.37
	Off-Highway Trucks	1	4.00	402	0.38
Traffic Control	Signal Boards	4	8.00	6	0.82

Potholing	Air Compressors	1	8.00	78	0.48
Pipe Installation	Excavators	1	8.00	158	0.38
Pipe Installation	Off-Highway Trucks	2	8.00	402	0.38
Pipe Installation	Generator Sets	1	8.00	84	0.74
Pipe Installation	Plate Compactors	1	8.00	8	0.43
Paving	Off-Highway Trucks	1	8.00	402	0.38
Site Restoration	Trenchers	1	8.00	78	0.50
Pipe Installation	Concrete/Industrial Saws	0	8.00	81	0.73
Pipe Installation	Rubber Tired Dozers	0	1.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Pipe Installation	6	6.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	2	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	3.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Traffic Control	4	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Potholing	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7858	9.7572	4.2514	9.7600e-003		0.4180	0.4180		0.3846	0.3846		982.7113	982.7113	0.3059		990.3596
Total	**0.7858**	**9.7572**	**4.2514**	**9.7600e-003**	**0.0000**	**0.4180**	**0.4180**	**0.0000**	**0.3846**	**0.3846**		**982.7113**	**982.7113**	**0.3059**		**990.3596**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.1400e-003	0.2692	0.0609	6.2000e-004	0.0135	1.8700e-003	0.0154	3.9000e-003	1.7900e-003	5.6900e-003		64.7086	64.7086	3.0500e-003		64.7850
Worker	0.0171	0.0116	0.1582	2.9000e-004	0.0246	2.2000e-004	0.0249	6.5400e-003	2.0000e-004	6.7400e-003		28.6880	28.6880	1.2500e-003		28.7193
Total	**0.0262**	**0.2808**	**0.2191**	**9.1000e-004**	**0.0382**	**2.0900e-003**	**0.0403**	**0.0104**	**1.9900e-003**	**0.0124**		**93.3967**	**93.3967**	**4.3000e-003**		**93.5042**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7858	9.7572	4.2514	9.7600e-003		0.4180	0.4180		0.3846	0.3846	0.0000	982.7113	982.7113	0.3059		990.3596
Total	**0.7858**	**9.7572**	**4.2514**	**9.7600e-003**	**0.0000**	**0.4180**	**0.4180**	**0.0000**	**0.3846**	**0.3846**	**0.0000**	**982.7113**	**982.7113**	**0.3059**		**990.3596**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.1400e-003	0.2692	0.0609	6.2000e-004	0.0135	1.8700e-003	0.0154	3.9000e-003	1.7900e-003	5.6900e-003		64.7086	64.7086	3.0500e-003		64.7850
Worker	0.0171	0.0116	0.1582	2.9000e-004	0.0246	2.2000e-004	0.0249	6.5400e-003	2.0000e-004	6.7400e-003		28.6880	28.6880	1.2500e-003		28.7193
Total	**0.0262**	**0.2808**	**0.2191**	**9.1000e-004**	**0.0382**	**2.0900e-003**	**0.0403**	**0.0104**	**1.9900e-003**	**0.0124**		**93.3967**	**93.3967**	**4.3000e-003**		**93.5042**

3.3 Traffic Control - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2294	1.4377	1.2041	2.7800e-003		0.0559	0.0559		0.0559	0.0559		197.2542	197.2542	0.0205		197.7662
Total	**0.2294**	**1.4377**	**1.2041**	**2.7800e-003**	**0.0000**	**0.0559**	**0.0559**	**0.0000**	**0.0559**	**0.0559**		**197.2542**	**197.2542**	**0.0205**		**197.7662**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0285	0.0193	0.2637	4.8000e-004	0.0411	3.7000e-004	0.0414	0.0109	3.4000e-004	0.0112		47.8134	47.8134	2.0800e-003		47.8654
Total	**0.0285**	**0.0193**	**0.2637**	**4.8000e-004**	**0.0411**	**3.7000e-004**	**0.0414**	**0.0109**	**3.4000e-004**	**0.0112**		**47.8134**	**47.8134**	**2.0800e-003**		**47.8654**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2294	1.4377	1.2041	2.7800e-003		0.0559	0.0559		0.0559	0.0559	0.0000	197.2542	197.2542	0.0205		197.7662
Total	**0.2294**	**1.4377**	**1.2041**	**2.7800e-003**	**0.0000**	**0.0559**	**0.0559**	**0.0000**	**0.0559**	**0.0559**	**0.0000**	**197.2542**	**197.2542**	**0.0205**		**197.7662**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0285	0.0193	0.2637	4.8000e-004	0.0411	3.7000e-004	0.0414	0.0109	3.4000e-004	0.0112		47.8134	47.8134	2.0800e-003		47.8654
Total	**0.0285**	**0.0193**	**0.2637**	**4.8000e-004**	**0.0411**	**3.7000e-004**	**0.0414**	**0.0109**	**3.4000e-004**	**0.0112**		**47.8134**	**47.8134**	**2.0800e-003**		**47.8654**

3.4 Potholing - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3982	2.6743	2.4723	3.9600e-003		0.2007	0.2007		0.2007	0.2007		375.2647	375.2647	0.0357		376.1562
Total	**0.3982**	**2.6743**	**2.4723**	**3.9600e-003**		**0.2007**	**0.2007**		**0.2007**	**0.2007**		**375.2647**	**375.2647**	**0.0357**		**376.1562**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0228	0.0154	0.2110	3.9000e-004	0.0329	2.9000e-004	0.0332	8.7200e-003	2.7000e-004	8.9900e-003		38.2507	38.2507	1.6700e-003		38.2923
Total	**0.0228**	**0.0154**	**0.2110**	**3.9000e-004**	**0.0329**	**2.9000e-004**	**0.0332**	**8.7200e-003**	**2.7000e-004**	**8.9900e-003**		**38.2507**	**38.2507**	**1.6700e-003**		**38.2923**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3982	2.6743	2.4723	3.9600e-003		0.2007	0.2007		0.2007	0.2007	0.0000	375.2647	375.2647	0.0357		376.1562
Total	**0.3982**	**2.6743**	**2.4723**	**3.9600e-003**		**0.2007**	**0.2007**		**0.2007**	**0.2007**	**0.0000**	**375.2647**	**375.2647**	**0.0357**		**376.1562**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0228	0.0154	0.2110	3.9000e-004	0.0329	2.9000e-004	0.0332	8.7200e-003	2.7000e-004	8.9900e-003		38.2507	38.2507	1.6700e-003		38.2923
Total	**0.0228**	**0.0154**	**0.2110**	**3.9000e-004**	**0.0329**	**2.9000e-004**	**0.0332**	**8.7200e-003**	**2.7000e-004**	**8.9900e-003**		**38.2507**	**38.2507**	**1.6700e-003**		**38.2923**

3.5 Pipe Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0115	0.0000	0.0115	1.2400e-003	0.0000	1.2400e-003			0.0000			0.0000
Off-Road	2.6474	26.7403	17.9734	0.0418		1.2160	1.2160		1.1404	1.1404		4,149.1072	4,149.1072	1.1355		4,177.4950
Total	**2.6474**	**26.7403**	**17.9734**	**0.0418**	**0.0115**	**1.2160**	**1.2274**	**1.2400e-003**	**1.1404**	**1.1417**		**4,149.1072**	**4,149.1072**	**1.1355**		**4,177.4950**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0228	0.6730	0.1522	1.5400e-003	0.0339	4.6700e-003	0.0385	9.7400e-003	4.4700e-003	0.0142		161.7716	161.7716	7.6400e-003		161.9625
Worker	0.0342	0.0231	0.3164	5.8000e-004	0.0493	4.4000e-004	0.0497	0.0131	4.1000e-004	0.0135		57.3761	57.3761	2.5000e-003		57.4385
Total	**0.0571**	**0.6961**	**0.4686**	**2.1200e-003**	**0.0831**	**5.1100e-003**	**0.0883**	**0.0228**	**4.8800e-003**	**0.0277**		**219.1476**	**219.1476**	**0.0101**		**219.4010**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.4800e-003	0.0000	4.4800e-003	4.8000e-004	0.0000	4.8000e-004			0.0000			0.0000
Off-Road	2.6474	26.7403	17.9734	0.0418		1.2160	1.2160		1.1404	1.1404	0.0000	4,149.1072	4,149.1072	1.1355		4,177.4949
Total	**2.6474**	**26.7403**	**17.9734**	**0.0418**	**4.4800e-003**	**1.2160**	**1.2204**	**4.8000e-004**	**1.1404**	**1.1409**	**0.0000**	**4,149.1072**	**4,149.1072**	**1.1355**		**4,177.4949**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0228	0.6730	0.1522	1.5400e-003	0.0339	4.6700e-003	0.0385	9.7400e-003	4.4700e-003	0.0142		161.7716	161.7716	7.6400e-003		161.9625
Worker	0.0342	0.0231	0.3164	5.8000e-004	0.0493	4.4000e-004	0.0497	0.0131	4.1000e-004	0.0135		57.3761	57.3761	2.5000e-003		57.4385
Total	**0.0571**	**0.6961**	**0.4686**	**2.1200e-003**	**0.0831**	**5.1100e-003**	**0.0883**	**0.0228**	**4.8800e-003**	**0.0277**		**219.1476**	**219.1476**	**0.0101**		**219.4010**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4162	14.7951	9.3721	0.0213		0.6663	0.6663		0.6141	0.6141		2,117.1717	2,117.1717	0.6486		2,133.3872
Paving	0.1277					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5439**	**14.7951**	**9.3721**	**0.0213**		**0.6663**	**0.6663**		**0.6141**	**0.6141**		**2,117.1717**	**2,117.1717**	**0.6486**		**2,133.3872**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0285	0.0193	0.2637	4.8000e-004	0.0411	3.7000e-004	0.0414	0.0109	3.4000e-004	0.0112		47.8134	47.8134	2.0800e-003		47.8654
Total	**0.0285**	**0.0193**	**0.2637**	**4.8000e-004**	**0.0411**	**3.7000e-004**	**0.0414**	**0.0109**	**3.4000e-004**	**0.0112**		**47.8134**	**47.8134**	**2.0800e-003**		**47.8654**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4162	14.7951	9.3721	0.0213		0.6663	0.6663		0.6141	0.6141	0.0000	2,117.1717	2,117.1717	0.6486		2,133.3872
Paving	0.1277					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5439**	**14.7951**	**9.3721**	**0.0213**		**0.6663**	**0.6663**		**0.6141**	**0.6141**	**0.0000**	**2,117.1717**	**2,117.1717**	**0.6486**		**2,133.3872**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0285	0.0193	0.2637	4.8000e-004	0.0411	3.7000e-004	0.0414	0.0109	3.4000e-004	0.0112		47.8134	47.8134	2.0800e-003		47.8654
Total	**0.0285**	**0.0193**	**0.2637**	**4.8000e-004**	**0.0411**	**3.7000e-004**	**0.0414**	**0.0109**	**3.4000e-004**	**0.0112**		**47.8134**	**47.8134**	**2.0800e-003**		**47.8654**

3.7 Site Restoration - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7188	6.6985	4.9883	6.4800e-003		0.4958	0.4958		0.4561	0.4561		652.3740	652.3740	0.2031		657.4513
Paving	0.2044					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9231**	**6.6985**	**4.9883**	**6.4800e-003**		**0.4958**	**0.4958**		**0.4561**	**0.4561**		**652.3740**	**652.3740**	**0.2031**		**657.4513**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0228	0.0154	0.2110	3.9000e-004	0.0329	2.9000e-004	0.0332	8.7200e-003	2.7000e-004	8.9900e-003		38.2507	38.2507	1.6700e-003		38.2923
Total	**0.0228**	**0.0154**	**0.2110**	**3.9000e-004**	**0.0329**	**2.9000e-004**	**0.0332**	**8.7200e-003**	**2.7000e-004**	**8.9900e-003**		**38.2507**	**38.2507**	**1.6700e-003**		**38.2923**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7188	6.6985	4.9883	6.4800e-003		0.4958	0.4958		0.4561	0.4561	0.0000	652.3740	652.3740	0.2031		657.4513
Paving	0.2044					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9231**	**6.6985**	**4.9883**	**6.4800e-003**		**0.4958**	**0.4958**		**0.4561**	**0.4561**	**0.0000**	**652.3740**	**652.3740**	**0.2031**		**657.4513**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0228	0.0154	0.2110	3.9000e-004	0.0329	2.9000e-004	0.0332	8.7200e-003	2.7000e-004	8.9900e-003		38.2507	38.2507	1.6700e-003		38.2923
Total	**0.0228**	**0.0154**	**0.2110**	**3.9000e-004**	**0.0329**	**2.9000e-004**	**0.0332**	**8.7200e-003**	**2.7000e-004**	**8.9900e-003**		**38.2507**	**38.2507**	**1.6700e-003**		**38.2923**

Palmdale WSMP Pipelines

Antelope Valley APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	16.80	1000sqft	0.39	16,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Grading - .

Trips and VMT - .

Construction Off-road Equipment Mitigation - AVAQMD Rule 403

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	1008	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	1.00	4.00
tblConstructionPhase	NumDays	1.00	55.00
tblConstructionPhase	NumDays	2.00	36.00
tblConstructionPhase	NumDays	5.00	8.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	2.00	0.00
tblGrading	AcresOfGrading	0.00	0.39
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors

tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00
tblTripsAndVMT	WorkerTripNumber	10.00	5.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	5.00	3.00
tblTripsAndVMT	WorkerTripNumber	10.00	5.00

tblTripsAndVMT	WorkerTripNumber	3.00	4.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	2.9590	28.8943	19.8191	0.0470	0.1357	1.2774	1.4131	0.0349	1.2016	1.2365	0.0000	4,594.6094	4,594.6094	1.1683	0.0000	4,623.8175
Maximum	**2.9590**	**28.8943**	**19.8191**	**0.0470**	**0.1357**	**1.2774**	**1.4131**	**0.0349**	**1.2016**	**1.2365**	**0.0000**	**4,594.6094**	**4,594.6094**	**1.1683**	**0.0000**	**4,623.8175**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	2.9590	28.8943	19.8191	0.0470	0.1287	1.2774	1.4061	0.0342	1.2016	1.2358	0.0000	4,594.6094	4,594.6094	1.1683	0.0000	4,623.8175
Maximum	**2.9590**	**28.8943**	**19.8191**	**0.0470**	**0.1287**	**1.2774**	**1.4061**	**0.0342**	**1.2016**	**1.2358**	**0.0000**	**4,594.6094**	**4,594.6094**	**1.1683**	**0.0000**	**4,623.8175**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**5.17**	**0.00**	**0.50**	**2.18**	**0.00**	**0.06**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2018	1/4/2018	6	4	
2	Traffic Control	Site Preparation	1/5/2018	3/9/2018	6	55	
3	Potholing	Trenching	1/5/2018	1/17/2018	6	11	
4	Pipe Installation	Grading	1/18/2018	2/28/2018	6	36	
5	Paving	Paving	3/1/2018	3/9/2018	6	8	
6	Site Restoration	Paving	3/10/2018	3/15/2018	6	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.39

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Pipe Installation	Cranes	0	4.00	231	0.29
Pipe Installation	Forklifts	0	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Traffic Control	Graders	0	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Site Restoration	Pavers	0	7.00	130	0.42
Paving	Rollers	1	8.00	80	0.38
Site Restoration	Rollers	0	7.00	80	0.38
Pipe Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Site Restoration	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Traffic Control	Tractors/Loaders/Backhoes	0	8.00	97	0.37
	Off-Highway Trucks	1	4.00	402	0.38
Traffic Control	Signal Boards	4	8.00	6	0.82

Potholing	Air Compressors	1	8.00	78	0.48
Pipe Installation	Excavators	1	8.00	158	0.38
Pipe Installation	Off-Highway Trucks	2	8.00	402	0.38
Pipe Installation	Generator Sets	1	8.00	84	0.74
Pipe Installation	Plate Compactors	1	8.00	8	0.43
Paving	Off-Highway Trucks	1	8.00	402	0.38
Site Restoration	Trenchers	1	8.00	78	0.50
Pipe Installation	Concrete/Industrial Saws	0	8.00	81	0.73
Pipe Installation	Rubber Tired Dozers	0	1.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Pipe Installation	6	6.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	2	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	3.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Traffic Control	4	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Potholing	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7858	9.7572	4.2514	9.7600e-003		0.4180	0.4180		0.3846	0.3846		982.7113	982.7113	0.3059		990.3596
Total	**0.7858**	**9.7572**	**4.2514**	**9.7600e-003**	**0.0000**	**0.4180**	**0.4180**	**0.0000**	**0.3846**	**0.3846**		**982.7113**	**982.7113**	**0.3059**		**990.3596**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.5400e-003	0.2686	0.0687	5.9000e-004	0.0135	1.8900e-003	0.0154	3.9000e-003	1.8100e-003	5.7100e-003		62.1722	62.1722	3.3400e-003		62.2558
Worker	0.0159	0.0122	0.1281	2.5000e-004	0.0246	2.2000e-004	0.0249	6.5400e-003	2.0000e-004	6.7400e-003		25.3139	25.3139	1.0900e-003		25.3410
Total	**0.0254**	**0.2808**	**0.1968**	**8.4000e-004**	**0.0382**	**2.1100e-003**	**0.0403**	**0.0104**	**2.0100e-003**	**0.0125**		**87.4861**	**87.4861**	**4.4300e-003**		**87.5968**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7858	9.7572	4.2514	9.7600e-003		0.4180	0.4180		0.3846	0.3846	0.0000	982.7113	982.7113	0.3059		990.3596
Total	**0.7858**	**9.7572**	**4.2514**	**9.7600e-003**	**0.0000**	**0.4180**	**0.4180**	**0.0000**	**0.3846**	**0.3846**	**0.0000**	**982.7113**	**982.7113**	**0.3059**		**990.3596**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.5400e-003	0.2686	0.0687	5.9000e-004	0.0135	1.8900e-003	0.0154	3.9000e-003	1.8100e-003	5.7100e-003		62.1722	62.1722	3.3400e-003		62.2558
Worker	0.0159	0.0122	0.1281	2.5000e-004	0.0246	2.2000e-004	0.0249	6.5400e-003	2.0000e-004	6.7400e-003		25.3139	25.3139	1.0900e-003		25.3410
Total	**0.0254**	**0.2808**	**0.1968**	**8.4000e-004**	**0.0382**	**2.1100e-003**	**0.0403**	**0.0104**	**2.0100e-003**	**0.0125**		**87.4861**	**87.4861**	**4.4300e-003**		**87.5968**

3.3 Traffic Control - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2294	1.4377	1.2041	2.7800e-003		0.0559	0.0559		0.0559	0.0559		197.2542	197.2542	0.0205		197.7662
Total	**0.2294**	**1.4377**	**1.2041**	**2.7800e-003**	**0.0000**	**0.0559**	**0.0559**	**0.0000**	**0.0559**	**0.0559**		**197.2542**	**197.2542**	**0.0205**		**197.7662**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0265	0.0204	0.2136	4.2000e-004	0.0411	3.7000e-004	0.0414	0.0109	3.4000e-004	0.0112		42.1898	42.1898	1.8100e-003		42.2350
Total	**0.0265**	**0.0204**	**0.2136**	**4.2000e-004**	**0.0411**	**3.7000e-004**	**0.0414**	**0.0109**	**3.4000e-004**	**0.0112**		**42.1898**	**42.1898**	**1.8100e-003**		**42.2350**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2294	1.4377	1.2041	2.7800e-003		0.0559	0.0559		0.0559	0.0559	0.0000	197.2542	197.2542	0.0205		197.7662
Total	**0.2294**	**1.4377**	**1.2041**	**2.7800e-003**	**0.0000**	**0.0559**	**0.0559**	**0.0000**	**0.0559**	**0.0559**	**0.0000**	**197.2542**	**197.2542**	**0.0205**		**197.7662**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0265	0.0204	0.2136	4.2000e-004	0.0411	3.7000e-004	0.0414	0.0109	3.4000e-004	0.0112		42.1898	42.1898	1.8100e-003		42.2350
Total	**0.0265**	**0.0204**	**0.2136**	**4.2000e-004**	**0.0411**	**3.7000e-004**	**0.0414**	**0.0109**	**3.4000e-004**	**0.0112**		**42.1898**	**42.1898**	**1.8100e-003**		**42.2350**

3.4 Potholing - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3982	2.6743	2.4723	3.9600e-003		0.2007	0.2007		0.2007	0.2007		375.2647	375.2647	0.0357		376.1562
Total	**0.3982**	**2.6743**	**2.4723**	**3.9600e-003**		**0.2007**	**0.2007**		**0.2007**	**0.2007**		**375.2647**	**375.2647**	**0.0357**		**376.1562**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0212	0.0163	0.1709	3.4000e-004	0.0329	2.9000e-004	0.0332	8.7200e-003	2.7000e-004	8.9900e-003		33.7518	33.7518	1.4500e-003		33.7880
Total	**0.0212**	**0.0163**	**0.1709**	**3.4000e-004**	**0.0329**	**2.9000e-004**	**0.0332**	**8.7200e-003**	**2.7000e-004**	**8.9900e-003**		**33.7518**	**33.7518**	**1.4500e-003**		**33.7880**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3982	2.6743	2.4723	3.9600e-003		0.2007	0.2007		0.2007	0.2007	0.0000	375.2647	375.2647	0.0357		376.1562
Total	**0.3982**	**2.6743**	**2.4723**	**3.9600e-003**		**0.2007**	**0.2007**		**0.2007**	**0.2007**	**0.0000**	**375.2647**	**375.2647**	**0.0357**		**376.1562**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0212	0.0163	0.1709	3.4000e-004	0.0329	2.9000e-004	0.0332	8.7200e-003	2.7000e-004	8.9900e-003		33.7518	33.7518	1.4500e-003		33.7880
Total	**0.0212**	**0.0163**	**0.1709**	**3.4000e-004**	**0.0329**	**2.9000e-004**	**0.0332**	**8.7200e-003**	**2.7000e-004**	**8.9900e-003**		**33.7518**	**33.7518**	**1.4500e-003**		**33.7880**

3.5 Pipe Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0115	0.0000	0.0115	1.2400e-003	0.0000	1.2400e-003			0.0000			0.0000
Off-Road	2.6474	26.7403	17.9734	0.0418		1.2160	1.2160		1.1404	1.1404		4,149.1072	4,149.1072	1.1355		4,177.4950
Total	**2.6474**	**26.7403**	**17.9734**	**0.0418**	**0.0115**	**1.2160**	**1.2274**	**1.2400e-003**	**1.1404**	**1.1417**		**4,149.1072**	**4,149.1072**	**1.1355**		**4,177.4950**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0239	0.6715	0.1717	1.4800e-003	0.0339	4.7400e-003	0.0386	9.7400e-003	4.5300e-003	0.0143		155.4305	155.4305	8.3600e-003		155.6394
Worker	0.0318	0.0245	0.2563	5.1000e-004	0.0493	4.4000e-004	0.0497	0.0131	4.1000e-004	0.0135		50.6277	50.6277	2.1700e-003		50.6820
Total	**0.0557**	**0.6959**	**0.4280**	**1.9900e-003**	**0.0831**	**5.1800e-003**	**0.0883**	**0.0228**	**4.9400e-003**	**0.0278**		**206.0582**	**206.0582**	**0.0105**		**206.3214**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.4800e-003	0.0000	4.4800e-003	4.8000e-004	0.0000	4.8000e-004			0.0000			0.0000
Off-Road	2.6474	26.7403	17.9734	0.0418		1.2160	1.2160		1.1404	1.1404	0.0000	4,149.1072	4,149.1072	1.1355		4,177.4949
Total	**2.6474**	**26.7403**	**17.9734**	**0.0418**	**4.4800e-003**	**1.2160**	**1.2204**	**4.8000e-004**	**1.1404**	**1.1409**	**0.0000**	**4,149.1072**	**4,149.1072**	**1.1355**		**4,177.4949**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0239	0.6715	0.1717	1.4800e-003	0.0339	4.7400e-003	0.0386	9.7400e-003	4.5300e-003	0.0143		155.4305	155.4305	8.3600e-003		155.6394
Worker	0.0318	0.0245	0.2563	5.1000e-004	0.0493	4.4000e-004	0.0497	0.0131	4.1000e-004	0.0135		50.6277	50.6277	2.1700e-003		50.6820
Total	**0.0557**	**0.6959**	**0.4280**	**1.9900e-003**	**0.0831**	**5.1800e-003**	**0.0883**	**0.0228**	**4.9400e-003**	**0.0278**		**206.0582**	**206.0582**	**0.0105**		**206.3214**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4162	14.7951	9.3721	0.0213		0.6663	0.6663		0.6141	0.6141		2,117.1717	2,117.1717	0.6486		2,133.3872
Paving	0.1277					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5439**	**14.7951**	**9.3721**	**0.0213**		**0.6663**	**0.6663**		**0.6141**	**0.6141**		**2,117.1717**	**2,117.1717**	**0.6486**		**2,133.3872**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0265	0.0204	0.2136	4.2000e-004	0.0411	3.7000e-004	0.0414	0.0109	3.4000e-004	0.0112		42.1898	42.1898	1.8100e-003		42.2350
Total	**0.0265**	**0.0204**	**0.2136**	**4.2000e-004**	**0.0411**	**3.7000e-004**	**0.0414**	**0.0109**	**3.4000e-004**	**0.0112**		**42.1898**	**42.1898**	**1.8100e-003**		**42.2350**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4162	14.7951	9.3721	0.0213		0.6663	0.6663		0.6141	0.6141	0.0000	2,117.1717	2,117.1717	0.6486		2,133.3872
Paving	0.1277					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.5439**	**14.7951**	**9.3721**	**0.0213**		**0.6663**	**0.6663**		**0.6141**	**0.6141**	**0.0000**	**2,117.1717**	**2,117.1717**	**0.6486**		**2,133.3872**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0265	0.0204	0.2136	4.2000e-004	0.0411	3.7000e-004	0.0414	0.0109	3.4000e-004	0.0112		42.1898	42.1898	1.8100e-003		42.2350
Total	**0.0265**	**0.0204**	**0.2136**	**4.2000e-004**	**0.0411**	**3.7000e-004**	**0.0414**	**0.0109**	**3.4000e-004**	**0.0112**		**42.1898**	**42.1898**	**1.8100e-003**		**42.2350**

3.7 Site Restoration - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7188	6.6985	4.9883	6.4800e-003		0.4958	0.4958		0.4561	0.4561		652.3740	652.3740	0.2031		657.4513
Paving	0.2044					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9231**	**6.6985**	**4.9883**	**6.4800e-003**		**0.4958**	**0.4958**		**0.4561**	**0.4561**		**652.3740**	**652.3740**	**0.2031**		**657.4513**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0212	0.0163	0.1709	3.4000e-004	0.0329	2.9000e-004	0.0332	8.7200e-003	2.7000e-004	8.9900e-003		33.7518	33.7518	1.4500e-003		33.7880
Total	**0.0212**	**0.0163**	**0.1709**	**3.4000e-004**	**0.0329**	**2.9000e-004**	**0.0332**	**8.7200e-003**	**2.7000e-004**	**8.9900e-003**		**33.7518**	**33.7518**	**1.4500e-003**		**33.7880**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7188	6.6985	4.9883	6.4800e-003		0.4958	0.4958		0.4561	0.4561	0.0000	652.3740	652.3740	0.2031		657.4513
Paving	0.2044					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9231**	**6.6985**	**4.9883**	**6.4800e-003**		**0.4958**	**0.4958**		**0.4561**	**0.4561**	**0.0000**	**652.3740**	**652.3740**	**0.2031**		**657.4513**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0212	0.0163	0.1709	3.4000e-004	0.0329	2.9000e-004	0.0332	8.7200e-003	2.7000e-004	8.9900e-003		33.7518	33.7518	1.4500e-003		33.7880
Total	**0.0212**	**0.0163**	**0.1709**	**3.4000e-004**	**0.0329**	**2.9000e-004**	**0.0332**	**8.7200e-003**	**2.7000e-004**	**8.9900e-003**		**33.7518**	**33.7518**	**1.4500e-003**		**33.7880**

Palmdale WSMP Pump Stations

Antelope Valley APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.04	1000sqft	0.00	37.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment -

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Trips and VMT - See Construction Assumptions and Summaries

Grading - See Construction Assumptions and Summaries

Architectural Coating -

Construction Off-road Equipment Mitigation - AVAQMD Rule 403

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_EF_Nonresidential_Interior	250	100
tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	50
tblAreaCoating	Area_EF_Residential_Interior	250	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	30.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConsumerProducts	ROG_EF	2.14E-05	1.98E-05
tblGrading	AcresOfGrading	0.00	0.01
tblLandscapeEquipment	NumberSummerDays	180	250
tblLandUse	BuildingSpaceSquareFeet	40.00	37.00
tblLandUse	LandUseSquareFeet	40.00	37.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Site Restoration
tblOffRoadEquipment	PhaseName		Foundation Installation
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Excavation/Grading
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Excavation/Grading
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Foundation Installation
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Site Restoration

tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripNumber	5.00	9.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	25.00	21.00

tblTripsAndVMT	WorkerTripNumber	0.00	18.00
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblTripsAndVMT	WorkerTripNumber	15.00	12.00
tblVehicleTrips	CC_TL	7.30	8.40
tblVehicleTrips	CNW_TL	7.30	6.90
tblVehicleTrips	CW_TL	9.50	16.60

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.9754	40.8401	23.5399	0.0430	18.3045	2.0480	20.3525	9.9933	1.8842	11.8775	0.0000	4,321.3023	4,321.3023	1.2724	0.0000	4,353.1128
Maximum	**3.9754**	**40.8401**	**23.5399**	**0.0430**	**18.3045**	**2.0480**	**20.3525**	**9.9933**	**1.8842**	**11.8775**	**0.0000**	**4,321.3023**	**4,321.3023**	**1.2724**	**0.0000**	**4,353.1128**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.9754	40.8401	23.5399	0.0430	7.2820	2.0480	9.3300	3.9354	1.8842	5.8195	0.0000	4,321.3023	4,321.3023	1.2724	0.0000	4,353.1128
Maximum	**3.9754**	**40.8401**	**23.5399**	**0.0430**	**7.2820**	**2.0480**	**9.3300**	**3.9354**	**1.8842**	**5.8195**	**0.0000**	**4,321.3023**	**4,321.3023**	**1.2724**	**0.0000**	**4,353.1128**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**60.22**	**0.00**	**54.16**	**60.62**	**0.00**	**51.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2018	1/6/2018	6	6	
2	Yard Piping	Trenching	1/7/2018	1/10/2018	6	3	
3	Excavation/Grading	Grading	1/11/2018	1/13/2018	6	3	
4	Foundation Installation	Building Construction	1/14/2018	1/19/2018	6	5	
5	Pump House Construction	Building Construction	1/20/2018	2/23/2018	6	30	
6	Site Restoration	Paving	2/24/2018	3/1/2018	6	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Off-Highway Trucks	2	4.00	402	0.38
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Yard Piping	Concrete/Industrial Saws	0		81	0.73
Yard Piping	Excavators	2	8.00	158	0.38
Yard Piping	Graders	0		187	0.41
Yard Piping	Off-Highway Trucks	2	2.00	402	0.38
Yard Piping	Rubber Tired Dozers	0		247	0.40
Yard Piping	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Yard Piping	Tractors/Loaders/Backhoes	0		97	0.37
Excavation/Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Excavation/Grading	Excavators	2	8.00	158	0.38
Excavation/Grading	Off-Highway Trucks	1	4.00	402	0.38
Excavation/Grading	Rubber Tired Dozers	2	8.00	247	0.40
Excavation/Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Foundation Installation	Cement and Mortar Mixers	2	6.00	9	0.56
Foundation Installation	Cranes	0	4.00	231	0.29

Foundation Installation	Forklifts	0	6.00	89	0.20
Foundation Installation	Plate Compactors	2	8.00	8	0.43
Foundation Installation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Pump House Construction	Aerial Lifts	2	8.00	63	0.31
Pump House Construction	Cement and Mortar Mixers	0		9	0.56
Pump House Construction	Cranes	2	8.00	231	0.29
Pump House Construction	Forklifts	0	6.00	89	0.20
Pump House Construction	Generator Sets	3	8.00	84	0.74
Pump House Construction	Pavers	0		130	0.42
Pump House Construction	Rollers	0		80	0.38
Pump House Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Pump House Construction	Welders	2	8.00	46	0.45
Site Restoration	Air Compressors	0	6.00	78	0.48
Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Site Restoration	Pavers	0	7.00	130	0.42
Site Restoration	Rollers	0	7.00	80	0.38
Site Restoration	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Restoration	Trenchers	2	8.00	78	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	9.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Yard Piping	8	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Yard Piping	8	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Excavation/Grading	10	21.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Foundation Installation	9	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pump House Construction	12	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	6	12.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7733	8.3250	4.2017	0.0132		0.3039	0.3039		0.2796	0.2796		1,329.6161	1,329.6161	0.4139		1,339.9643
Total	**0.7733**	**8.3250**	**4.2017**	**0.0132**	**0.0000**	**0.3039**	**0.3039**	**0.0000**	**0.2796**	**0.2796**		**1,329.6161**	**1,329.6161**	**0.4139**		**1,339.9643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0133	0.3950	0.0887	8.9000e-004	0.0192	2.6600e-003	0.0219	5.5300e-003	2.5400e-003	8.0700e-003		93.3962	93.3962	4.5300e-003		93.5094
Worker	0.0626	0.0456	0.6263	1.1700e-003	0.1006	8.7000e-004	0.1015	0.0267	8.1000e-004	0.0275		116.3252	116.3252	4.9900e-003		116.4499
Total	**0.0759**	**0.4406**	**0.7150**	**2.0600e-003**	**0.1198**	**3.5300e-003**	**0.1233**	**0.0322**	**3.3500e-003**	**0.0356**		**209.7214**	**209.7214**	**9.5200e-003**		**209.9593**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7733	8.3250	4.2017	0.0132		0.3039	0.3039		0.2796	0.2796	0.0000	1,329.6161	1,329.6161	0.4139		1,339.9643
Total	**0.7733**	**8.3250**	**4.2017**	**0.0132**	**0.0000**	**0.3039**	**0.3039**	**0.0000**	**0.2796**	**0.2796**	**0.0000**	**1,329.6161**	**1,329.6161**	**0.4139**		**1,339.9643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0133	0.3950	0.0887	8.9000e-004	0.0192	2.6600e-003	0.0219	5.5300e-003	2.5400e-003	8.0700e-003		93.3962	93.3962	4.5300e-003		93.5094
Worker	0.0626	0.0456	0.6263	1.1700e-003	0.1006	8.7000e-004	0.1015	0.0267	8.1000e-004	0.0275		116.3252	116.3252	4.9900e-003		116.4499
Total	**0.0759**	**0.4406**	**0.7150**	**2.0600e-003**	**0.1198**	**3.5300e-003**	**0.1233**	**0.0322**	**3.3500e-003**	**0.0356**		**209.7214**	**209.7214**	**9.5200e-003**		**209.9593**

3.3 Yard Piping - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4972	15.6137	13.3256	0.0232		0.8248	0.8248		0.7588	0.7588		2,329.5301	2,329.5301	0.7252		2,347.6604
Total	**1.4972**	**15.6137**	**13.3256**	**0.0232**		**0.8248**	**0.8248**		**0.7588**	**0.7588**		**2,329.5301**	**2,329.5301**	**0.7252**		**2,347.6604**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2087	0.1521	2.0877	3.9000e-003	0.6269	2.9100e-003	0.6298	0.1605	2.6800e-003	0.1632		387.7507	387.7507	0.0166		388.1664
Total	**0.2087**	**0.1521**	**2.0877**	**3.9000e-003**	**0.6269**	**2.9100e-003**	**0.6298**	**0.1605**	**2.6800e-003**	**0.1632**		**387.7507**	**387.7507**	**0.0166**		**388.1664**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4972	15.6137	13.3256	0.0232		0.8248	0.8248		0.7588	0.7588	0.0000	2,329.5301	2,329.5301	0.7252		2,347.6604
Total	**1.4972**	**15.6137**	**13.3256**	**0.0232**		**0.8248**	**0.8248**		**0.7588**	**0.7588**	**0.0000**	**2,329.5301**	**2,329.5301**	**0.7252**		**2,347.6604**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2087	0.1521	2.0877	3.9000e-003	0.6269	2.9100e-003	0.6298	0.1605	2.6800e-003	0.1632		387.7507	387.7507	0.0166		388.1664
Total	**0.2087**	**0.1521**	**2.0877**	**3.9000e-003**	**0.6269**	**2.9100e-003**	**0.6298**	**0.1605**	**2.6800e-003**	**0.1632**		**387.7507**	**387.7507**	**0.0166**		**388.1664**

3.4 Excavation/Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0698	0.0000	18.0698	9.9311	0.0000	9.9311			0.0000			0.0000
Off-Road	3.8294	40.7336	22.0785	0.0402		2.0460	2.0460		1.8823	1.8823		4,049.8768	4,049.8768	1.2608		4,081.3963
Total	**3.8294**	**40.7336**	**22.0785**	**0.0402**	**18.0698**	**2.0460**	**20.1158**	**9.9311**	**1.8823**	**11.8133**		**4,049.8768**	**4,049.8768**	**1.2608**		**4,081.3963**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1461	0.1065	1.4614	2.7300e-003	0.2347	2.0400e-003	0.2368	0.0623	1.8800e-003	0.0641		271.4255	271.4255	0.0116		271.7165
Total	**0.1461**	**0.1065**	**1.4614**	**2.7300e-003**	**0.2347**	**2.0400e-003**	**0.2368**	**0.0623**	**1.8800e-003**	**0.0641**		**271.4255**	**271.4255**	**0.0116**		**271.7165**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0472	0.0000	7.0472	3.8731	0.0000	3.8731			0.0000			0.0000
Off-Road	3.8294	40.7336	22.0785	0.0402		2.0460	2.0460		1.8823	1.8823	0.0000	4,049.8768	4,049.8768	1.2608		4,081.3963
Total	**3.8294**	**40.7336**	**22.0785**	**0.0402**	**7.0472**	**2.0460**	**9.0932**	**3.8731**	**1.8823**	**5.7554**	**0.0000**	**4,049.8768**	**4,049.8768**	**1.2608**		**4,081.3963**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1461	0.1065	1.4614	2.7300e-003	0.2347	2.0400e-003	0.2368	0.0623	1.8800e-003	0.0641		271.4255	271.4255	0.0116		271.7165
Total	**0.1461**	**0.1065**	**1.4614**	**2.7300e-003**	**0.2347**	**2.0400e-003**	**0.2368**	**0.0623**	**1.8800e-003**	**0.0641**		**271.4255**	**271.4255**	**0.0116**		**271.7165**

3.5 Foundation Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7006	6.3143	5.5570	8.2500e-003		0.4139	0.4139		0.3841	0.3841		770.2853	770.2853	0.2098		775.5295
Total	**0.7006**	**6.3143**	**5.5570**	**8.2500e-003**		**0.4139**	**0.4139**		**0.3841**	**0.3841**		**770.2853**	**770.2853**	**0.2098**		**775.5295**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1252	0.0913	1.2526	2.3400e-003	0.2012	1.7500e-003	0.2029	0.0534	1.6100e-003	0.0550		232.6504	232.6504	9.9800e-003		232.8999
Total	**0.1252**	**0.0913**	**1.2526**	**2.3400e-003**	**0.2012**	**1.7500e-003**	**0.2029**	**0.0534**	**1.6100e-003**	**0.0550**		**232.6504**	**232.6504**	**9.9800e-003**		**232.8999**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7006	6.3143	5.5570	8.2500e-003		0.4139	0.4139		0.3841	0.3841	0.0000	770.2853	770.2853	0.2098		775.5295
Total	**0.7006**	**6.3143**	**5.5570**	**8.2500e-003**		**0.4139**	**0.4139**		**0.3841**	**0.3841**	**0.0000**	**770.2853**	**770.2853**	**0.2098**		**775.5295**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1252	0.0913	1.2526	2.3400e-003	0.2012	1.7500e-003	0.2029	0.0534	1.6100e-003	0.0550		232.6504	232.6504	9.9800e-003		232.8999
Total	**0.1252**	**0.0913**	**1.2526**	**2.3400e-003**	**0.2012**	**1.7500e-003**	**0.2029**	**0.0534**	**1.6100e-003**	**0.0550**		**232.6504**	**232.6504**	**9.9800e-003**		**232.8999**

3.6 Pump House Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6252	30.7672	22.1850	0.0397		1.6429	1.6429		1.5925	1.5925		3,783.1429	3,783.1429	0.6811		3,800.1709
Total	**3.6252**	**30.7672**	**22.1850**	**0.0397**		**1.6429**	**1.6429**		**1.5925**	**1.5925**		**3,783.1429**	**3,783.1429**	**0.6811**		**3,800.1709**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1043	0.0760	1.0439	1.9500e-003	0.1677	1.4600e-003	0.1691	0.0445	1.3400e-003	0.0458		193.8754	193.8754	8.3100e-003		194.0832
Total	**0.1043**	**0.0760**	**1.0439**	**1.9500e-003**	**0.1677**	**1.4600e-003**	**0.1691**	**0.0445**	**1.3400e-003**	**0.0458**		**193.8754**	**193.8754**	**8.3100e-003**		**194.0832**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6252	30.7672	22.1850	0.0397		1.6429	1.6429		1.5925	1.5925	0.0000	3,783.1429	3,783.1429	0.6811		3,800.1709
Total	**3.6252**	**30.7672**	**22.1850**	**0.0397**		**1.6429**	**1.6429**		**1.5925**	**1.5925**	**0.0000**	**3,783.1429**	**3,783.1429**	**0.6811**		**3,800.1709**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1043	0.0760	1.0439	1.9500e-003	0.1677	1.4600e-003	0.1691	0.0445	1.3400e-003	0.0458		193.8754	193.8754	8.3100e-003		194.0832
Total	**0.1043**	**0.0760**	**1.0439**	**1.9500e-003**	**0.1677**	**1.4600e-003**	**0.1691**	**0.0445**	**1.3400e-003**	**0.0458**		**193.8754**	**193.8754**	**8.3100e-003**		**194.0832**

3.7 Site Restoration - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4375	13.3970	9.9765	0.0130		0.9916	0.9916		0.9123	0.9123		1,304.7480	1,304.7480	0.4062		1,314.9027
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4375**	**13.3970**	**9.9765**	**0.0130**		**0.9916**	**0.9916**		**0.9123**	**0.9123**		**1,304.7480**	**1,304.7480**	**0.4062**		**1,314.9027**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0835	0.0608	0.8351	1.5600e-003	0.1341	1.1600e-003	0.1353	0.0356	1.0700e-003	0.0367		155.1003	155.1003	6.6500e-003		155.2666
Total	**0.0835**	**0.0608**	**0.8351**	**1.5600e-003**	**0.1341**	**1.1600e-003**	**0.1353**	**0.0356**	**1.0700e-003**	**0.0367**		**155.1003**	**155.1003**	**6.6500e-003**		**155.2666**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4375	13.3970	9.9765	0.0130		0.9916	0.9916		0.9123	0.9123	0.0000	1,304.7480	1,304.7480	0.4062		1,314.9027
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4375**	**13.3970**	**9.9765**	**0.0130**		**0.9916**	**0.9916**		**0.9123**	**0.9123**	**0.0000**	**1,304.7480**	**1,304.7480**	**0.4062**		**1,314.9027**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0835	0.0608	0.8351	1.5600e-003	0.1341	1.1600e-003	0.1353	0.0356	1.0700e-003	0.0367		155.1003	155.1003	6.6500e-003		155.2666
Total	**0.0835**	**0.0608**	**0.8351**	**1.5600e-003**	**0.1341**	**1.1600e-003**	**0.1353**	**0.0356**	**1.0700e-003**	**0.0367**		**155.1003**	**155.1003**	**6.6500e-003**		**155.2666**

Palmdale WSMP Pump Stations

Antelope Valley APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.04	1000sqft	0.00	37.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment -

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Trips and VMT - See Construction Assumptions and Summaries

Grading - See Construction Assumptions and Summaries

Architectural Coating -

Construction Off-road Equipment Mitigation - AVAQMD Rule 403

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_EF_Nonresidential_Interior	250	100
tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	50
tblAreaCoating	Area_EF_Residential_Interior	250	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	30.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConsumerProducts	ROG_EF	2.14E-05	1.98E-05
tblGrading	AcresOfGrading	0.00	0.01
tblLandscapeEquipment	NumberSummerDays	180	250
tblLandUse	BuildingSpaceSquareFeet	40.00	37.00
tblLandUse	LandUseSquareFeet	40.00	37.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Site Restoration
tblOffRoadEquipment	PhaseName		Foundation Installation
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Excavation/Grading
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Excavation/Grading
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Foundation Installation
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Site Restoration

tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70
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tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	25.00	21.00

tblTripsAndVMT	WorkerTripNumber	0.00	18.00
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblTripsAndVMT	WorkerTripNumber	15.00	12.00
tblVehicleTrips	CC_TL	7.30	8.40
tblVehicleTrips	CNW_TL	7.30	6.90
tblVehicleTrips	CW_TL	9.50	16.60

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.9689	40.8464	23.2444	0.0426	18.3045	2.0480	20.3525	9.9933	1.8842	11.8775	0.0000	4,289.2321	4,289.2321	1.2708	0.0000	4,321.0026
Maximum	**3.9689**	**40.8464**	**23.2444**	**0.0426**	**18.3045**	**2.0480**	**20.3525**	**9.9933**	**1.8842**	**11.8775**	**0.0000**	**4,289.2321**	**4,289.2321**	**1.2708**	**0.0000**	**4,321.0026**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.9689	40.8464	23.2444	0.0426	7.2820	2.0480	9.3300	3.9354	1.8842	5.8195	0.0000	4,289.2321	4,289.2321	1.2708	0.0000	4,321.0026
Maximum	**3.9689**	**40.8464**	**23.2444**	**0.0426**	**7.2820**	**2.0480**	**9.3300**	**3.9354**	**1.8842**	**5.8195**	**0.0000**	**4,289.2321**	**4,289.2321**	**1.2708**	**0.0000**	**4,321.0026**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**60.22**	**0.00**	**54.16**	**60.62**	**0.00**	**51.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2018	1/6/2018	6	6	
2	Yard Piping	Trenching	1/7/2018	1/10/2018	6	3	
3	Excavation/Grading	Grading	1/11/2018	1/13/2018	6	3	
4	Foundation Installation	Building Construction	1/14/2018	1/19/2018	6	5	
5	Pump House Construction	Building Construction	1/20/2018	2/23/2018	6	30	
6	Site Restoration	Paving	2/24/2018	3/1/2018	6	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Off-Highway Trucks	2	4.00	402	0.38
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Yard Piping	Concrete/Industrial Saws	0		81	0.73
Yard Piping	Excavators	2	8.00	158	0.38
Yard Piping	Graders	0		187	0.41
Yard Piping	Off-Highway Trucks	2	2.00	402	0.38
Yard Piping	Rubber Tired Dozers	0		247	0.40
Yard Piping	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Yard Piping	Tractors/Loaders/Backhoes	0		97	0.37
Excavation/Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Excavation/Grading	Excavators	2	8.00	158	0.38
Excavation/Grading	Off-Highway Trucks	1	4.00	402	0.38
Excavation/Grading	Rubber Tired Dozers	2	8.00	247	0.40
Excavation/Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Foundation Installation	Cement and Mortar Mixers	2	6.00	9	0.56
Foundation Installation	Cranes	0	4.00	231	0.29

Foundation Installation	Forklifts	0	6.00	89	0.20
Foundation Installation	Plate Compactors	2	8.00	8	0.43
Foundation Installation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Pump House Construction	Aerial Lifts	2	8.00	63	0.31
Pump House Construction	Cement and Mortar Mixers	0		9	0.56
Pump House Construction	Cranes	2	8.00	231	0.29
Pump House Construction	Forklifts	0	6.00	89	0.20
Pump House Construction	Generator Sets	3	8.00	84	0.74
Pump House Construction	Pavers	0		130	0.42
Pump House Construction	Rollers	0		80	0.38
Pump House Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Pump House Construction	Welders	2	8.00	46	0.45
Site Restoration	Air Compressors	0	6.00	78	0.48
Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Site Restoration	Pavers	0	7.00	130	0.42
Site Restoration	Rollers	0	7.00	80	0.38
Site Restoration	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Restoration	Trenchers	2	8.00	78	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	9.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Yard Piping	8	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Yard Piping	8	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Excavation/Grading	10	21.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Foundation Installation	9	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pump House Construction	12	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	6	12.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7733	8.3250	4.2017	0.0132		0.3039	0.3039		0.2796	0.2796		1,329.6161	1,329.6161	0.4139		1,339.9643
Total	**0.7733**	**8.3250**	**4.2017**	**0.0132**	**0.0000**	**0.3039**	**0.3039**	**0.0000**	**0.2796**	**0.2796**		**1,329.6161**	**1,329.6161**	**0.4139**		**1,339.9643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0139	0.3936	0.1005	8.6000e-004	0.0192	2.7000e-003	0.0219	5.5300e-003	2.5800e-003	8.1100e-003		89.5915	89.5915	4.9600e-003		89.7155
Worker	0.0598	0.0483	0.4997	1.0300e-003	0.1006	8.7000e-004	0.1015	0.0267	8.1000e-004	0.0275		102.5809	102.5809	4.3000e-003		102.6884
Total	**0.0737**	**0.4419**	**0.6001**	**1.8900e-003**	**0.1198**	**3.5700e-003**	**0.1234**	**0.0322**	**3.3900e-003**	**0.0356**		**192.1724**	**192.1724**	**9.2600e-003**		**192.4039**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7733	8.3250	4.2017	0.0132		0.3039	0.3039		0.2796	0.2796	0.0000	1,329.6161	1,329.6161	0.4139		1,339.9643
Total	**0.7733**	**8.3250**	**4.2017**	**0.0132**	**0.0000**	**0.3039**	**0.3039**	**0.0000**	**0.2796**	**0.2796**	**0.0000**	**1,329.6161**	**1,329.6161**	**0.4139**		**1,339.9643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0139	0.3936	0.1005	8.6000e-004	0.0192	2.7000e-003	0.0219	5.5300e-003	2.5800e-003	8.1100e-003		89.5915	89.5915	4.9600e-003		89.7155
Worker	0.0598	0.0483	0.4997	1.0300e-003	0.1006	8.7000e-004	0.1015	0.0267	8.1000e-004	0.0275		102.5809	102.5809	4.3000e-003		102.6884
Total	**0.0737**	**0.4419**	**0.6001**	**1.8900e-003**	**0.1198**	**3.5700e-003**	**0.1234**	**0.0322**	**3.3900e-003**	**0.0356**		**192.1724**	**192.1724**	**9.2600e-003**		**192.4039**

3.3 Yard Piping - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4972	15.6137	13.3256	0.0232		0.8248	0.8248		0.7588	0.7588		2,329.5301	2,329.5301	0.7252		2,347.6604
Total	**1.4972**	**15.6137**	**13.3256**	**0.0232**		**0.8248**	**0.8248**		**0.7588**	**0.7588**		**2,329.5301**	**2,329.5301**	**0.7252**		**2,347.6604**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1994	0.1611	1.6655	3.4400e-003	0.6269	2.9100e-003	0.6298	0.1605	2.6800e-003	0.1632		341.9363	341.9363	0.0143		342.2947
Total	**0.1994**	**0.1611**	**1.6655**	**3.4400e-003**	**0.6269**	**2.9100e-003**	**0.6298**	**0.1605**	**2.6800e-003**	**0.1632**		**341.9363**	**341.9363**	**0.0143**		**342.2947**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4972	15.6137	13.3256	0.0232		0.8248	0.8248		0.7588	0.7588	0.0000	2,329.5301	2,329.5301	0.7252		2,347.6604
Total	**1.4972**	**15.6137**	**13.3256**	**0.0232**		**0.8248**	**0.8248**		**0.7588**	**0.7588**	**0.0000**	**2,329.5301**	**2,329.5301**	**0.7252**		**2,347.6604**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1994	0.1611	1.6655	3.4400e-003	0.6269	2.9100e-003	0.6298	0.1605	2.6800e-003	0.1632		341.9363	341.9363	0.0143		342.2947
Total	**0.1994**	**0.1611**	**1.6655**	**3.4400e-003**	**0.6269**	**2.9100e-003**	**0.6298**	**0.1605**	**2.6800e-003**	**0.1632**		**341.9363**	**341.9363**	**0.0143**		**342.2947**

3.4 Excavation/Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0698	0.0000	18.0698	9.9311	0.0000	9.9311			0.0000			0.0000
Off-Road	3.8294	40.7336	22.0785	0.0402		2.0460	2.0460		1.8823	1.8823		4,049.8768	4,049.8768	1.2608		4,081.3963
Total	**3.8294**	**40.7336**	**22.0785**	**0.0402**	**18.0698**	**2.0460**	**20.1158**	**9.9311**	**1.8823**	**11.8133**		**4,049.8768**	**4,049.8768**	**1.2608**		**4,081.3963**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1396	0.1128	1.1658	2.4100e-003	0.2347	2.0400e-003	0.2368	0.0623	1.8800e-003	0.0641		239.3554	239.3554	0.0100		239.6063
Total	**0.1396**	**0.1128**	**1.1658**	**2.4100e-003**	**0.2347**	**2.0400e-003**	**0.2368**	**0.0623**	**1.8800e-003**	**0.0641**		**239.3554**	**239.3554**	**0.0100**		**239.6063**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0472	0.0000	7.0472	3.8731	0.0000	3.8731			0.0000			0.0000
Off-Road	3.8294	40.7336	22.0785	0.0402		2.0460	2.0460		1.8823	1.8823	0.0000	4,049.8768	4,049.8768	1.2608		4,081.3963
Total	**3.8294**	**40.7336**	**22.0785**	**0.0402**	**7.0472**	**2.0460**	**9.0932**	**3.8731**	**1.8823**	**5.7554**	**0.0000**	**4,049.8768**	**4,049.8768**	**1.2608**		**4,081.3963**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1396	0.1128	1.1658	2.4100e-003	0.2347	2.0400e-003	0.2368	0.0623	1.8800e-003	0.0641		239.3554	239.3554	0.0100		239.6063
Total	**0.1396**	**0.1128**	**1.1658**	**2.4100e-003**	**0.2347**	**2.0400e-003**	**0.2368**	**0.0623**	**1.8800e-003**	**0.0641**		**239.3554**	**239.3554**	**0.0100**		**239.6063**

3.5 Foundation Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7006	6.3143	5.5570	8.2500e-003		0.4139	0.4139		0.3841	0.3841		770.2853	770.2853	0.2098		775.5295
Total	**0.7006**	**6.3143**	**5.5570**	**8.2500e-003**		**0.4139**	**0.4139**		**0.3841**	**0.3841**		**770.2853**	**770.2853**	**0.2098**		**775.5295**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1196	0.0967	0.9993	2.0600e-003	0.2012	1.7500e-003	0.2029	0.0534	1.6100e-003	0.0550		205.1618	205.1618	8.6000e-003		205.3768
Total	**0.1196**	**0.0967**	**0.9993**	**2.0600e-003**	**0.2012**	**1.7500e-003**	**0.2029**	**0.0534**	**1.6100e-003**	**0.0550**		**205.1618**	**205.1618**	**8.6000e-003**		**205.3768**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7006	6.3143	5.5570	8.2500e-003		0.4139	0.4139		0.3841	0.3841	0.0000	770.2853	770.2853	0.2098		775.5295
Total	**0.7006**	**6.3143**	**5.5570**	**8.2500e-003**		**0.4139**	**0.4139**		**0.3841**	**0.3841**	**0.0000**	**770.2853**	**770.2853**	**0.2098**		**775.5295**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1196	0.0967	0.9993	2.0600e-003	0.2012	1.7500e-003	0.2029	0.0534	1.6100e-003	0.0550		205.1618	205.1618	8.6000e-003		205.3768
Total	**0.1196**	**0.0967**	**0.9993**	**2.0600e-003**	**0.2012**	**1.7500e-003**	**0.2029**	**0.0534**	**1.6100e-003**	**0.0550**		**205.1618**	**205.1618**	**8.6000e-003**		**205.3768**

3.6 Pump House Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6252	30.7672	22.1850	0.0397		1.6429	1.6429		1.5925	1.5925		3,783.1429	3,783.1429	0.6811		3,800.1709
Total	**3.6252**	**30.7672**	**22.1850**	**0.0397**		**1.6429**	**1.6429**		**1.5925**	**1.5925**		**3,783.1429**	**3,783.1429**	**0.6811**		**3,800.1709**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0997	0.0806	0.8328	1.7200e-003	0.1677	1.4600e-003	0.1691	0.0445	1.3400e-003	0.0458		170.9681	170.9681	7.1700e-003		171.1474
Total	**0.0997**	**0.0806**	**0.8328**	**1.7200e-003**	**0.1677**	**1.4600e-003**	**0.1691**	**0.0445**	**1.3400e-003**	**0.0458**		**170.9681**	**170.9681**	**7.1700e-003**		**171.1474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6252	30.7672	22.1850	0.0397		1.6429	1.6429		1.5925	1.5925	0.0000	3,783.1429	3,783.1429	0.6811		3,800.1709
Total	**3.6252**	**30.7672**	**22.1850**	**0.0397**		**1.6429**	**1.6429**		**1.5925**	**1.5925**	**0.0000**	**3,783.1429**	**3,783.1429**	**0.6811**		**3,800.1709**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0997	0.0806	0.8328	1.7200e-003	0.1677	1.4600e-003	0.1691	0.0445	1.3400e-003	0.0458		170.9681	170.9681	7.1700e-003		171.1474
Total	**0.0997**	**0.0806**	**0.8328**	**1.7200e-003**	**0.1677**	**1.4600e-003**	**0.1691**	**0.0445**	**1.3400e-003**	**0.0458**		**170.9681**	**170.9681**	**7.1700e-003**		**171.1474**

3.7 Site Restoration - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4375	13.3970	9.9765	0.0130		0.9916	0.9916		0.9123	0.9123		1,304.7480	1,304.7480	0.4062		1,314.9027
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4375**	**13.3970**	**9.9765**	**0.0130**		**0.9916**	**0.9916**		**0.9123**	**0.9123**		**1,304.7480**	**1,304.7480**	**0.4062**		**1,314.9027**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0798	0.0644	0.6662	1.3800e-003	0.1341	1.1600e-003	0.1353	0.0356	1.0700e-003	0.0367		136.7745	136.7745	5.7400e-003		136.9179
Total	**0.0798**	**0.0644**	**0.6662**	**1.3800e-003**	**0.1341**	**1.1600e-003**	**0.1353**	**0.0356**	**1.0700e-003**	**0.0367**		**136.7745**	**136.7745**	**5.7400e-003**		**136.9179**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4375	13.3970	9.9765	0.0130		0.9916	0.9916		0.9123	0.9123	0.0000	1,304.7480	1,304.7480	0.4062		1,314.9027
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4375**	**13.3970**	**9.9765**	**0.0130**		**0.9916**	**0.9916**		**0.9123**	**0.9123**	**0.0000**	**1,304.7480**	**1,304.7480**	**0.4062**		**1,314.9027**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0798	0.0644	0.6662	1.3800e-003	0.1341	1.1600e-003	0.1353	0.0356	1.0700e-003	0.0367		136.7745	136.7745	5.7400e-003		136.9179
Total	**0.0798**	**0.0644**	**0.6662**	**1.3800e-003**	**0.1341**	**1.1600e-003**	**0.1353**	**0.0356**	**1.0700e-003**	**0.0367**		**136.7745**	**136.7745**	**5.7400e-003**		**136.9179**

Palmdale WSMP Storage Tanks

Antelope Valley APCD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	3.42	1000sqft	0.08	3,421.00	0
General Light Industry	4.54	1000sqft	0.10	4,536.00	0
General Light Industry	18.27	1000sqft	0.42	18,267.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - .

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Trips and VMT - See Construction Assumptions and Summaries

Grading - See Construction Assumptions and Summaries

Architectural Coating - See Construction Assumptions and Summaries

Construction Off-road Equipment Mitigation - AVAQMD Rule 403

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	13,112.00	54,454.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	39,336.00	0.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	5.00	65.00
tblConstructionPhase	NumDays	100.00	28.00
tblConstructionPhase	NumDays	100.00	91.00
tblConstructionPhase	NumDays	2.00	30.00
tblConstructionPhase	NumDays	5.00	9.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblFleetMix	HHD	0.04	0.00
tblFleetMix	LDA	0.61	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.15	0.00
tblFleetMix	LHD1	0.02	0.00

tblFleetMix	LHD2	5.2570e-003	0.00
tblFleetMix	MCY	7.6250e-003	0.00
tblFleetMix	MDV	0.11	0.00
tblFleetMix	MH	1.4220e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	2.1490e-003	0.00
tblFleetMix	SBUS	1.5630e-003	0.00
tblFleetMix	UBUS	1.9000e-003	0.00
tblGrading	AcresOfGrading	0.00	0.61
tblLandUse	BuildingSpaceSquareFeet	18,270.00	18,267.00
tblLandUse	BuildingSpaceSquareFeet	3,420.00	3,421.00
tblLandUse	BuildingSpaceSquareFeet	4,540.00	4,536.00
tblLandUse	LandUseSquareFeet	18,270.00	18,267.00
tblLandUse	LandUseSquareFeet	3,420.00	3,421.00
tblLandUse	LandUseSquareFeet	4,540.00	4,536.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	PhaseName		Site Prep/Grading
tblOffRoadEquipment	PhaseName		Foundation Installation
tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	PhaseName		Tank Finishes
tblOffRoadEquipment	PhaseName		Site Prep/Grading
tblOffRoadEquipment	PhaseName		Tank Finishes
tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	PhaseName		Site Prep/Grading
tblOffRoadEquipment	PhaseName		Foundation Installation
tblOffRoadEquipment	PhaseName		Tank Finishes
tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	PhaseName		Tank Finishes
tblOffRoadEquipment	PhaseName		Tank Finishes

tblOffRoadEquipment	PhaseName		Landscaping
tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	4.00	0.00
tblTripsAndVMT	VendorTripNumber	4.00	0.00
tblTripsAndVMT	WorkerTripNumber	30.00	15.00
tblTripsAndVMT	WorkerTripNumber	11.00	15.00
tblTripsAndVMT	WorkerTripNumber	11.00	21.00
tblTripsAndVMT	WorkerTripNumber	15.00	12.00
tblTripsAndVMT	WorkerTripNumber	2.00	12.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	11.0686	45.6269	25.1226	0.0498	18.2449	2.2037	20.4486	9.9754	2.0275	12.0030	0.0000	5,019.8965	5,019.8965	1.4816	0.0000	5,056.9372
Maximum	**11.0686**	**45.6269**	**25.1226**	**0.0498**	**18.2449**	**2.2037**	**20.4486**	**9.9754**	**2.0275**	**12.0030**	**0.0000**	**5,019.8965**	**5,019.8965**	**1.4816**	**0.0000**	**5,056.9372**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	11.0686	45.6269	25.1226	0.0498	7.2113	2.2037	9.4150	3.9163	2.0275	5.9438	0.0000	5,019.8965	5,019.8965	1.4816	0.0000	5,056.9372
Maximum	**11.0686**	**45.6269**	**25.1226**	**0.0498**	**7.2113**	**2.2037**	**9.4150**	**3.9163**	**2.0275**	**5.9438**	**0.0000**	**5,019.8965**	**5,019.8965**	**1.4816**	**0.0000**	**5,056.9372**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	60.47	0.00	53.96	60.74	0.00	50.48	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Prep/Grading	Grading	1/1/2018	2/3/2018	6	30	
2	Foundation Installation	Building Construction	2/4/2018	3/8/2018	6	28	
3	Tank Installation	Building Construction	3/9/2018	6/22/2018	6	91	
4	Landscaping	Paving	6/23/2018	7/3/2018	6	9	
5	Tank Finishes	Architectural Coating	7/4/2018	9/17/2018	6	65	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 54,454; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Prep/Grading	Air Compressors	0	6.00	78	0.48
Site Prep/Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Site Prep/Grading	Excavators	2	8.00	158	0.38
Site Prep/Grading	Off-Highway Trucks	2	4.00	402	0.38

Site Prep/Grading	Rubber Tired Dozers	2	8.00	247	0.40
Site Prep/Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Foundation Installation	Cement and Mortar Mixers	2	8.00	9	0.56
Foundation Installation	Cranes	0	4.00	231	0.29
Foundation Installation	Forklifts	0	6.00	89	0.20
Foundation Installation	Plate Compactors	2	8.00	8	0.43
Foundation Installation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Tank Installation	Aerial Lifts	2	8.00	63	0.31
Tank Installation	Concrete/Industrial Saws	0	8.00	81	0.73
Tank Installation	Cranes	2	8.00	231	0.29
Tank Installation	Forklifts	2	8.00	89	0.20
Tank Installation	Generator Sets	2	8.00	84	0.74
Tank Installation	Rubber Tired Dozers	0	1.00	247	0.40
Tank Installation	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Tank Installation	Welders	2	8.00	46	0.45
Tank Finishes	Air Compressors	2	8.00	78	0.48
Tank Finishes	Concrete/Industrial Saws	0	8.00	81	0.73
Tank Finishes	Forklifts	2	8.00	89	0.20
Tank Finishes	Pressure Washers	3	8.00	13	0.30
Tank Finishes	Rubber Tired Dozers	0	1.00	247	0.40
Tank Finishes	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Landscaping	Cement and Mortar Mixers	0	6.00	9	0.56
Landscaping	Pavers	0	7.00	130	0.42
Landscaping	Rollers	0	7.00	80	0.38
Landscaping	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Landscaping	Trenchers	2	8.00	78	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Prep/Grading	12	15.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundation Installation	9	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Tank Installation	14	21.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Tank Finishes	12	12.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping	6	12.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Prep/Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0878	0.0000	18.0878	9.9330	0.0000	9.9330			0.0000			0.0000
Off-Road	4.2160	44.8961	24.1794	0.0468		2.1979	2.1979		2.0221	2.0221		4,714.6848	4,714.6848	1.4678		4,751.3785
Total	**4.2160**	**44.8961**	**24.1794**	**0.0468**	**18.0878**	**2.1979**	**20.2857**	**9.9330**	**2.0221**	**11.9551**		**4,714.6848**	**4,714.6848**	**1.4678**		**4,751.3785**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0228	0.6730	0.1522	1.5400e-003	0.0339	4.6700e-003	0.0385	9.7400e-003	4.4700e-003	0.0142		161.7716	161.7716	7.6400e-003		161.9625
Worker	0.0855	0.0578	0.7911	1.4400e-003	0.1232	1.1000e-003	0.1243	0.0327	1.0100e-003	0.0337		143.4401	143.4401	6.2500e-003		143.5963
Total	**0.1084**	**0.7308**	**0.9433**	**2.9800e-003**	**0.1571**	**5.7700e-003**	**0.1628**	**0.0424**	**5.4800e-003**	**0.0479**		**305.2117**	**305.2117**	**0.0139**		**305.5587**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0543	0.0000	7.0543	3.8739	0.0000	3.8739			0.0000			0.0000
Off-Road	4.2160	44.8961	24.1794	0.0468		2.1979	2.1979		2.0221	2.0221	0.0000	4,714.6848	4,714.6848	1.4678		4,751.3785
Total	**4.2160**	**44.8961**	**24.1794**	**0.0468**	**7.0543**	**2.1979**	**9.2521**	**3.8739**	**2.0221**	**5.8959**	**0.0000**	**4,714.6848**	**4,714.6848**	**1.4678**		**4,751.3785**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0228	0.6730	0.1522	1.5400e-003	0.0339	4.6700e-003	0.0385	9.7400e-003	4.4700e-003	0.0142		161.7716	161.7716	7.6400e-003		161.9625
Worker	0.0855	0.0578	0.7911	1.4400e-003	0.1232	1.1000e-003	0.1243	0.0327	1.0100e-003	0.0337		143.4401	143.4401	6.2500e-003		143.5963
Total	**0.1084**	**0.7308**	**0.9433**	**2.9800e-003**	**0.1571**	**5.7700e-003**	**0.1628**	**0.0424**	**5.4800e-003**	**0.0479**		**305.2117**	**305.2117**	**0.0139**		**305.5587**

3.3 Foundation Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7299	6.4984	5.7112	8.6100e-003		0.4211	0.4211		0.3913	0.3913		795.5435	795.5435	0.2124		800.8532
Total	**0.7299**	**6.4984**	**5.7112**	**8.6100e-003**		**0.4211**	**0.4211**		**0.3913**	**0.3913**		**795.5435**	**795.5435**	**0.2124**		**800.8532**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0855	0.0578	0.7911	1.4400e-003	0.1232	1.1000e-003	0.1243	0.0327	1.0100e-003	0.0337		143.4401	143.4401	6.2500e-003		143.5963
Total	**0.0855**	**0.0578**	**0.7911**	**1.4400e-003**	**0.1232**	**1.1000e-003**	**0.1243**	**0.0327**	**1.0100e-003**	**0.0337**		**143.4401**	**143.4401**	**6.2500e-003**		**143.5963**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7299	6.4984	5.7112	8.6100e-003		0.4211	0.4211		0.3913	0.3913	0.0000	795.5435	795.5435	0.2124		800.8532
Total	**0.7299**	**6.4984**	**5.7112**	**8.6100e-003**		**0.4211**	**0.4211**		**0.3913**	**0.3913**	**0.0000**	**795.5435**	**795.5435**	**0.2124**		**800.8532**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0855	0.0578	0.7911	1.4400e-003	0.1232	1.1000e-003	0.1243	0.0327	1.0100e-003	0.0337		143.4401	143.4401	6.2500e-003		143.5963
Total	**0.0855**	**0.0578**	**0.7911**	**1.4400e-003**	**0.1232**	**1.1000e-003**	**0.1243**	**0.0327**	**1.0100e-003**	**0.0337**		**143.4401**	**143.4401**	**6.2500e-003**		**143.5963**

3.4 Tank Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4760	29.8028	20.8603	0.0362		1.6322	1.6322		1.5617	1.5617		3,467.6835	3,467.6835	0.7319		3,485.9816
Total	**3.4760**	**29.8028**	**20.8603**	**0.0362**		**1.6322**	**1.6322**		**1.5617**	**1.5617**		**3,467.6835**	**3,467.6835**	**0.7319**		**3,485.9816**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1197	0.0809	1.1075	2.0200e-003	0.1725	1.5400e-003	0.1741	0.0458	1.4200e-003	0.0472		200.8162	200.8162	8.7400e-003		201.0348
Total	**0.1197**	**0.0809**	**1.1075**	**2.0200e-003**	**0.1725**	**1.5400e-003**	**0.1741**	**0.0458**	**1.4200e-003**	**0.0472**		**200.8162**	**200.8162**	**8.7400e-003**		**201.0348**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4760	29.8028	20.8603	0.0362		1.6322	1.6322		1.5617	1.5617	0.0000	3,467.6835	3,467.6835	0.7319		3,485.9816
Total	**3.4760**	**29.8028**	**20.8603**	**0.0362**		**1.6322**	**1.6322**		**1.5617**	**1.5617**	**0.0000**	**3,467.6835**	**3,467.6835**	**0.7319**		**3,485.9816**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1197	0.0809	1.1075	2.0200e-003	0.1725	1.5400e-003	0.1741	0.0458	1.4200e-003	0.0472		200.8162	200.8162	8.7400e-003		201.0348
Total	**0.1197**	**0.0809**	**1.1075**	**2.0200e-003**	**0.1725**	**1.5400e-003**	**0.1741**	**0.0458**	**1.4200e-003**	**0.0472**		**200.8162**	**200.8162**	**8.7400e-003**		**201.0348**

3.5 Landscaping - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4375	13.3970	9.9765	0.0130		0.9916	0.9916		0.9123	0.9123		1,304.7480	1,304.7480	0.4062		1,314.9027
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4375**	**13.3970**	**9.9765**	**0.0130**		**0.9916**	**0.9916**		**0.9123**	**0.9123**		**1,304.7480**	**1,304.7480**	**0.4062**		**1,314.9027**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0684	0.0462	0.6329	1.1600e-003	0.0986	8.8000e-004	0.0995	0.0262	8.1000e-004	0.0270		114.7521	114.7521	5.0000e-003		114.8770
Total	**0.0684**	**0.0462**	**0.6329**	**1.1600e-003**	**0.0986**	**8.8000e-004**	**0.0995**	**0.0262**	**8.1000e-004**	**0.0270**		**114.7521**	**114.7521**	**5.0000e-003**		**114.8770**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4375	13.3970	9.9765	0.0130		0.9916	0.9916		0.9123	0.9123	0.0000	1,304.7480	1,304.7480	0.4062		1,314.9027
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4375**	**13.3970**	**9.9765**	**0.0130**		**0.9916**	**0.9916**		**0.9123**	**0.9123**	**0.0000**	**1,304.7480**	**1,304.7480**	**0.4062**		**1,314.9027**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0684	0.0462	0.6329	1.1600e-003	0.0986	8.8000e-004	0.0995	0.0262	8.1000e-004	0.0270		114.7521	114.7521	5.0000e-003		114.8770
Total	**0.0684**	**0.0462**	**0.6329**	**1.1600e-003**	**0.0986**	**8.8000e-004**	**0.0995**	**0.0262**	**8.1000e-004**	**0.0270**		**114.7521**	**114.7521**	**5.0000e-003**		**114.8770**

3.6 Tank Finishes - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.7075					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.2928	9.4733	8.1058	0.0126		0.7017	0.7017		0.6816	0.6816		1,175.3746	1,175.3746	0.1797		1,179.8660
Total	**11.0002**	**9.4733**	**8.1058**	**0.0126**		**0.7017**	**0.7017**		**0.6816**	**0.6816**		**1,175.3746**	**1,175.3746**	**0.1797**		**1,179.8660**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0684	0.0462	0.6329	1.1600e-003	0.0986	8.8000e-004	0.0995	0.0262	8.1000e-004	0.0270		114.7521	114.7521	5.0000e-003		114.8770
Total	**0.0684**	**0.0462**	**0.6329**	**1.1600e-003**	**0.0986**	**8.8000e-004**	**0.0995**	**0.0262**	**8.1000e-004**	**0.0270**		**114.7521**	**114.7521**	**5.0000e-003**		**114.8770**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.7075					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.2928	9.4733	8.1058	0.0126		0.7017	0.7017		0.6816	0.6816	0.0000	1,175.3746	1,175.3746	0.1797		1,179.8660
Total	**11.0002**	**9.4733**	**8.1058**	**0.0126**		**0.7017**	**0.7017**		**0.6816**	**0.6816**	**0.0000**	**1,175.3746**	**1,175.3746**	**0.1797**		**1,179.8660**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0684	0.0462	0.6329	1.1600e-003	0.0986	8.8000e-004	0.0995	0.0262	8.1000e-004	0.0270		114.7521	114.7521	5.0000e-003		114.8770
Total	**0.0684**	**0.0462**	**0.6329**	**1.1600e-003**	**0.0986**	**8.8000e-004**	**0.0995**	**0.0262**	**8.1000e-004**	**0.0270**		**114.7521**	**114.7521**	**5.0000e-003**		**114.8770**

Palmdale WSMP Storage Tanks

Antelope Valley APCD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	3.42	1000sqft	0.08	3,421.00	0
General Light Industry	4.54	1000sqft	0.10	4,536.00	0
General Light Industry	18.27	1000sqft	0.42	18,267.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - .

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Trips and VMT - See Construction Assumptions and Summaries

Grading - See Construction Assumptions and Summaries

Architectural Coating - See Construction Assumptions and Summaries

Construction Off-road Equipment Mitigation - AVAQMD Rule 403

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	13,112.00	54,454.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	39,336.00	0.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	5.00	65.00
tblConstructionPhase	NumDays	100.00	28.00
tblConstructionPhase	NumDays	100.00	91.00
tblConstructionPhase	NumDays	2.00	30.00
tblConstructionPhase	NumDays	5.00	9.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblFleetMix	HHD	0.04	0.00
tblFleetMix	LDA	0.61	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.15	0.00
tblFleetMix	LHD1	0.02	0.00

tblFleetMix	LHD2	5.2570e-003	0.00
tblFleetMix	MCY	7.6250e-003	0.00
tblFleetMix	MDV	0.11	0.00
tblFleetMix	MH	1.4220e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	2.1490e-003	0.00
tblFleetMix	SBUS	1.5630e-003	0.00
tblFleetMix	UBUS	1.9000e-003	0.00
tblGrading	AcresOfGrading	0.00	0.61
tblLandUse	BuildingSpaceSquareFeet	18,270.00	18,267.00
tblLandUse	BuildingSpaceSquareFeet	3,420.00	3,421.00
tblLandUse	BuildingSpaceSquareFeet	4,540.00	4,536.00
tblLandUse	LandUseSquareFeet	18,270.00	18,267.00
tblLandUse	LandUseSquareFeet	3,420.00	3,421.00
tblLandUse	LandUseSquareFeet	4,540.00	4,536.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	PhaseName		Site Prep/Grading
tblOffRoadEquipment	PhaseName		Foundation Installation
tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	PhaseName		Tank Finishes
tblOffRoadEquipment	PhaseName		Site Prep/Grading
tblOffRoadEquipment	PhaseName		Tank Finishes
tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	PhaseName		Site Prep/Grading
tblOffRoadEquipment	PhaseName		Foundation Installation
tblOffRoadEquipment	PhaseName		Tank Finishes
tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	PhaseName		Tank Finishes
tblOffRoadEquipment	PhaseName		Tank Finishes

tblOffRoadEquipment	PhaseName		Landscaping
tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	4.00	0.00
tblTripsAndVMT	VendorTripNumber	4.00	0.00
tblTripsAndVMT	WorkerTripNumber	30.00	15.00
tblTripsAndVMT	WorkerTripNumber	11.00	15.00
tblTripsAndVMT	WorkerTripNumber	11.00	21.00
tblTripsAndVMT	WorkerTripNumber	15.00	12.00
tblTripsAndVMT	WorkerTripNumber	2.00	12.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	11.0638	45.6288	24.9918	0.0496	18.2449	2.2037	20.4486	9.9754	2.0276	12.0031	0.0000	4,996.6846	4,996.6846	1.4815	0.0000	5,033.7228
Maximum	**11.0638**	**45.6288**	**24.9918**	**0.0496**	**18.2449**	**2.2037**	**20.4486**	**9.9754**	**2.0276**	**12.0031**	**0.0000**	**4,996.6846**	**4,996.6846**	**1.4815**	**0.0000**	**5,033.7228**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	11.0638	45.6288	24.9918	0.0496	7.2113	2.2037	9.4151	3.9163	2.0276	5.9439	0.0000	4,996.6846	4,996.6846	1.4815	0.0000	5,033.7228
Maximum	**11.0638**	**45.6288**	**24.9918**	**0.0496**	**7.2113**	**2.2037**	**9.4151**	**3.9163**	**2.0276**	**5.9439**	**0.0000**	**4,996.6846**	**4,996.6846**	**1.4815**	**0.0000**	**5,033.7228**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**60.47**	**0.00**	**53.96**	**60.74**	**0.00**	**50.48**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Prep/Grading	Grading	1/1/2018	2/3/2018	6	30	
2	Foundation Installation	Building Construction	2/4/2018	3/8/2018	6	28	
3	Tank Installation	Building Construction	3/9/2018	6/22/2018	6	91	
4	Landscaping	Paving	6/23/2018	7/3/2018	6	9	
5	Tank Finishes	Architectural Coating	7/4/2018	9/17/2018	6	65	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 54,454; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Prep/Grading	Air Compressors	0	6.00	78	0.48
Site Prep/Grading	Concrete/Industrial Saws	0	8.00	81	0.73

Site Prep/Grading	Excavators	2	8.00	158	0.38
Site Prep/Grading	Off-Highway Trucks	2	4.00	402	0.38
Site Prep/Grading	Rubber Tired Dozers	2	8.00	247	0.40
Site Prep/Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Foundation Installation	Cement and Mortar Mixers	2	8.00	9	0.56
Foundation Installation	Cranes	0	4.00	231	0.29
Foundation Installation	Forklifts	0	6.00	89	0.20
Foundation Installation	Plate Compactors	2	8.00	8	0.43
Foundation Installation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Tank Installation	Aerial Lifts	2	8.00	63	0.31
Tank Installation	Concrete/Industrial Saws	0	8.00	81	0.73
Tank Installation	Cranes	2	8.00	231	0.29
Tank Installation	Forklifts	2	8.00	89	0.20
Tank Installation	Generator Sets	2	8.00	84	0.74
Tank Installation	Rubber Tired Dozers	0	1.00	247	0.40
Tank Installation	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Tank Installation	Welders	2	8.00	46	0.45
Tank Finishes	Air Compressors	2	8.00	78	0.48
Tank Finishes	Concrete/Industrial Saws	0	8.00	81	0.73
Tank Finishes	Forklifts	2	8.00	89	0.20
Tank Finishes	Pressure Washers	3	8.00	13	0.30
Tank Finishes	Rubber Tired Dozers	0	1.00	247	0.40
Tank Finishes	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Landscaping	Cement and Mortar Mixers	0	6.00	9	0.56
Landscaping	Pavers	0	7.00	130	0.42

Landscaping	Rollers	0	7.00	80	0.38
Landscaping	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Landscaping	Trenchers	2	8.00	78	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Prep/Grading	12	15.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundation Installation	9	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Tank Installation	14	21.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Tank Finishes	12	12.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping	6	12.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Prep/Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0878	0.0000	18.0878	9.9330	0.0000	9.9330			0.0000			0.0000
Off-Road	4.2160	44.8961	24.1794	0.0468		2.1979	2.1979		2.0221	2.0221		4,714.6848	4,714.6848	1.4678		4,751.3785
Total	**4.2160**	**44.8961**	**24.1794**	**0.0468**	**18.0878**	**2.1979**	**20.2857**	**9.9330**	**2.0221**	**11.9551**		**4,714.6848**	**4,714.6848**	**1.4678**		**4,751.3785**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0239	0.6715	0.1717	1.4800e-003	0.0339	4.7400e-003	0.0386	9.7400e-003	4.5300e-003	0.0143		155.4305	155.4305	8.3600e-003		155.6394
Worker	0.0795	0.0612	0.6407	1.2700e-003	0.1232	1.1000e-003	0.1243	0.0327	1.0100e-003	0.0337		126.5693	126.5693	5.4300e-003		126.7050
Total	**0.1034**	**0.7327**	**0.8125**	**2.7500e-003**	**0.1571**	**5.8400e-003**	**0.1629**	**0.0424**	**5.5400e-003**	**0.0480**		**281.9998**	**281.9998**	**0.0138**		**282.3444**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0543	0.0000	7.0543	3.8739	0.0000	3.8739			0.0000			0.0000
Off-Road	4.2160	44.8961	24.1794	0.0468		2.1979	2.1979		2.0221	2.0221	0.0000	4,714.6848	4,714.6848	1.4678		4,751.3785
Total	**4.2160**	**44.8961**	**24.1794**	**0.0468**	**7.0543**	**2.1979**	**9.2521**	**3.8739**	**2.0221**	**5.8959**	**0.0000**	**4,714.6848**	**4,714.6848**	**1.4678**		**4,751.3785**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0239	0.6715	0.1717	1.4800e-003	0.0339	4.7400e-003	0.0386	9.7400e-003	4.5300e-003	0.0143		155.4305	155.4305	8.3600e-003		155.6394
Worker	0.0795	0.0612	0.6407	1.2700e-003	0.1232	1.1000e-003	0.1243	0.0327	1.0100e-003	0.0337		126.5693	126.5693	5.4300e-003		126.7050
Total	**0.1034**	**0.7327**	**0.8125**	**2.7500e-003**	**0.1571**	**5.8400e-003**	**0.1629**	**0.0424**	**5.5400e-003**	**0.0480**		**281.9998**	**281.9998**	**0.0138**		**282.3444**

3.3 Foundation Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7299	6.4984	5.7112	8.6100e-003		0.4211	0.4211		0.3913	0.3913		795.5435	795.5435	0.2124		800.8532
Total	**0.7299**	**6.4984**	**5.7112**	**8.6100e-003**		**0.4211**	**0.4211**		**0.3913**	**0.3913**		**795.5435**	**795.5435**	**0.2124**		**800.8532**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0795	0.0612	0.6407	1.2700e-003	0.1232	1.1000e-003	0.1243	0.0327	1.0100e-003	0.0337		126.5693	126.5693	5.4300e-003		126.7050
Total	**0.0795**	**0.0612**	**0.6407**	**1.2700e-003**	**0.1232**	**1.1000e-003**	**0.1243**	**0.0327**	**1.0100e-003**	**0.0337**		**126.5693**	**126.5693**	**5.4300e-003**		**126.7050**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7299	6.4984	5.7112	8.6100e-003		0.4211	0.4211		0.3913	0.3913	0.0000	795.5435	795.5435	0.2124		800.8532
Total	**0.7299**	**6.4984**	**5.7112**	**8.6100e-003**		**0.4211**	**0.4211**		**0.3913**	**0.3913**	**0.0000**	**795.5435**	**795.5435**	**0.2124**		**800.8532**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0795	0.0612	0.6407	1.2700e-003	0.1232	1.1000e-003	0.1243	0.0327	1.0100e-003	0.0337		126.5693	126.5693	5.4300e-003		126.7050
Total	**0.0795**	**0.0612**	**0.6407**	**1.2700e-003**	**0.1232**	**1.1000e-003**	**0.1243**	**0.0327**	**1.0100e-003**	**0.0337**		**126.5693**	**126.5693**	**5.4300e-003**		**126.7050**

3.4 Tank Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4760	29.8028	20.8603	0.0362		1.6322	1.6322		1.5617	1.5617		3,467.6835	3,467.6835	0.7319		3,485.9816
Total	**3.4760**	**29.8028**	**20.8603**	**0.0362**		**1.6322**	**1.6322**		**1.5617**	**1.5617**		**3,467.6835**	**3,467.6835**	**0.7319**		**3,485.9816**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1113	0.0857	0.8970	1.7800e-003	0.1725	1.5400e-003	0.1741	0.0458	1.4200e-003	0.0472		177.1970	177.1970	7.6000e-003		177.3870
Total	**0.1113**	**0.0857**	**0.8970**	**1.7800e-003**	**0.1725**	**1.5400e-003**	**0.1741**	**0.0458**	**1.4200e-003**	**0.0472**		**177.1970**	**177.1970**	**7.6000e-003**		**177.3870**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.4760	29.8028	20.8603	0.0362		1.6322	1.6322		1.5617	1.5617	0.0000	3,467.6835	3,467.6835	0.7319		3,485.9816
Total	**3.4760**	**29.8028**	**20.8603**	**0.0362**		**1.6322**	**1.6322**		**1.5617**	**1.5617**	**0.0000**	**3,467.6835**	**3,467.6835**	**0.7319**		**3,485.9816**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1113	0.0857	0.8970	1.7800e-003	0.1725	1.5400e-003	0.1741	0.0458	1.4200e-003	0.0472		177.1970	177.1970	7.6000e-003		177.3870
Total	**0.1113**	**0.0857**	**0.8970**	**1.7800e-003**	**0.1725**	**1.5400e-003**	**0.1741**	**0.0458**	**1.4200e-003**	**0.0472**		**177.1970**	**177.1970**	**7.6000e-003**		**177.3870**

3.5 Landscaping - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4375	13.3970	9.9765	0.0130		0.9916	0.9916		0.9123	0.9123		1,304.7480	1,304.7480	0.4062		1,314.9027
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4375**	**13.3970**	**9.9765**	**0.0130**		**0.9916**	**0.9916**		**0.9123**	**0.9123**		**1,304.7480**	**1,304.7480**	**0.4062**		**1,314.9027**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0636	0.0490	0.5126	1.0200e-003	0.0986	8.8000e-004	0.0995	0.0262	8.1000e-004	0.0270		101.2554	101.2554	4.3400e-003		101.3640
Total	**0.0636**	**0.0490**	**0.5126**	**1.0200e-003**	**0.0986**	**8.8000e-004**	**0.0995**	**0.0262**	**8.1000e-004**	**0.0270**		**101.2554**	**101.2554**	**4.3400e-003**		**101.3640**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4375	13.3970	9.9765	0.0130		0.9916	0.9916		0.9123	0.9123	0.0000	1,304.7480	1,304.7480	0.4062		1,314.9027
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4375**	**13.3970**	**9.9765**	**0.0130**		**0.9916**	**0.9916**		**0.9123**	**0.9123**	**0.0000**	**1,304.7480**	**1,304.7480**	**0.4062**		**1,314.9027**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0636	0.0490	0.5126	1.0200e-003	0.0986	8.8000e-004	0.0995	0.0262	8.1000e-004	0.0270		101.2554	101.2554	4.3400e-003		101.3640
Total	**0.0636**	**0.0490**	**0.5126**	**1.0200e-003**	**0.0986**	**8.8000e-004**	**0.0995**	**0.0262**	**8.1000e-004**	**0.0270**		**101.2554**	**101.2554**	**4.3400e-003**		**101.3640**

3.6 Tank Finishes - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.7075					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.2928	9.4733	8.1058	0.0126		0.7017	0.7017		0.6816	0.6816		1,175.3746	1,175.3746	0.1797		1,179.8660
Total	**11.0002**	**9.4733**	**8.1058**	**0.0126**		**0.7017**	**0.7017**		**0.6816**	**0.6816**		**1,175.3746**	**1,175.3746**	**0.1797**		**1,179.8660**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0636	0.0490	0.5126	1.0200e-003	0.0986	8.8000e-004	0.0995	0.0262	8.1000e-004	0.0270		101.2554	101.2554	4.3400e-003		101.3640
Total	**0.0636**	**0.0490**	**0.5126**	**1.0200e-003**	**0.0986**	**8.8000e-004**	**0.0995**	**0.0262**	**8.1000e-004**	**0.0270**		**101.2554**	**101.2554**	**4.3400e-003**		**101.3640**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.7075					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.2928	9.4733	8.1058	0.0126		0.7017	0.7017		0.6816	0.6816	0.0000	1,175.3746	1,175.3746	0.1797		1,179.8660
Total	**11.0002**	**9.4733**	**8.1058**	**0.0126**		**0.7017**	**0.7017**		**0.6816**	**0.6816**	**0.0000**	**1,175.3746**	**1,175.3746**	**0.1797**		**1,179.8660**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0636	0.0490	0.5126	1.0200e-003	0.0986	8.8000e-004	0.0995	0.0262	8.1000e-004	0.0270		101.2554	101.2554	4.3400e-003		101.3640
Total	**0.0636**	**0.0490**	**0.5126**	**1.0200e-003**	**0.0986**	**8.8000e-004**	**0.0995**	**0.0262**	**8.1000e-004**	**0.0270**		**101.2554**	**101.2554**	**4.3400e-003**		**101.3640**

Palmdale WSMP Pump Stations

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.04	1000sqft	0.00	37.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment -

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Grading - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Palmdale WSMP Pump Stations - Los Angeles-South Coast County, Summer

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Trips and VMT - See Construction Assumptions and Summaries

Architectural Coating -

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
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tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	6.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	30.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	PhaseEndDate	6/20/2018	3/1/2018
tblConstructionPhase	PhaseEndDate	6/6/2018	1/19/2018
tblConstructionPhase	PhaseEndDate	1/12/2018	1/6/2018
tblConstructionPhase	PhaseEndDate	1/17/2018	1/13/2018
tblConstructionPhase	PhaseEndDate	6/13/2018	2/23/2018
tblConstructionPhase	PhaseEndDate	1/15/2018	1/10/2018

tblConstructionPhase	PhaseStartDate	6/14/2018	2/24/2018
tblConstructionPhase	PhaseStartDate	1/18/2018	1/14/2018
tblConstructionPhase	PhaseStartDate	1/16/2018	1/11/2018
tblConstructionPhase	PhaseStartDate	6/7/2018	1/20/2018
tblConstructionPhase	PhaseStartDate	1/13/2018	1/7/2018
tblGrading	AcresOfGrading	0.00	0.01
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.31	0.31
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	15.00	12.00
tblTripsAndVMT	WorkerTripNumber	0.00	18.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	25.00	21.00
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	5.00	9.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.6730	59.1740	33.2612	0.0598	18.3045	2.9981	21.3026	9.9933	2.7582	12.7516	0.0000	6,016.8038	6,016.8038	1.8010	0.0000	6,061.8295
Maximum	**5.6730**	**59.1740**	**33.2612**	**0.0598**	**18.3045**	**2.9981**	**21.3026**	**9.9933**	**2.7582**	**12.7516**	**0.0000**	**6,016.8038**	**6,016.8038**	**1.8010**	**0.0000**	**6,061.8295**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	1.0430	19.5056	37.0850	0.0598	7.2820	0.3114	7.3774	3.9354	0.3113	4.0307	0.0000	6,016.8038	6,016.8038	1.8010	0.0000	6,061.8295
Maximum	**1.0430**	**19.5056**	**37.0850**	**0.0598**	**7.2820**	**0.3114**	**7.3774**	**3.9354**	**0.3113**	**4.0307**	**0.0000**	**6,016.8038**	**6,016.8038**	**1.8010**	**0.0000**	**6,061.8295**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**81.61**	**67.04**	**-11.50**	**0.00**	**60.22**	**89.61**	**65.37**	**60.62**	**88.71**	**68.39**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2018	1/6/2018	6	6	
2	Yard Piping	Trenching	1/7/2018	1/10/2018	6	3	
3	Excavation/Grading	Grading	1/11/2018	1/13/2018	6	3	
4	Foundation Installation	Building Construction	1/14/2018	1/19/2018	6	5	
5	Pump House Construction	Building Construction	1/20/2018	2/23/2018	6	30	
6	Site Restoration	Paving	2/24/2018	3/1/2018	6	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Restoration	Air Compressors	0	6.00	78	0.48
Pump House Construction	Cement and Mortar Mixers	0		9	0.56

Yard Piping	Concrete/Industrial Saws	0		81	0.73
Excavation/Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Foundation Installation	Cranes	0	4.00	231	0.29
Foundation Installation	Forklifts	0	6.00	89	0.20
Yard Piping	Graders	0		187	0.41
Pump House Construction	Pavers	0		130	0.42
Pump House Construction	Rollers	0		80	0.38
Yard Piping	Rubber Tired Dozers	0		247	0.40
Excavation/Grading	Rubber Tired Dozers	3	8.00	247	0.40
Foundation Installation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Yard Piping	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Excavation/Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Pump House Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Yard Piping	Tractors/Loaders/Backhoes	0		97	0.37
Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Pump House Construction	Cranes	3	8.00	231	0.29
Pump House Construction	Forklifts	0	6.00	89	0.20
Site Preparation	Graders	0	8.00	187	0.41
Site Restoration	Pavers	0	7.00	130	0.42
Site Restoration	Rollers	0	7.00	80	0.38
Site Restoration	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Off-Highway Trucks	2	4.00	402	0.38
Yard Piping	Excavators	3	8.00	158	0.38
Yard Piping	Off-Highway Trucks	2	2.00	402	0.38

Excavation/Grading	Excavators	3	8.00	158	0.38
Excavation/Grading	Off-Highway Trucks	1	4.00	402	0.38
Foundation Installation	Plate Compactors	3	8.00	8	0.43
Foundation Installation	Cement and Mortar Mixers	3	6.00	9	0.56
Pump House Construction	Aerial Lifts	3	8.00	63	0.31
Pump House Construction	Generator Sets	3	8.00	84	0.74
Pump House Construction	Welders	3	8.00	46	0.45
Site Restoration	Trenchers	3	8.00	78	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Restoration	6	12.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Foundation Installation	9	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Yard Piping	8	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation/Grading	10	21.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pump House Construction	12	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Yard Piping	8	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	9.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7733	8.3250	4.2017	0.0132		0.3039	0.3039		0.2796	0.2796		1,329.6161	1,329.6161	0.4139		1,339.9643
Total	**0.7733**	**8.3250**	**4.2017**	**0.0132**	**0.0000**	**0.3039**	**0.3039**	**0.0000**	**0.2796**	**0.2796**		**1,329.6161**	**1,329.6161**	**0.4139**		**1,339.9643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0138	0.3677	0.1005	7.9000e-004	0.0192	2.5900e-003	0.0218	5.5300e-003	2.4800e-003	8.0100e-003		84.5038	84.5038	5.5600e-003		84.6429
Worker	0.0497	0.0375	0.4861	1.1300e-003	0.1006	9.0000e-004	0.1015	0.0267	8.3000e-004	0.0275		112.8321	112.8321	4.2300e-003		112.9379
Total	**0.0635**	**0.4052**	**0.5866**	**1.9200e-003**	**0.1198**	**3.4900e-003**	**0.1233**	**0.0322**	**3.3100e-003**	**0.0355**		**197.3359**	**197.3359**	**9.7900e-003**		**197.5808**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2155	3.4756	7.0050	0.0132		0.0216	0.0216		0.0216	0.0216	0.0000	1,329.6161	1,329.6161	0.4139		1,339.9643
Total	**0.2155**	**3.4756**	**7.0050**	**0.0132**	**0.0000**	**0.0216**	**0.0216**	**0.0000**	**0.0216**	**0.0216**	**0.0000**	**1,329.6161**	**1,329.6161**	**0.4139**		**1,339.9643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0138	0.3677	0.1005	7.9000e-004	0.0192	2.5900e-003	0.0218	5.5300e-003	2.4800e-003	8.0100e-003		84.5038	84.5038	5.5600e-003		84.6429
Worker	0.0497	0.0375	0.4861	1.1300e-003	0.1006	9.0000e-004	0.1015	0.0267	8.3000e-004	0.0275		112.8321	112.8321	4.2300e-003		112.9379
Total	**0.0635**	**0.4052**	**0.5866**	**1.9200e-003**	**0.1198**	**3.4900e-003**	**0.1233**	**0.0322**	**3.3100e-003**	**0.0355**		**197.3359**	**197.3359**	**9.7900e-003**		**197.5808**

3.3 Yard Piping - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0524	21.3393	18.9380	0.0314		1.1613	1.1613		1.0684	1.0684		3,161.8911	3,161.8911	0.9843		3,186.4996
Total	**2.0524**	**21.3393**	**18.9380**	**0.0314**		**1.1613**	**1.1613**		**1.0684**	**1.0684**		**3,161.8911**	**3,161.8911**	**0.9843**		**3,186.4996**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1657	0.1251	1.6202	3.7800e-003	0.6269	2.9900e-003	0.6298	0.1605	2.7600e-003	0.1632		376.1070	376.1070	0.0141		376.4596
Total	**0.1657**	**0.1251**	**1.6202**	**3.7800e-003**	**0.6269**	**2.9900e-003**	**0.6298**	**0.1605**	**2.7600e-003**	**0.1632**		**376.1070**	**376.1070**	**0.0141**		**376.4596**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5073	12.6316	22.2828	0.0314		0.0514	0.0514		0.0514	0.0514	0.0000	3,161.8911	3,161.8911	0.9843		3,186.4996
Total	**0.5073**	**12.6316**	**22.2828**	**0.0314**		**0.0514**	**0.0514**		**0.0514**	**0.0514**	**0.0000**	**3,161.8911**	**3,161.8911**	**0.9843**		**3,186.4996**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1657	0.1251	1.6202	3.7800e-003	0.6269	2.9900e-003	0.6298	0.1605	2.7600e-003	0.1632		376.1070	376.1070	0.0141		376.4596
Total	**0.1657**	**0.1251**	**1.6202**	**3.7800e-003**	**0.6269**	**2.9900e-003**	**0.6298**	**0.1605**	**2.7600e-003**	**0.1632**		**376.1070**	**376.1070**	**0.0141**		**376.4596**

3.4 Excavation/Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0698	0.0000	18.0698	9.9311	0.0000	9.9311			0.0000			0.0000
Off-Road	5.5570	59.0864	32.1270	0.0571		2.9960	2.9960		2.7563	2.7563		5,753.5289	5,753.5289	1.7912		5,798.3077
Total	**5.5570**	**59.0864**	**32.1270**	**0.0571**	**18.0698**	**2.9960**	**21.0658**	**9.9311**	**2.7563**	**12.6874**		**5,753.5289**	**5,753.5289**	**1.7912**		**5,798.3077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1160	0.0876	1.1342	2.6500e-003	0.2347	2.0900e-003	0.2368	0.0623	1.9300e-003	0.0642		263.2749	263.2749	9.8700e-003		263.5217
Total	**0.1160**	**0.0876**	**1.1342**	**2.6500e-003**	**0.2347**	**2.0900e-003**	**0.2368**	**0.0623**	**1.9300e-003**	**0.0642**		**263.2749**	**263.2749**	**9.8700e-003**		**263.5217**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0472	0.0000	7.0472	3.8731	0.0000	3.8731			0.0000			0.0000
Off-Road	0.9270	19.4181	35.9508	0.0571		0.0934	0.0934		0.0934	0.0934	0.0000	5,753.5289	5,753.5289	1.7912		5,798.3077
Total	**0.9270**	**19.4181**	**35.9508**	**0.0571**	**7.0472**	**0.0934**	**7.1406**	**3.8731**	**0.0934**	**3.9665**	**0.0000**	**5,753.5289**	**5,753.5289**	**1.7912**		**5,798.3077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1160	0.0876	1.1342	2.6500e-003	0.2347	2.0900e-003	0.2368	0.0623	1.9300e-003	0.0642		263.2749	263.2749	9.8700e-003		263.5217
Total	**0.1160**	**0.0876**	**1.1342**	**2.6500e-003**	**0.2347**	**2.0900e-003**	**0.2368**	**0.0623**	**1.9300e-003**	**0.0642**		**263.2749**	**263.2749**	**9.8700e-003**		**263.5217**

3.5 Foundation Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0508	9.4715	8.3356	0.0124		0.6208	0.6208		0.5761	0.5761		1,155.4279	1,155.4279	0.3147		1,163.2943
Total	**1.0508**	**9.4715**	**8.3356**	**0.0124**		**0.6208**	**0.6208**		**0.5761**	**0.5761**		**1,155.4279**	**1,155.4279**	**0.3147**		**1,163.2943**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0995	0.0751	0.9721	2.2700e-003	0.2012	1.7900e-003	0.2030	0.0534	1.6500e-003	0.0550		225.6642	225.6642	8.4600e-003		225.8758
Total	**0.0995**	**0.0751**	**0.9721**	**2.2700e-003**	**0.2012**	**1.7900e-003**	**0.2030**	**0.0534**	**1.6500e-003**	**0.0550**		**225.6642**	**225.6642**	**8.4600e-003**		**225.8758**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4614	5.6461	8.3516	0.0124		0.0771	0.0771		0.0771	0.0771	0.0000	1,155.4279	1,155.4279	0.3147		1,163.2943
Total	**0.4614**	**5.6461**	**8.3516**	**0.0124**		**0.0771**	**0.0771**		**0.0771**	**0.0771**	**0.0000**	**1,155.4279**	**1,155.4279**	**0.3147**		**1,163.2943**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0995	0.0751	0.9721	2.2700e-003	0.2012	1.7900e-003	0.2030	0.0534	1.6500e-003	0.0550		225.6642	225.6642	8.4600e-003		225.8758
Total	**0.0995**	**0.0751**	**0.9721**	**2.2700e-003**	**0.2012**	**1.7900e-003**	**0.2030**	**0.0534**	**1.6500e-003**	**0.0550**		**225.6642**	**225.6642**	**8.4600e-003**		**225.8758**

3.6 Pump House Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.6789	39.9684	27.6377	0.0497		2.0710	2.0710		1.9954	1.9954		4,737.2196	4,737.2196	0.9533		4,761.0532
Total	**4.6789**	**39.9684**	**27.6377**	**0.0497**		**2.0710**	**2.0710**		**1.9954**	**1.9954**		**4,737.2196**	**4,737.2196**	**0.9533**		**4,761.0532**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0829	0.0625	0.8101	1.8900e-003	0.1677	1.4900e-003	0.1692	0.0445	1.3800e-003	0.0458		188.0535	188.0535	7.0500e-003		188.2298
Total	**0.0829**	**0.0625**	**0.8101**	**1.8900e-003**	**0.1677**	**1.4900e-003**	**0.1692**	**0.0445**	**1.3800e-003**	**0.0458**		**188.0535**	**188.0535**	**7.0500e-003**		**188.2298**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9001	19.4091	29.6766	0.0497		0.3099	0.3099		0.3099	0.3099	0.0000	4,737.2196	4,737.2196	0.9533		4,761.0532
Total	**0.9001**	**19.4091**	**29.6766**	**0.0497**		**0.3099**	**0.3099**		**0.3099**	**0.3099**	**0.0000**	**4,737.2196**	**4,737.2196**	**0.9533**		**4,761.0532**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0829	0.0625	0.8101	1.8900e-003	0.1677	1.4900e-003	0.1692	0.0445	1.3800e-003	0.0458		188.0535	188.0535	7.0500e-003		188.2298
Total	**0.0829**	**0.0625**	**0.8101**	**1.8900e-003**	**0.1677**	**1.4900e-003**	**0.1692**	**0.0445**	**1.3800e-003**	**0.0458**		**188.0535**	**188.0535**	**7.0500e-003**		**188.2298**

3.7 Site Restoration - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1562	20.0955	14.9648	0.0194		1.4874	1.4874		1.3684	1.3684		1,957.1220	1,957.1220	0.6093		1,972.3540
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1562**	**20.0955**	**14.9648**	**0.0194**		**1.4874**	**1.4874**		**1.3684**	**1.3684**		**1,957.1220**	**1,957.1220**	**0.6093**		**1,972.3540**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0663	0.0500	0.6481	1.5100e-003	0.1341	1.2000e-003	0.1353	0.0356	1.1000e-003	0.0367		150.4428	150.4428	5.6400e-003		150.5839
Total	**0.0663**	**0.0500**	**0.6481**	**1.5100e-003**	**0.1341**	**1.2000e-003**	**0.1353**	**0.0356**	**1.1000e-003**	**0.0367**		**150.4428**	**150.4428**	**5.6400e-003**		**150.5839**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4359	8.4798	14.6613	0.0194		0.0317	0.0317		0.0317	0.0317	0.0000	1,957.1220	1,957.1220	0.6093		1,972.3540
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4359**	**8.4798**	**14.6613**	**0.0194**		**0.0317**	**0.0317**		**0.0317**	**0.0317**	**0.0000**	**1,957.1220**	**1,957.1220**	**0.6093**		**1,972.3540**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0663	0.0500	0.6481	1.5100e-003	0.1341	1.2000e-003	0.1353	0.0356	1.1000e-003	0.0367		150.4428	150.4428	5.6400e-003		150.5839
Total	**0.0663**	**0.0500**	**0.6481**	**1.5100e-003**	**0.1341**	**1.2000e-003**	**0.1353**	**0.0356**	**1.1000e-003**	**0.0367**		**150.4428**	**150.4428**	**5.6400e-003**		**150.5839**

Palmdale WSMP Pump Stations

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.04	1000sqft	0.00	37.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment -

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Grading - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Palmdale WSMP Pump Stations - Los Angeles-South Coast County, Winter

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Trips and VMT - See Construction Assumptions and Summaries

Architectural Coating -

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Table Name	Column Name	Default Value	New Value
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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tblConstructionPhase	PhaseEndDate	6/6/2018	1/19/2018
tblConstructionPhase	PhaseEndDate	1/12/2018	1/6/2018
tblConstructionPhase	PhaseEndDate	1/17/2018	1/13/2018
tblConstructionPhase	PhaseEndDate	6/13/2018	2/23/2018
tblConstructionPhase	PhaseEndDate	1/15/2018	1/10/2018

tblConstructionPhase	PhaseStartDate	6/14/2018	2/24/2018
tblConstructionPhase	PhaseStartDate	1/18/2018	1/14/2018
tblConstructionPhase	PhaseStartDate	1/16/2018	1/11/2018
tblConstructionPhase	PhaseStartDate	6/7/2018	1/20/2018
tblConstructionPhase	PhaseStartDate	1/13/2018	1/7/2018
tblGrading	AcresOfGrading	0.00	0.01
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.31	0.31
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	15.00	12.00
tblTripsAndVMT	WorkerTripNumber	0.00	18.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	25.00	21.00
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	5.00	9.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	5.6854	59.1834	33.1713	0.0596	18.3045	2.9981	21.3026	9.9933	2.7582	12.7516	0.0000	6,001.4499	6,001.4499	1.8005	0.0000	6,046.4620
Maximum	**5.6854**	**59.1834**	**33.1713**	**0.0596**	**18.3045**	**2.9981**	**21.3026**	**9.9933**	**2.7582**	**12.7516**	**0.0000**	**6,001.4499**	**6,001.4499**	**1.8005**	**0.0000**	**6,046.4620**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	1.0554	19.5151	36.9951	0.0596	7.2820	0.3114	7.3774	3.9354	0.3113	4.0307	0.0000	6,001.4499	6,001.4499	1.8005	0.0000	6,046.4619
Maximum	**1.0554**	**19.5151**	**36.9951**	**0.0596**	**7.2820**	**0.3114**	**7.3774**	**3.9354**	**0.3113**	**4.0307**	**0.0000**	**6,001.4499**	**6,001.4499**	**1.8005**	**0.0000**	**6,046.4619**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**81.44**	**67.03**	**-11.53**	**0.00**	**60.22**	**89.61**	**65.37**	**60.62**	**88.71**	**68.39**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2018	1/6/2018	6	6	
2	Yard Piping	Trenching	1/7/2018	1/10/2018	6	3	
3	Excavation/Grading	Grading	1/11/2018	1/13/2018	6	3	
4	Foundation Installation	Building Construction	1/14/2018	1/19/2018	6	5	
5	Pump House Construction	Building Construction	1/20/2018	2/23/2018	6	30	
6	Site Restoration	Paving	2/24/2018	3/1/2018	6	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Restoration	Air Compressors	0	6.00	78	0.48
Pump House Construction	Cement and Mortar Mixers	0		9	0.56

Yard Piping	Concrete/Industrial Saws	0		81	0.73
Excavation/Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Foundation Installation	Cranes	0	4.00	231	0.29
Foundation Installation	Forklifts	0	6.00	89	0.20
Yard Piping	Graders	0		187	0.41
Pump House Construction	Pavers	0		130	0.42
Pump House Construction	Rollers	0		80	0.38
Yard Piping	Rubber Tired Dozers	0		247	0.40
Excavation/Grading	Rubber Tired Dozers	3	8.00	247	0.40
Foundation Installation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Yard Piping	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Excavation/Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Pump House Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Yard Piping	Tractors/Loaders/Backhoes	0		97	0.37
Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Pump House Construction	Cranes	3	8.00	231	0.29
Pump House Construction	Forklifts	0	6.00	89	0.20
Site Preparation	Graders	0	8.00	187	0.41
Site Restoration	Pavers	0	7.00	130	0.42
Site Restoration	Rollers	0	7.00	80	0.38
Site Restoration	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Off-Highway Trucks	2	4.00	402	0.38
Yard Piping	Excavators	3	8.00	158	0.38
Yard Piping	Off-Highway Trucks	2	2.00	402	0.38

Excavation/Grading	Excavators	3	8.00	158	0.38
Excavation/Grading	Off-Highway Trucks	1	4.00	402	0.38
Foundation Installation	Plate Compactors	3	8.00	8	0.43
Foundation Installation	Cement and Mortar Mixers	3	6.00	9	0.56
Pump House Construction	Aerial Lifts	3	8.00	63	0.31
Pump House Construction	Generator Sets	3	8.00	84	0.74
Pump House Construction	Welders	3	8.00	46	0.45
Site Restoration	Trenchers	3	8.00	78	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Restoration	6	12.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Foundation Installation	9	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Yard Piping	8	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation/Grading	10	21.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pump House Construction	12	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Yard Piping	8	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	9.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7733	8.3250	4.2017	0.0132		0.3039	0.3039		0.2796	0.2796		1,329.6161	1,329.6161	0.4139		1,339.9643
Total	**0.7733**	**8.3250**	**4.2017**	**0.0132**	**0.0000**	**0.3039**	**0.3039**	**0.0000**	**0.2796**	**0.2796**		**1,329.6161**	**1,329.6161**	**0.4139**		**1,339.9643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0144	0.3685	0.1105	7.7000e-004	0.0192	2.6300e-003	0.0218	5.5300e-003	2.5200e-003	8.0500e-003		82.2450	82.2450	5.9300e-003		82.3933
Worker	0.0550	0.0416	0.4475	1.0700e-003	0.1006	9.0000e-004	0.1015	0.0267	8.3000e-004	0.0275		106.2518	106.2518	4.0000e-003		106.3518
Total	**0.0694**	**0.4101**	**0.5580**	**1.8400e-003**	**0.1198**	**3.5300e-003**	**0.1233**	**0.0322**	**3.3500e-003**	**0.0356**		**188.4968**	**188.4968**	**9.9300e-003**		**188.7451**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.2155	3.4756	7.0050	0.0132		0.0216	0.0216		0.0216	0.0216	0.0000	1,329.6161	1,329.6161	0.4139		1,339.9643
Total	**0.2155**	**3.4756**	**7.0050**	**0.0132**	**0.0000**	**0.0216**	**0.0216**	**0.0000**	**0.0216**	**0.0216**	**0.0000**	**1,329.6161**	**1,329.6161**	**0.4139**		**1,339.9643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0144	0.3685	0.1105	7.7000e-004	0.0192	2.6300e-003	0.0218	5.5300e-003	2.5200e-003	8.0500e-003		82.2450	82.2450	5.9300e-003		82.3933
Worker	0.0550	0.0416	0.4475	1.0700e-003	0.1006	9.0000e-004	0.1015	0.0267	8.3000e-004	0.0275		106.2518	106.2518	4.0000e-003		106.3518
Total	**0.0694**	**0.4101**	**0.5580**	**1.8400e-003**	**0.1198**	**3.5300e-003**	**0.1233**	**0.0322**	**3.3500e-003**	**0.0356**		**188.4968**	**188.4968**	**9.9300e-003**		**188.7451**

3.3 Yard Piping - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0524	21.3393	18.9380	0.0314		1.1613	1.1613		1.0684	1.0684		3,161.8911	3,161.8911	0.9843		3,186.4996
Total	**2.0524**	**21.3393**	**18.9380**	**0.0314**		**1.1613**	**1.1613**		**1.0684**	**1.0684**		**3,161.8911**	**3,161.8911**	**0.9843**		**3,186.4996**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1834	0.1385	1.4918	3.5600e-003	0.6269	2.9900e-003	0.6298	0.1605	2.7600e-003	0.1632		354.1728	354.1728	0.0133		354.5060
Total	**0.1834**	**0.1385**	**1.4918**	**3.5600e-003**	**0.6269**	**2.9900e-003**	**0.6298**	**0.1605**	**2.7600e-003**	**0.1632**		**354.1728**	**354.1728**	**0.0133**		**354.5060**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5073	12.6316	22.2828	0.0314		0.0514	0.0514		0.0514	0.0514	0.0000	3,161.8911	3,161.8911	0.9843		3,186.4996
Total	**0.5073**	**12.6316**	**22.2828**	**0.0314**		**0.0514**	**0.0514**		**0.0514**	**0.0514**	**0.0000**	**3,161.8911**	**3,161.8911**	**0.9843**		**3,186.4996**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1834	0.1385	1.4918	3.5600e-003	0.6269	2.9900e-003	0.6298	0.1605	2.7600e-003	0.1632		354.1728	354.1728	0.0133		354.5060
Total	**0.1834**	**0.1385**	**1.4918**	**3.5600e-003**	**0.6269**	**2.9900e-003**	**0.6298**	**0.1605**	**2.7600e-003**	**0.1632**		**354.1728**	**354.1728**	**0.0133**		**354.5060**

3.4 Excavation/Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0698	0.0000	18.0698	9.9311	0.0000	9.9311			0.0000			0.0000
Off-Road	5.5570	59.0864	32.1270	0.0571		2.9960	2.9960		2.7563	2.7563		5,753.5289	5,753.5289	1.7912		5,798.3077
Total	**5.5570**	**59.0864**	**32.1270**	**0.0571**	**18.0698**	**2.9960**	**21.0658**	**9.9311**	**2.7563**	**12.6874**		**5,753.5289**	**5,753.5289**	**1.7912**		**5,798.3077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1284	0.0970	1.0443	2.4900e-003	0.2347	2.0900e-003	0.2368	0.0623	1.9300e-003	0.0642		247.9210	247.9210	9.3300e-003		248.1542
Total	**0.1284**	**0.0970**	**1.0443**	**2.4900e-003**	**0.2347**	**2.0900e-003**	**0.2368**	**0.0623**	**1.9300e-003**	**0.0642**		**247.9210**	**247.9210**	**9.3300e-003**		**248.1542**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0472	0.0000	7.0472	3.8731	0.0000	3.8731			0.0000			0.0000
Off-Road	0.9270	19.4181	35.9508	0.0571		0.0934	0.0934		0.0934	0.0934	0.0000	5,753.5289	5,753.5289	1.7912		5,798.3077
Total	**0.9270**	**19.4181**	**35.9508**	**0.0571**	**7.0472**	**0.0934**	**7.1406**	**3.8731**	**0.0934**	**3.9665**	**0.0000**	**5,753.5289**	**5,753.5289**	**1.7912**		**5,798.3077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1284	0.0970	1.0443	2.4900e-003	0.2347	2.0900e-003	0.2368	0.0623	1.9300e-003	0.0642		247.9210	247.9210	9.3300e-003		248.1542
Total	**0.1284**	**0.0970**	**1.0443**	**2.4900e-003**	**0.2347**	**2.0900e-003**	**0.2368**	**0.0623**	**1.9300e-003**	**0.0642**		**247.9210**	**247.9210**	**9.3300e-003**		**248.1542**

3.5 Foundation Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0508	9.4715	8.3356	0.0124		0.6208	0.6208		0.5761	0.5761		1,155.4279	1,155.4279	0.3147		1,163.2943
Total	**1.0508**	**9.4715**	**8.3356**	**0.0124**		**0.6208**	**0.6208**		**0.5761**	**0.5761**		**1,155.4279**	**1,155.4279**	**0.3147**		**1,163.2943**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1101	0.0831	0.8951	2.1400e-003	0.2012	1.7900e-003	0.2030	0.0534	1.6500e-003	0.0550		212.5037	212.5037	8.0000e-003		212.7036
Total	**0.1101**	**0.0831**	**0.8951**	**2.1400e-003**	**0.2012**	**1.7900e-003**	**0.2030**	**0.0534**	**1.6500e-003**	**0.0550**		**212.5037**	**212.5037**	**8.0000e-003**		**212.7036**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4614	5.6461	8.3516	0.0124		0.0771	0.0771		0.0771	0.0771	0.0000	1,155.4279	1,155.4279	0.3147		1,163.2943
Total	**0.4614**	**5.6461**	**8.3516**	**0.0124**		**0.0771**	**0.0771**		**0.0771**	**0.0771**	**0.0000**	**1,155.4279**	**1,155.4279**	**0.3147**		**1,163.2943**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1101	0.0831	0.8951	2.1400e-003	0.2012	1.7900e-003	0.2030	0.0534	1.6500e-003	0.0550		212.5037	212.5037	8.0000e-003		212.7036
Total	**0.1101**	**0.0831**	**0.8951**	**2.1400e-003**	**0.2012**	**1.7900e-003**	**0.2030**	**0.0534**	**1.6500e-003**	**0.0550**		**212.5037**	**212.5037**	**8.0000e-003**		**212.7036**

3.6 Pump House Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	4.6789	39.9684	27.6377	0.0497		2.0710	2.0710		1.9954	1.9954		4,737.2196	4,737.2196	0.9533		4,761.0532
Total	**4.6789**	**39.9684**	**27.6377**	**0.0497**		**2.0710**	**2.0710**		**1.9954**	**1.9954**		**4,737.2196**	**4,737.2196**	**0.9533**		**4,761.0532**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0917	0.0693	0.7459	1.7800e-003	0.1677	1.4900e-003	0.1692	0.0445	1.3800e-003	0.0458		177.0864	177.0864	6.6600e-003		177.2530
Total	**0.0917**	**0.0693**	**0.7459**	**1.7800e-003**	**0.1677**	**1.4900e-003**	**0.1692**	**0.0445**	**1.3800e-003**	**0.0458**		**177.0864**	**177.0864**	**6.6600e-003**		**177.2530**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9001	19.4091	29.6766	0.0497		0.3099	0.3099		0.3099	0.3099	0.0000	4,737.2196	4,737.2196	0.9533		4,761.0532
Total	**0.9001**	**19.4091**	**29.6766**	**0.0497**		**0.3099**	**0.3099**		**0.3099**	**0.3099**	**0.0000**	**4,737.2196**	**4,737.2196**	**0.9533**		**4,761.0532**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0917	0.0693	0.7459	1.7800e-003	0.1677	1.4900e-003	0.1692	0.0445	1.3800e-003	0.0458		177.0864	177.0864	6.6600e-003		177.2530
Total	**0.0917**	**0.0693**	**0.7459**	**1.7800e-003**	**0.1677**	**1.4900e-003**	**0.1692**	**0.0445**	**1.3800e-003**	**0.0458**		**177.0864**	**177.0864**	**6.6600e-003**		**177.2530**

3.7 Site Restoration - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1562	20.0955	14.9648	0.0194		1.4874	1.4874		1.3684	1.3684		1,957.1220	1,957.1220	0.6093		1,972.3540
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1562**	**20.0955**	**14.9648**	**0.0194**		**1.4874**	**1.4874**		**1.3684**	**1.3684**		**1,957.1220**	**1,957.1220**	**0.6093**		**1,972.3540**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0734	0.0554	0.5967	1.4200e-003	0.1341	1.2000e-003	0.1353	0.0356	1.1000e-003	0.0367		141.6691	141.6691	5.3300e-003		141.8024
Total	**0.0734**	**0.0554**	**0.5967**	**1.4200e-003**	**0.1341**	**1.2000e-003**	**0.1353**	**0.0356**	**1.1000e-003**	**0.0367**		**141.6691**	**141.6691**	**5.3300e-003**		**141.8024**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4359	8.4798	14.6613	0.0194		0.0317	0.0317		0.0317	0.0317	0.0000	1,957.1220	1,957.1220	0.6093		1,972.3540
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4359**	**8.4798**	**14.6613**	**0.0194**		**0.0317**	**0.0317**		**0.0317**	**0.0317**	**0.0000**	**1,957.1220**	**1,957.1220**	**0.6093**		**1,972.3540**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0734	0.0554	0.5967	1.4200e-003	0.1341	1.2000e-003	0.1353	0.0356	1.1000e-003	0.0367		141.6691	141.6691	5.3300e-003		141.8024
Total	**0.0734**	**0.0554**	**0.5967**	**1.4200e-003**	**0.1341**	**1.2000e-003**	**0.1353**	**0.0356**	**1.1000e-003**	**0.0367**		**141.6691**	**141.6691**	**5.3300e-003**		**141.8024**

Palmdale WSMP Storage Tanks

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	3.42	1000sqft	0.08	3,421.00	0
General Light Industry	4.54	1000sqft	0.10	4,536.00	0
General Light Industry	18.27	1000sqft	0.42	18,267.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Palmdale WSMP Storage Tanks - Los Angeles-South Coast County, Summer

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Trips and VMT - See Construction Assumptions and Summaries

Grading - See Construction Assumptions and Summaries

Architectural Coating - See Construction Assumptions and Summaries

Construction Off-road Equipment Mitigation - .

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	13,112.00	54,454.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	39,336.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	100.00	0.00
tblArchitecturalCoating	EF_Residential_Exterior	50.00	0.00
tblArchitecturalCoating	EF_Residential_Interior	50.00	0.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	5.00	65.00
tblConstructionPhase	NumDays	100.00	28.00
tblConstructionPhase	NumDays	100.00	91.00
tblConstructionPhase	NumDays	2.00	30.00
tblConstructionPhase	NumDays	5.00	9.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	0.61
tblLandUse	BuildingSpaceSquareFeet	18,270.00	18,267.00
tblLandUse	BuildingSpaceSquareFeet	3,420.00	3,421.00

tblLandUse	BuildingSpaceSquareFeet	4,540.00	4,536.00
tblLandUse	LandUseSquareFeet	18,270.00	18,267.00
tblLandUse	LandUseSquareFeet	3,420.00	3,421.00
tblLandUse	LandUseSquareFeet	4,540.00	4,536.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2020

tblSolidWaste	SolidWasteGenerationRate	32.53	32.51
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	4.00	0.00
tblTripsAndVMT	VendorTripNumber	4.00	0.00
tblTripsAndVMT	WorkerTripNumber	30.00	15.00
tblTripsAndVMT	WorkerTripNumber	11.00	15.00
tblTripsAndVMT	WorkerTripNumber	11.00	21.00
tblTripsAndVMT	WorkerTripNumber	2.00	12.00
tblTripsAndVMT	WorkerTripNumber	15.00	12.00
tblWater	IndoorWaterUseRate	6,065,687.50	6,063,375.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.4299	68.0195	37.2467	0.0735	18.2875	3.3027	21.5902	9.9867	3.0386	13.0253	0.0000	7,400.9204	7,400.9204	2.2179	0.0000	7,456.3690
Maximum	**6.4299**	**68.0195**	**37.2467**	**0.0735**	**18.2875**	**3.3027**	**21.5902**	**9.9867**	**3.0386**	**13.0253**	**0.0000**	**7,400.9204**	**7,400.9204**	**2.2179**	**0.0000**	**7,456.3690**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	4.5510	23.5261	43.8572	0.0735	7.2539	0.5181	7.3745	3.9276	0.5180	4.0478	0.0000	7,400.9204	7,400.9204	2.2179	0.0000	7,456.3690
Maximum	**4.5510**	**23.5261**	**43.8572**	**0.0735**	**7.2539**	**0.5181**	**7.3745**	**3.9276**	**0.5180**	**4.0478**	**0.0000**	**7,400.9204**	**7,400.9204**	**2.2179**	**0.0000**	**7,456.3690**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**29.22**	**65.41**	**-17.75**	**0.00**	**60.33**	**84.31**	**65.84**	**60.67**	**82.95**	**68.92**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Prep/Grading	Grading	1/1/2018	2/3/2018	6	30	
2	Foundation Installation	Building Construction	2/4/2018	3/8/2018	6	28	
3	Tank Installation	Building Construction	3/9/2018	6/22/2018	6	91	
4	Tank Finishes	Architectural Coating	7/4/2018	9/17/2018	6	65	
5	Landscaping	Paving	6/23/2018	7/3/2018	6	9	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 54,454; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Excavators	2	8.00	158	0.38
Architectural Coating	Off-Highway Trucks	2	8.00	402	0.38
Architectural Coating	Off-Highway Trucks	1	8.00	402	0.38
Architectural Coating	Rubber Tired Dozers	2	8.00	247	0.40
Architectural Coating	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Prep/Grading	Air Compressors	0	6.00	78	0.48
Site Prep/Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Site Prep/Grading	Excavators	3	8.00	158	0.38
Site Prep/Grading	Off-Highway Trucks	3	4.00	402	0.38
Site Prep/Grading	Rubber Tired Dozers	3	8.00	247	0.40
Site Prep/Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Foundation Installation	Cement and Mortar Mixers	3	8.00	9	0.56
Foundation Installation	Cranes	0	4.00	231	0.29
Foundation Installation	Forklifts	0	6.00	89	0.20
Foundation Installation	Plate Compactors	3	8.00	8	0.43
Foundation Installation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Tank Installation	Aerial Lifts	3	8.00	63	0.31

Tank Installation	Concrete/Industrial Saws	0	8.00	81	0.73
Tank Installation	Cranes	3	8.00	231	0.29
Tank Installation	Forklifts	2	8.00	89	0.20
Tank Installation	Generator Sets	3	8.00	84	0.74
Tank Installation	Rubber Tired Dozers	0	1.00	247	0.40
Tank Installation	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Tank Installation	Welders	3	8.00	46	0.45
Tank Finishes	Air Compressors	3	8.00	78	0.48
Tank Finishes	Concrete/Industrial Saws	0	8.00	81	0.73
Tank Finishes	Forklifts	3	8.00	89	0.20
Tank Finishes	Pressure Washers	6	8.00	13	0.30
Tank Finishes	Rubber Tired Dozers	0	1.00	247	0.40
Tank Finishes	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Landscaping	Cement and Mortar Mixers	0	6.00	9	0.56
Landscaping	Pavers	0	7.00	130	0.42
Landscaping	Rollers	0	7.00	80	0.38
Landscaping	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Landscaping	Trenchers	3	8.00	78	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Prep/Grading	12	15.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Foundation Installation	9	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Tank Installation	14	21.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Tank Finishes	12	12.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping	6	12.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Prep/Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0878	0.0000	18.0878	9.9330	0.0000	9.9330			0.0000			0.0000
Off-Road	6.3240	67.3442	36.2690	0.0702		3.2968	3.2968		3.0331	3.0331		7,072.0272	7,072.0272	2.2016		7,127.0677
Total	**6.3240**	**67.3442**	**36.2690**	**0.0702**	**18.0878**	**3.2968**	**21.3847**	**9.9330**	**3.0331**	**12.9661**		**7,072.0272**	**7,072.0272**	**2.2016**		**7,127.0677**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0230	0.6128	0.1676	1.3200e-003	0.0320	4.3200e-003	0.0363	9.2200e-003	4.1300e-003	0.0134		140.8397	140.8397	9.2700e-003		141.0716
Worker	0.0829	0.0625	0.8101	1.8900e-003	0.1677	1.4900e-003	0.1692	0.0445	1.3800e-003	0.0458		188.0535	188.0535	7.0500e-003		188.2298
Total	**0.1059**	**0.6753**	**0.9777**	**3.2100e-003**	**0.1997**	**5.8100e-003**	**0.2055**	**0.0537**	**5.5100e-003**	**0.0592**		**328.8932**	**328.8932**	**0.0163**		**329.3014**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0543	0.0000	7.0543	3.8739	0.0000	3.8739			0.0000			0.0000
Off-Road	1.1410	22.8508	42.8795	0.0702		0.1148	0.1148		0.1148	0.1148	0.0000	7,072.0272	7,072.0272	2.2016		7,127.0677
Total	**1.1410**	**22.8508**	**42.8795**	**0.0702**	**7.0543**	**0.1148**	**7.1690**	**3.8739**	**0.1148**	**3.9886**	**0.0000**	**7,072.0272**	**7,072.0272**	**2.2016**		**7,127.0677**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0230	0.6128	0.1676	1.3200e-003	0.0320	4.3200e-003	0.0363	9.2200e-003	4.1300e-003	0.0134		140.8397	140.8397	9.2700e-003		141.0716
Worker	0.0829	0.0625	0.8101	1.8900e-003	0.1677	1.4900e-003	0.1692	0.0445	1.3800e-003	0.0458		188.0535	188.0535	7.0500e-003		188.2298
Total	**0.1059**	**0.6753**	**0.9777**	**3.2100e-003**	**0.1997**	**5.8100e-003**	**0.2055**	**0.0537**	**5.5100e-003**	**0.0592**		**328.8932**	**328.8932**	**0.0163**		**329.3014**

3.3 Foundation Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0949	9.7476	8.5668	0.0129		0.6317	0.6317		0.5870	0.5870		1,193.3152	1,193.3152	0.3186		1,201.2798
Total	**1.0949**	**9.7476**	**8.5668**	**0.0129**		**0.6317**	**0.6317**		**0.5870**	**0.5870**		**1,193.3152**	**1,193.3152**	**0.3186**		**1,201.2798**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0829	0.0625	0.8101	1.8900e-003	0.1677	1.4900e-003	0.1692	0.0445	1.3800e-003	0.0458		188.0535	188.0535	7.0500e-003		188.2298
Total	**0.0829**	**0.0625**	**0.8101**	**1.8900e-003**	**0.1677**	**1.4900e-003**	**0.1692**	**0.0445**	**1.3800e-003**	**0.0458**		**188.0535**	**188.0535**	**7.0500e-003**		**188.2298**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5055	5.9223	8.5829	0.0129		0.0880	0.0880		0.0880	0.0880	0.0000	1,193.3152	1,193.3152	0.3186		1,201.2798
Total	**0.5055**	**5.9223**	**8.5829**	**0.0129**		**0.0880**	**0.0880**		**0.0880**	**0.0880**	**0.0000**	**1,193.3152**	**1,193.3152**	**0.3186**		**1,201.2798**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0829	0.0625	0.8101	1.8900e-003	0.1677	1.4900e-003	0.1692	0.0445	1.3800e-003	0.0458		188.0535	188.0535	7.0500e-003		188.2298
Total	**0.0829**	**0.0625**	**0.8101**	**1.8900e-003**	**0.1677**	**1.4900e-003**	**0.1692**	**0.0445**	**1.3800e-003**	**0.0458**		**188.0535**	**188.0535**	**7.0500e-003**		**188.2298**

3.4 Tank Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.0359	43.1297	30.0791	0.0528		2.3226	2.3226		2.2269	2.2269		5,047.7377	5,047.7377	1.0500		5,073.9879
Total	**5.0359**	**43.1297**	**30.0791**	**0.0528**		**2.3226**	**2.3226**		**2.2269**	**2.2269**		**5,047.7377**	**5,047.7377**	**1.0500**		**5,073.9879**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1160	0.0876	1.1342	2.6500e-003	0.2347	2.0900e-003	0.2368	0.0623	1.9300e-003	0.0642		263.2749	263.2749	9.8700e-003		263.5217
Total	**0.1160**	**0.0876**	**1.1342**	**2.6500e-003**	**0.2347**	**2.0900e-003**	**0.2368**	**0.0623**	**1.9300e-003**	**0.0642**		**263.2749**	**263.2749**	**9.8700e-003**		**263.5217**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1637	20.8316	33.1084	0.0528		0.5161	0.5161		0.5161	0.5161	0.0000	5,047.7377	5,047.7377	1.0500		5,073.9879
Total	**2.1637**	**20.8316**	**33.1084**	**0.0528**		**0.5161**	**0.5161**		**0.5161**	**0.5161**	**0.0000**	**5,047.7377**	**5,047.7377**	**1.0500**		**5,073.9879**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1160	0.0876	1.1342	2.6500e-003	0.2347	2.0900e-003	0.2368	0.0623	1.9300e-003	0.0642		263.2749	263.2749	9.8700e-003		263.5217
Total	**0.1160**	**0.0876**	**1.1342**	**2.6500e-003**	**0.2347**	**2.0900e-003**	**0.2368**	**0.0623**	**1.9300e-003**	**0.0642**		**263.2749**	**263.2749**	**9.8700e-003**		**263.5217**

3.5 Tank Finishes - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.8830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	2.0092	14.6978	12.5280	0.0198		1.0770	1.0770		1.0468	1.0468		1,821.6970	1,821.6970	0.2758		1,828.5914
Total	**5.8922**	**14.6978**	**12.5280**	**0.0198**		**1.0770**	**1.0770**		**1.0468**	**1.0468**		**1,821.6970**	**1,821.6970**	**0.2758**		**1,828.5914**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0663	0.0500	0.6481	1.5100e-003	0.1341	1.2000e-003	0.1353	0.0356	1.1000e-003	0.0367		150.4428	150.4428	5.6400e-003		150.5839
Total	**0.0663**	**0.0500**	**0.6481**	**1.5100e-003**	**0.1341**	**1.2000e-003**	**0.1353**	**0.0356**	**1.1000e-003**	**0.0367**		**150.4428**	**150.4428**	**5.6400e-003**		**150.5839**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.8830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6017	8.2061	12.2919	0.0198		0.1212	0.1212		0.1212	0.1212	0.0000	1,821.6970	1,821.6970	0.2758		1,828.5914
Total	**4.4847**	**8.2061**	**12.2919**	**0.0198**		**0.1212**	**0.1212**		**0.1212**	**0.1212**	**0.0000**	**1,821.6970**	**1,821.6970**	**0.2758**		**1,828.5914**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0663	0.0500	0.6481	1.5100e-003	0.1341	1.2000e-003	0.1353	0.0356	1.1000e-003	0.0367		150.4428	150.4428	5.6400e-003		150.5839
Total	**0.0663**	**0.0500**	**0.6481**	**1.5100e-003**	**0.1341**	**1.2000e-003**	**0.1353**	**0.0356**	**1.1000e-003**	**0.0367**		**150.4428**	**150.4428**	**5.6400e-003**		**150.5839**

3.6 Landscaping - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1562	20.0955	14.9648	0.0194		1.4874	1.4874		1.3684	1.3684		1,957.1220	1,957.1220	0.6093		1,972.3540
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1562**	**20.0955**	**14.9648**	**0.0194**		**1.4874**	**1.4874**		**1.3684**	**1.3684**		**1,957.1220**	**1,957.1220**	**0.6093**		**1,972.3540**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0663	0.0500	0.6481	1.5100e-003	0.1341	1.2000e-003	0.1353	0.0356	1.1000e-003	0.0367		150.4428	150.4428	5.6400e-003		150.5839
Total	**0.0663**	**0.0500**	**0.6481**	**1.5100e-003**	**0.1341**	**1.2000e-003**	**0.1353**	**0.0356**	**1.1000e-003**	**0.0367**		**150.4428**	**150.4428**	**5.6400e-003**		**150.5839**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4359	8.4798	14.6613	0.0194		0.0317	0.0317		0.0317	0.0317	0.0000	1,957.1220	1,957.1220	0.6093		1,972.3540
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4359**	**8.4798**	**14.6613**	**0.0194**		**0.0317**	**0.0317**		**0.0317**	**0.0317**	**0.0000**	**1,957.1220**	**1,957.1220**	**0.6093**		**1,972.3540**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0663	0.0500	0.6481	1.5100e-003	0.1341	1.2000e-003	0.1353	0.0356	1.1000e-003	0.0367		150.4428	150.4428	5.6400e-003		150.5839
Total	**0.0663**	**0.0500**	**0.6481**	**1.5100e-003**	**0.1341**	**1.2000e-003**	**0.1353**	**0.0356**	**1.1000e-003**	**0.0367**		**150.4428**	**150.4428**	**5.6400e-003**		**150.5839**

Palmdale WSMP Storage Tanks

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	3.42	1000sqft	0.08	3,421.00	0
General Light Industry	4.54	1000sqft	0.10	4,536.00	0
General Light Industry	18.27	1000sqft	0.42	18,267.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Trips and VMT - See Construction Assumptions and Summaries

Grading - See Construction Assumptions and Summaries

Architectural Coating - See Construction Assumptions and Summaries

Construction Off-road Equipment Mitigation - .

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	13,112.00	54,454.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	39,336.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	100.00	0.00
tblArchitecturalCoating	EF_Residential_Exterior	50.00	0.00
tblArchitecturalCoating	EF_Residential_Interior	50.00	0.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
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tblConstructionPhase	NumDays	100.00	28.00
tblConstructionPhase	NumDays	100.00	91.00
tblConstructionPhase	NumDays	2.00	30.00
tblConstructionPhase	NumDays	5.00	9.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	0.61
tblLandUse	BuildingSpaceSquareFeet	18,270.00	18,267.00
tblLandUse	BuildingSpaceSquareFeet	3,420.00	3,421.00

tblLandUse	BuildingSpaceSquareFeet	4,540.00	4,536.00
tblLandUse	LandUseSquareFeet	18,270.00	18,267.00
tblLandUse	LandUseSquareFeet	3,420.00	3,421.00
tblLandUse	LandUseSquareFeet	4,540.00	4,536.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2020

tblSolidWaste	SolidWasteGenerationRate	32.53	32.51
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	4.00	0.00
tblTripsAndVMT	VendorTripNumber	4.00	0.00
tblTripsAndVMT	WorkerTripNumber	30.00	15.00
tblTripsAndVMT	WorkerTripNumber	11.00	15.00
tblTripsAndVMT	WorkerTripNumber	11.00	21.00
tblTripsAndVMT	WorkerTripNumber	2.00	12.00
tblTripsAndVMT	WorkerTripNumber	15.00	12.00
tblWater	IndoorWaterUseRate	6,065,687.50	6,063,375.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.4397	68.0276	37.1991	0.0733	18.2875	3.3027	21.5902	9.9867	3.0387	13.0254	0.0000	7,386.1885	7,386.1885	2.2182	0.0000	7,441.6429
Maximum	**6.4397**	**68.0276**	**37.1991**	**0.0733**	**18.2875**	**3.3027**	**21.5902**	**9.9867**	**3.0387**	**13.0254**	**0.0000**	**7,386.1885**	**7,386.1885**	**2.2182**	**0.0000**	**7,441.6429**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	4.5581	23.5342	43.8096	0.0733	7.2539	0.5181	7.3746	3.9276	0.5180	4.0479	0.0000	7,386.1885	7,386.1885	2.2182	0.0000	7,441.6429
Maximum	**4.5581**	**23.5342**	**43.8096**	**0.0733**	**7.2539**	**0.5181**	**7.3746**	**3.9276**	**0.5180**	**4.0479**	**0.0000**	**7,386.1885**	**7,386.1885**	**2.2182**	**0.0000**	**7,441.6429**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**29.22**	**65.40**	**-17.77**	**0.00**	**60.33**	**84.31**	**65.84**	**60.67**	**82.95**	**68.92**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Prep/Grading	Grading	1/1/2018	2/3/2018	6	30	
2	Foundation Installation	Building Construction	2/4/2018	3/8/2018	6	28	
3	Tank Installation	Building Construction	3/9/2018	6/22/2018	6	91	
4	Tank Finishes	Architectural Coating	7/4/2018	9/17/2018	6	65	
5	Landscaping	Paving	6/23/2018	7/3/2018	6	9	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 54,454; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Excavators	2	8.00	158	0.38
Architectural Coating	Off-Highway Trucks	2	8.00	402	0.38
Architectural Coating	Off-Highway Trucks	1	8.00	402	0.38
Architectural Coating	Rubber Tired Dozers	2	8.00	247	0.40
Architectural Coating	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Prep/Grading	Air Compressors	0	6.00	78	0.48
Site Prep/Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Site Prep/Grading	Excavators	3	8.00	158	0.38
Site Prep/Grading	Off-Highway Trucks	3	4.00	402	0.38
Site Prep/Grading	Rubber Tired Dozers	3	8.00	247	0.40
Site Prep/Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Foundation Installation	Cement and Mortar Mixers	3	8.00	9	0.56
Foundation Installation	Cranes	0	4.00	231	0.29
Foundation Installation	Forklifts	0	6.00	89	0.20
Foundation Installation	Plate Compactors	3	8.00	8	0.43
Foundation Installation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Tank Installation	Aerial Lifts	3	8.00	63	0.31

Tank Installation	Concrete/Industrial Saws	0	8.00	81	0.73
Tank Installation	Cranes	3	8.00	231	0.29
Tank Installation	Forklifts	2	8.00	89	0.20
Tank Installation	Generator Sets	3	8.00	84	0.74
Tank Installation	Rubber Tired Dozers	0	1.00	247	0.40
Tank Installation	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Tank Installation	Welders	3	8.00	46	0.45
Tank Finishes	Air Compressors	3	8.00	78	0.48
Tank Finishes	Concrete/Industrial Saws	0	8.00	81	0.73
Tank Finishes	Forklifts	3	8.00	89	0.20
Tank Finishes	Pressure Washers	6	8.00	13	0.30
Tank Finishes	Rubber Tired Dozers	0	1.00	247	0.40
Tank Finishes	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Landscaping	Cement and Mortar Mixers	0	6.00	9	0.56
Landscaping	Pavers	0	7.00	130	0.42
Landscaping	Rollers	0	7.00	80	0.38
Landscaping	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Landscaping	Trenchers	3	8.00	78	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Prep/Grading	12	15.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Foundation Installation	9	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Tank Installation	14	21.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Tank Finishes	12	12.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping	6	12.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Prep/Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0878	0.0000	18.0878	9.9330	0.0000	9.9330			0.0000			0.0000
Off-Road	6.3240	67.3442	36.2690	0.0702		3.2968	3.2968		3.0331	3.0331		7,072.0272	7,072.0272	2.2016		7,127.0677
Total	**6.3240**	**67.3442**	**36.2690**	**0.0702**	**18.0878**	**3.2968**	**21.3847**	**9.9330**	**3.0331**	**12.9661**		**7,072.0272**	**7,072.0272**	**2.2016**		**7,127.0677**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0240	0.6142	0.1842	1.2900e-003	0.0320	4.3900e-003	0.0364	9.2200e-003	4.2000e-003	0.0134		137.0749	137.0749	9.8900e-003		137.3222
Worker	0.0917	0.0693	0.7459	1.7800e-003	0.1677	1.4900e-003	0.1692	0.0445	1.3800e-003	0.0458		177.0864	177.0864	6.6600e-003		177.2530
Total	**0.1157**	**0.6834**	**0.9301**	**3.0700e-003**	**0.1997**	**5.8800e-003**	**0.2056**	**0.0537**	**5.5800e-003**	**0.0593**		**314.1613**	**314.1613**	**0.0166**		**314.5752**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0543	0.0000	7.0543	3.8739	0.0000	3.8739			0.0000			0.0000
Off-Road	1.1410	22.8508	42.8795	0.0702		0.1148	0.1148		0.1148	0.1148	0.0000	7,072.0272	7,072.0272	2.2016		7,127.0677
Total	**1.1410**	**22.8508**	**42.8795**	**0.0702**	**7.0543**	**0.1148**	**7.1690**	**3.8739**	**0.1148**	**3.9886**	**0.0000**	**7,072.0272**	**7,072.0272**	**2.2016**		**7,127.0677**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0240	0.6142	0.1842	1.2900e-003	0.0320	4.3900e-003	0.0364	9.2200e-003	4.2000e-003	0.0134		137.0749	137.0749	9.8900e-003		137.3222
Worker	0.0917	0.0693	0.7459	1.7800e-003	0.1677	1.4900e-003	0.1692	0.0445	1.3800e-003	0.0458		177.0864	177.0864	6.6600e-003		177.2530
Total	**0.1157**	**0.6834**	**0.9301**	**3.0700e-003**	**0.1997**	**5.8800e-003**	**0.2056**	**0.0537**	**5.5800e-003**	**0.0593**		**314.1613**	**314.1613**	**0.0166**		**314.5752**

3.3 Foundation Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0949	9.7476	8.5668	0.0129		0.6317	0.6317		0.5870	0.5870		1,193.3152	1,193.3152	0.3186		1,201.2798
Total	**1.0949**	**9.7476**	**8.5668**	**0.0129**		**0.6317**	**0.6317**		**0.5870**	**0.5870**		**1,193.3152**	**1,193.3152**	**0.3186**		**1,201.2798**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0917	0.0693	0.7459	1.7800e-003	0.1677	1.4900e-003	0.1692	0.0445	1.3800e-003	0.0458		177.0864	177.0864	6.6600e-003		177.2530
Total	**0.0917**	**0.0693**	**0.7459**	**1.7800e-003**	**0.1677**	**1.4900e-003**	**0.1692**	**0.0445**	**1.3800e-003**	**0.0458**		**177.0864**	**177.0864**	**6.6600e-003**		**177.2530**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5055	5.9223	8.5829	0.0129		0.0880	0.0880		0.0880	0.0880	0.0000	1,193.3152	1,193.3152	0.3186		1,201.2798
Total	**0.5055**	**5.9223**	**8.5829**	**0.0129**		**0.0880**	**0.0880**		**0.0880**	**0.0880**	**0.0000**	**1,193.3152**	**1,193.3152**	**0.3186**		**1,201.2798**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0917	0.0693	0.7459	1.7800e-003	0.1677	1.4900e-003	0.1692	0.0445	1.3800e-003	0.0458		177.0864	177.0864	6.6600e-003		177.2530
Total	**0.0917**	**0.0693**	**0.7459**	**1.7800e-003**	**0.1677**	**1.4900e-003**	**0.1692**	**0.0445**	**1.3800e-003**	**0.0458**		**177.0864**	**177.0864**	**6.6600e-003**		**177.2530**

3.4 Tank Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.0359	43.1297	30.0791	0.0528		2.3226	2.3226		2.2269	2.2269		5,047.7377	5,047.7377	1.0500		5,073.9879
Total	**5.0359**	**43.1297**	**30.0791**	**0.0528**		**2.3226**	**2.3226**		**2.2269**	**2.2269**		**5,047.7377**	**5,047.7377**	**1.0500**		**5,073.9879**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1284	0.0970	1.0443	2.4900e-003	0.2347	2.0900e-003	0.2368	0.0623	1.9300e-003	0.0642		247.9210	247.9210	9.3300e-003		248.1542
Total	**0.1284**	**0.0970**	**1.0443**	**2.4900e-003**	**0.2347**	**2.0900e-003**	**0.2368**	**0.0623**	**1.9300e-003**	**0.0642**		**247.9210**	**247.9210**	**9.3300e-003**		**248.1542**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1637	20.8316	33.1084	0.0528		0.5161	0.5161		0.5161	0.5161	0.0000	5,047.7377	5,047.7377	1.0500		5,073.9879
Total	**2.1637**	**20.8316**	**33.1084**	**0.0528**		**0.5161**	**0.5161**		**0.5161**	**0.5161**	**0.0000**	**5,047.7377**	**5,047.7377**	**1.0500**		**5,073.9879**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1284	0.0970	1.0443	2.4900e-003	0.2347	2.0900e-003	0.2368	0.0623	1.9300e-003	0.0642		247.9210	247.9210	9.3300e-003		248.1542
Total	**0.1284**	**0.0970**	**1.0443**	**2.4900e-003**	**0.2347**	**2.0900e-003**	**0.2368**	**0.0623**	**1.9300e-003**	**0.0642**		**247.9210**	**247.9210**	**9.3300e-003**		**248.1542**

3.5 Tank Finishes - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.8830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	2.0092	14.6978	12.5280	0.0198		1.0770	1.0770		1.0468	1.0468		1,821.6970	1,821.6970	0.2758		1,828.5914
Total	**5.8922**	**14.6978**	**12.5280**	**0.0198**		**1.0770**	**1.0770**		**1.0468**	**1.0468**		**1,821.6970**	**1,821.6970**	**0.2758**		**1,828.5914**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0734	0.0554	0.5967	1.4200e-003	0.1341	1.2000e-003	0.1353	0.0356	1.1000e-003	0.0367		141.6691	141.6691	5.3300e-003		141.8024
Total	**0.0734**	**0.0554**	**0.5967**	**1.4200e-003**	**0.1341**	**1.2000e-003**	**0.1353**	**0.0356**	**1.1000e-003**	**0.0367**		**141.6691**	**141.6691**	**5.3300e-003**		**141.8024**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	3.8830					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6017	8.2061	12.2919	0.0198		0.1212	0.1212		0.1212	0.1212	0.0000	1,821.6970	1,821.6970	0.2758		1,828.5914
Total	**4.4847**	**8.2061**	**12.2919**	**0.0198**		**0.1212**	**0.1212**		**0.1212**	**0.1212**	**0.0000**	**1,821.6970**	**1,821.6970**	**0.2758**		**1,828.5914**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0734	0.0554	0.5967	1.4200e-003	0.1341	1.2000e-003	0.1353	0.0356	1.1000e-003	0.0367		141.6691	141.6691	5.3300e-003		141.8024
Total	**0.0734**	**0.0554**	**0.5967**	**1.4200e-003**	**0.1341**	**1.2000e-003**	**0.1353**	**0.0356**	**1.1000e-003**	**0.0367**		**141.6691**	**141.6691**	**5.3300e-003**		**141.8024**

3.6 Landscaping - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1562	20.0955	14.9648	0.0194		1.4874	1.4874		1.3684	1.3684		1,957.1220	1,957.1220	0.6093		1,972.3540
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1562**	**20.0955**	**14.9648**	**0.0194**		**1.4874**	**1.4874**		**1.3684**	**1.3684**		**1,957.1220**	**1,957.1220**	**0.6093**		**1,972.3540**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0734	0.0554	0.5967	1.4200e-003	0.1341	1.2000e-003	0.1353	0.0356	1.1000e-003	0.0367		141.6691	141.6691	5.3300e-003		141.8024
Total	**0.0734**	**0.0554**	**0.5967**	**1.4200e-003**	**0.1341**	**1.2000e-003**	**0.1353**	**0.0356**	**1.1000e-003**	**0.0367**		**141.6691**	**141.6691**	**5.3300e-003**		**141.8024**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4359	8.4798	14.6613	0.0194		0.0317	0.0317		0.0317	0.0317	0.0000	1,957.1220	1,957.1220	0.6093		1,972.3540
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4359**	**8.4798**	**14.6613**	**0.0194**		**0.0317**	**0.0317**		**0.0317**	**0.0317**	**0.0000**	**1,957.1220**	**1,957.1220**	**0.6093**		**1,972.3540**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0734	0.0554	0.5967	1.4200e-003	0.1341	1.2000e-003	0.1353	0.0356	1.1000e-003	0.0367		141.6691	141.6691	5.3300e-003		141.8024
Total	**0.0734**	**0.0554**	**0.5967**	**1.4200e-003**	**0.1341**	**1.2000e-003**	**0.1353**	**0.0356**	**1.1000e-003**	**0.0367**		**141.6691**	**141.6691**	**5.3300e-003**		**141.8024**

AQ-2: Greenhouse Gases

Palmdale WSMP Pipelines

Antelope Valley APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	16.80	1000sqft	0.39	16,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Off-road Equipment - .

Grading - .

Trips and VMT - .

Construction Off-road Equipment Mitigation - AVAQMD Rule 403

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	1008	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	1.00	4.00
tblConstructionPhase	NumDays	1.00	55.00
tblConstructionPhase	NumDays	2.00	36.00
tblConstructionPhase	NumDays	5.00	8.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	2.00	0.00
tblGrading	AcresOfGrading	0.00	0.39
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Signal Boards
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	15.00	6.00
tblTripsAndVMT	WorkerTripNumber	10.00	5.00
tblTripsAndVMT	WorkerTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	5.00	3.00
tblTripsAndVMT	WorkerTripNumber	10.00	5.00
tblTripsAndVMT	WorkerTripNumber	3.00	4.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0681	0.6452	0.4456	1.0300e-003	3.2800e-003	0.0294	0.0327	8.5000e-004	0.0276	0.0285	0.0000	90.5989	90.5989	0.0228	0.0000	91.1699
Maximum	**0.0681**	**0.6452**	**0.4456**	**1.0300e-003**	**3.2800e-003**	**0.0294**	**0.0327**	**8.5000e-004**	**0.0276**	**0.0285**	**0.0000**	**90.5989**	**90.5989**	**0.0228**	**0.0000**	**91.1699**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0681	0.6452	0.4456	1.0300e-003	3.1500e-003	0.0294	0.0325	8.4000e-004	0.0276	0.0285	0.0000	90.5988	90.5988	0.0228	0.0000	91.1698
Maximum	**0.0681**	**0.6452**	**0.4456**	**1.0300e-003**	**3.1500e-003**	**0.0294**	**0.0325**	**8.4000e-004**	**0.0276**	**0.0285**	**0.0000**	**90.5988**	**90.5988**	**0.0228**	**0.0000**	**91.1698**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**3.96**	**0.00**	**0.40**	**1.18**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2018	3-31-2018	0.0818	0.0818
		Highest	0.0818	0.0818

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2018	1/4/2018	6	4	
2	Traffic Control	Site Preparation	1/5/2018	3/9/2018	6	55	
3	Potholing	Trenching	1/5/2018	1/17/2018	6	11	
4	Pipe Installation	Grading	1/18/2018	2/28/2018	6	36	
5	Paving	Paving	3/1/2018	3/9/2018	6	8	
6	Site Restoration	Paving	3/10/2018	3/15/2018	6	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.39

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Pipe Installation	Cranes	0	4.00	231	0.29
Pipe Installation	Forklifts	0	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Traffic Control	Graders	0	8.00	187	0.41
Paving	Pavers	1	8.00	130	0.42
Site Restoration	Pavers	0	7.00	130	0.42
Paving	Rollers	1	8.00	80	0.38
Site Restoration	Rollers	0	7.00	80	0.38
Pipe Installation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37

Site Restoration	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Traffic Control	Tractors/Loaders/Backhoes	0	8.00	97	0.37
	Off-Highway Trucks	1	4.00	402	0.38
Traffic Control	Signal Boards	4	8.00	6	0.82
Potholing	Air Compressors	1	8.00	78	0.48
Pipe Installation	Excavators	1	8.00	158	0.38
Pipe Installation	Off-Highway Trucks	2	8.00	402	0.38
Pipe Installation	Generator Sets	1	8.00	84	0.74
Pipe Installation	Plate Compactors	1	8.00	8	0.43
Paving	Off-Highway Trucks	1	8.00	402	0.38
Site Restoration	Trenchers	1	8.00	78	0.50
Pipe Installation	Concrete/Industrial Saws	0	8.00	81	0.73
Pipe Installation	Rubber Tired Dozers	0	1.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Pipe Installation	6	6.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	2	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	3.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Traffic Control	4	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Potholing	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5700e-003	0.0195	8.5000e-003	2.0000e-005		8.4000e-004	8.4000e-004		7.7000e-004	7.7000e-004	0.0000	1.7830	1.7830	5.6000e-004	0.0000	1.7969
Total	**1.5700e-003**	**0.0195**	**8.5000e-003**	**2.0000e-005**	**0.0000**	**8.4000e-004**	**8.4000e-004**	**0.0000**	**7.7000e-004**	**7.7000e-004**	**0.0000**	**1.7830**	**1.7830**	**5.6000e-004**	**0.0000**	**1.7969**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	5.5000e-004	1.3000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1155	0.1155	1.0000e-005	0.0000	0.1156
Worker	3.0000e-005	3.0000e-005	2.7000e-004	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0473	0.0473	0.0000	0.0000	0.0474
Total	**5.0000e-005**	**5.8000e-004**	**4.0000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.1628**	**0.1628**	**1.0000e-005**	**0.0000**	**0.1630**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5700e-003	0.0195	8.5000e-003	2.0000e-005		8.4000e-004	8.4000e-004		7.7000e-004	7.7000e-004	0.0000	1.7830	1.7830	5.6000e-004	0.0000	1.7969
Total	**1.5700e-003**	**0.0195**	**8.5000e-003**	**2.0000e-005**	**0.0000**	**8.4000e-004**	**8.4000e-004**	**0.0000**	**7.7000e-004**	**7.7000e-004**	**0.0000**	**1.7830**	**1.7830**	**5.6000e-004**	**0.0000**	**1.7969**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	5.5000e-004	1.3000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1155	0.1155	1.0000e-005	0.0000	0.1156
Worker	3.0000e-005	3.0000e-005	2.7000e-004	0.0000	5.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0473	0.0473	0.0000	0.0000	0.0474
Total	**5.0000e-005**	**5.8000e-004**	**4.0000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.1628**	**0.1628**	**1.0000e-005**	**0.0000**	**0.1630**

3.3 Traffic Control - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.3100e-003	0.0395	0.0331	8.0000e-005		1.5400e-003	1.5400e-003		1.5400e-003	1.5400e-003	0.0000	4.9210	4.9210	5.1000e-004	0.0000	4.9338
Total	**6.3100e-003**	**0.0395**	**0.0331**	**8.0000e-005**	**0.0000**	**1.5400e-003**	**1.5400e-003**	**0.0000**	**1.5400e-003**	**1.5400e-003**	**0.0000**	**4.9210**	**4.9210**	**5.1000e-004**	**0.0000**	**4.9338**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-004	5.9000e-004	6.2800e-003	1.0000e-005	1.1100e-003	1.0000e-005	1.1200e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	1.0848	1.0848	5.0000e-005	0.0000	1.0860
Total	**6.7000e-004**	**5.9000e-004**	**6.2800e-003**	**1.0000e-005**	**1.1100e-003**	**1.0000e-005**	**1.1200e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**1.0848**	**1.0848**	**5.0000e-005**	**0.0000**	**1.0860**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.3100e-003	0.0395	0.0331	8.0000e-005		1.5400e-003	1.5400e-003		1.5400e-003	1.5400e-003	0.0000	4.9210	4.9210	5.1000e-004	0.0000	4.9338
Total	**6.3100e-003**	**0.0395**	**0.0331**	**8.0000e-005**	**0.0000**	**1.5400e-003**	**1.5400e-003**	**0.0000**	**1.5400e-003**	**1.5400e-003**	**0.0000**	**4.9210**	**4.9210**	**5.1000e-004**	**0.0000**	**4.9338**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-004	5.9000e-004	6.2800e-003	1.0000e-005	1.1100e-003	1.0000e-005	1.1200e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	1.0848	1.0848	5.0000e-005	0.0000	1.0860
Total	**6.7000e-004**	**5.9000e-004**	**6.2800e-003**	**1.0000e-005**	**1.1100e-003**	**1.0000e-005**	**1.1200e-003**	**2.9000e-004**	**1.0000e-005**	**3.0000e-004**	**0.0000**	**1.0848**	**1.0848**	**5.0000e-005**	**0.0000**	**1.0860**

3.4 Potholing - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.1900e-003	0.0147	0.0136	2.0000e-005		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	1.8724	1.8724	1.8000e-004	0.0000	1.8768
Total	**2.1900e-003**	**0.0147**	**0.0136**	**2.0000e-005**		**1.1000e-003**	**1.1000e-003**		**1.1000e-003**	**1.1000e-003**	**0.0000**	**1.8724**	**1.8724**	**1.8000e-004**	**0.0000**	**1.8768**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	1.0000e-004	1.0000e-003	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1736	0.1736	1.0000e-005	0.0000	0.1738
Total	**1.1000e-004**	**1.0000e-004**	**1.0000e-003**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1736**	**0.1736**	**1.0000e-005**	**0.0000**	**0.1738**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.1900e-003	0.0147	0.0136	2.0000e-005		1.1000e-003	1.1000e-003		1.1000e-003	1.1000e-003	0.0000	1.8724	1.8724	1.8000e-004	0.0000	1.8768
Total	**2.1900e-003**	**0.0147**	**0.0136**	**2.0000e-005**		**1.1000e-003**	**1.1000e-003**		**1.1000e-003**	**1.1000e-003**	**0.0000**	**1.8724**	**1.8724**	**1.8000e-004**	**0.0000**	**1.8768**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	1.0000e-004	1.0000e-003	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1736	0.1736	1.0000e-005	0.0000	0.1738
Total	**1.1000e-004**	**1.0000e-004**	**1.0000e-003**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1736**	**0.1736**	**1.0000e-005**	**0.0000**	**0.1738**

3.5 Pipe Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.1000e-004	0.0000	2.1000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0477	0.4813	0.3235	7.5000e-004		0.0219	0.0219		0.0205	0.0205	0.0000	67.7521	67.7521	0.0185	0.0000	68.2157
Total	**0.0477**	**0.4813**	**0.3235**	**7.5000e-004**	**2.1000e-004**	**0.0219**	**0.0221**	**2.0000e-005**	**0.0205**	**0.0206**	**0.0000**	**67.7521**	**67.7521**	**0.0185**	**0.0000**	**68.2157**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2000e-004	0.0123	2.9300e-003	3.0000e-005	6.0000e-004	8.0000e-005	6.8000e-004	1.7000e-004	8.0000e-005	2.5000e-004	0.0000	2.5981	2.5981	1.3000e-004	0.0000	2.6014
Worker	5.3000e-004	4.7000e-004	4.9300e-003	1.0000e-005	8.7000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.8521	0.8521	4.0000e-005	0.0000	0.8530
Total	**9.5000e-004**	**0.0128**	**7.8600e-003**	**4.0000e-005**	**1.4700e-003**	**9.0000e-005**	**1.5600e-003**	**4.0000e-004**	**9.0000e-005**	**4.9000e-004**	**0.0000**	**3.4502**	**3.4502**	**1.7000e-004**	**0.0000**	**3.4544**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0000e-005	0.0000	8.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0477	0.4813	0.3235	7.5000e-004		0.0219	0.0219		0.0205	0.0205	0.0000	67.7520	67.7520	0.0185	0.0000	68.2156
Total	**0.0477**	**0.4813**	**0.3235**	**7.5000e-004**	**8.0000e-005**	**0.0219**	**0.0220**	**1.0000e-005**	**0.0205**	**0.0205**	**0.0000**	**67.7520**	**67.7520**	**0.0185**	**0.0000**	**68.2156**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2000e-004	0.0123	2.9300e-003	3.0000e-005	6.0000e-004	8.0000e-005	6.8000e-004	1.7000e-004	8.0000e-005	2.5000e-004	0.0000	2.5981	2.5981	1.3000e-004	0.0000	2.6014
Worker	5.3000e-004	4.7000e-004	4.9300e-003	1.0000e-005	8.7000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.8521	0.8521	4.0000e-005	0.0000	0.8530
Total	**9.5000e-004**	**0.0128**	**7.8600e-003**	**4.0000e-005**	**1.4700e-003**	**9.0000e-005**	**1.5600e-003**	**4.0000e-004**	**9.0000e-005**	**4.9000e-004**	**0.0000**	**3.4502**	**3.4502**	**1.7000e-004**	**0.0000**	**3.4544**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.6600e-003	0.0592	0.0375	9.0000e-005		2.6700e-003	2.6700e-003		2.4600e-003	2.4600e-003	0.0000	7.6827	7.6827	2.3500e-003	0.0000	7.7415
Paving	5.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.1700e-003**	**0.0592**	**0.0375**	**9.0000e-005**		**2.6700e-003**	**2.6700e-003**		**2.4600e-003**	**2.4600e-003**	**0.0000**	**7.6827**	**7.6827**	**2.3500e-003**	**0.0000**	**7.7415**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	9.0000e-005	9.1000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1578	0.1578	1.0000e-005	0.0000	0.1580
Total	**1.0000e-004**	**9.0000e-005**	**9.1000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1578**	**0.1578**	**1.0000e-005**	**0.0000**	**0.1580**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.6600e-003	0.0592	0.0375	9.0000e-005		2.6700e-003	2.6700e-003		2.4600e-003	2.4600e-003	0.0000	7.6827	7.6827	2.3500e-003	0.0000	7.7415
Paving	5.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.1700e-003**	**0.0592**	**0.0375**	**9.0000e-005**		**2.6700e-003**	**2.6700e-003**		**2.4600e-003**	**2.4600e-003**	**0.0000**	**7.6827**	**7.6827**	**2.3500e-003**	**0.0000**	**7.7415**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-004	9.0000e-005	9.1000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1578	0.1578	1.0000e-005	0.0000	0.1580
Total	**1.0000e-004**	**9.0000e-005**	**9.1000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1578**	**0.1578**	**1.0000e-005**	**0.0000**	**0.1580**

3.7 Site Restoration - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8000e-003	0.0168	0.0125	2.0000e-005		1.2400e-003	1.2400e-003		1.1400e-003	1.1400e-003	0.0000	1.4796	1.4796	4.6000e-004	0.0000	1.4911
Paving	5.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.3100e-003**	**0.0168**	**0.0125**	**2.0000e-005**		**1.2400e-003**	**1.2400e-003**		**1.1400e-003**	**1.1400e-003**	**0.0000**	**1.4796**	**1.4796**	**4.6000e-004**	**0.0000**	**1.4911**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	4.6000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0789	0.0789	0.0000	0.0000	0.0790
Total	**5.0000e-005**	**4.0000e-005**	**4.6000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0789**	**0.0789**	**0.0000**	**0.0000**	**0.0790**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8000e-003	0.0168	0.0125	2.0000e-005		1.2400e-003	1.2400e-003		1.1400e-003	1.1400e-003	0.0000	1.4796	1.4796	4.6000e-004	0.0000	1.4911
Paving	5.1000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.3100e-003**	**0.0168**	**0.0125**	**2.0000e-005**		**1.2400e-003**	**1.2400e-003**		**1.1400e-003**	**1.1400e-003**	**0.0000**	**1.4796**	**1.4796**	**4.6000e-004**	**0.0000**	**1.4911**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	4.6000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0789	0.0789	0.0000	0.0000	0.0790
Total	**5.0000e-005**	**4.0000e-005**	**4.6000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0789**	**0.0789**	**0.0000**	**0.0000**	**0.0790**

Palmdale WSMP Pump Stations

Antelope Valley APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.04	1000sqft	0.00	37.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment -

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Trips and VMT - See Construction Assumptions and Summaries

Grading - See Construction Assumptions and Summaries

Architectural Coating -

Construction Off-road Equipment Mitigation - AVAQMD Rule 403

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	100
tblAreaCoating	Area_EF_Nonresidential_Interior	250	100
tblAreaCoating	Area_EF_Parking	250	100
tblAreaCoating	Area_EF_Residential_Exterior	250	50
tblAreaCoating	Area_EF_Residential_Interior	250	50
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	30.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConsumerProducts	ROG_EF	2.14E-05	1.98E-05
tblGrading	AcresOfGrading	0.00	0.01
tblLandscapeEquipment	NumberSummerDays	180	250
tblLandUse	BuildingSpaceSquareFeet	40.00	37.00
tblLandUse	LandUseSquareFeet	40.00	37.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Site Restoration
tblOffRoadEquipment	PhaseName		Foundation Installation
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Yard Piping

tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Excavation/Grading
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Excavation/Grading
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Foundation Installation
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Yard Piping
tblOffRoadEquipment	PhaseName		Site Restoration
tblOffRoadEquipment	PhaseName		Pump House Construction
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripLength	7.30	6.90
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70

tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripLength	10.80	14.70
tblTripsAndVMT	WorkerTripNumber	5.00	9.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	25.00	21.00
tblTripsAndVMT	WorkerTripNumber	0.00	18.00
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblTripsAndVMT	WorkerTripNumber	15.00	12.00
tblVehicleTrips	CC_TL	7.30	8.40
tblVehicleTrips	CNW_TL	7.30	6.90
tblVehicleTrips	CW_TL	9.50	16.60

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0725	0.6238	0.4616	8.3000e-004	0.0320	0.0334	0.0654	0.0162	0.0320	0.0482	0.0000	73.0366	73.0366	0.0147	0.0000	73.4038
Maximum	**0.0725**	**0.6238**	**0.4616**	**8.3000e-004**	**0.0320**	**0.0334**	**0.0654**	**0.0162**	**0.0320**	**0.0482**	**0.0000**	**73.0366**	**73.0366**	**0.0147**	**0.0000**	**73.4038**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0725	0.6238	0.4616	8.3000e-004	0.0155	0.0334	0.0489	7.1100e-003	0.0320	0.0391	0.0000	73.0365	73.0365	0.0147	0.0000	73.4037
Maximum	**0.0725**	**0.6238**	**0.4616**	**8.3000e-004**	**0.0155**	**0.0334**	**0.0489**	**7.1100e-003**	**0.0320**	**0.0391**	**0.0000**	**73.0365**	**73.0365**	**0.0147**	**0.0000**	**73.4037**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**51.64**	**0.00**	**25.26**	**56.08**	**0.00**	**18.85**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2018**	**3-31-2018**	0.0823	0.0823
		Highest	0.0823	0.0823

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2018	1/6/2018	6	6	
2	Yard Piping	Trenching	1/7/2018	1/10/2018	6	3	
3	Excavation/Grading	Grading	1/11/2018	1/13/2018	6	3	
4	Foundation Installation	Building Construction	1/14/2018	1/19/2018	6	5	
5	Pump House Construction	Building Construction	1/20/2018	2/23/2018	6	30	
6	Site Restoration	Paving	2/24/2018	3/1/2018	6	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Off-Highway Trucks	2	4.00	402	0.38
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Yard Piping	Concrete/Industrial Saws	0		81	0.73
Yard Piping	Excavators	2	8.00	158	0.38
Yard Piping	Graders	0		187	0.41
Yard Piping	Off-Highway Trucks	2	2.00	402	0.38
Yard Piping	Rubber Tired Dozers	0		247	0.40
Yard Piping	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Yard Piping	Tractors/Loaders/Backhoes	0		97	0.37
Excavation/Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Excavation/Grading	Excavators	2	8.00	158	0.38

Excavation/Grading	Off-Highway Trucks	1	4.00	402	0.38
Excavation/Grading	Rubber Tired Dozers	2	8.00	247	0.40
Excavation/Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Foundation Installation	Cement and Mortar Mixers	2	6.00	9	0.56
Foundation Installation	Cranes	0	4.00	231	0.29
Foundation Installation	Forklifts	0	6.00	89	0.20
Foundation Installation	Plate Compactors	2	8.00	8	0.43
Foundation Installation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Pump House Construction	Aerial Lifts	2	8.00	63	0.31
Pump House Construction	Cement and Mortar Mixers	0		9	0.56
Pump House Construction	Cranes	2	8.00	231	0.29
Pump House Construction	Forklifts	0	6.00	89	0.20
Pump House Construction	Generator Sets	3	8.00	84	0.74
Pump House Construction	Pavers	0		130	0.42
Pump House Construction	Rollers	0		80	0.38
Pump House Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Pump House Construction	Welders	2	8.00	46	0.45
Site Restoration	Air Compressors	0	6.00	78	0.48
Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Site Restoration	Pavers	0	7.00	130	0.42
Site Restoration	Rollers	0	7.00	80	0.38
Site Restoration	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Restoration	Trenchers	2	8.00	78	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	9.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Yard Piping	8	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Yard Piping	8	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation/Grading	10	21.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Foundation Installation	9	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pump House Construction	12	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	6	12.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0250	0.0126	4.0000e-005		9.1000e-004	9.1000e-004		8.4000e-004	8.4000e-004	0.0000	3.6186	3.6186	1.1300e-003	0.0000	3.6468
Total	**2.3200e-003**	**0.0250**	**0.0126**	**4.0000e-005**	**0.0000**	**9.1000e-004**	**9.1000e-004**	**0.0000**	**8.4000e-004**	**8.4000e-004**	**0.0000**	**3.6186**	**3.6186**	**1.1300e-003**	**0.0000**	**3.6468**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.2000e-003	2.9000e-004	0.0000	6.0000e-005	1.0000e-005	6.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.2498	0.2498	1.0000e-005	0.0000	0.2502
Worker	1.6000e-004	1.5000e-004	1.6000e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2878	0.2878	1.0000e-005	0.0000	0.2881
Total	**2.0000e-004**	**1.3500e-003**	**1.8900e-003**	**0.0000**	**3.6000e-004**	**1.0000e-005**	**3.6000e-004**	**1.0000e-004**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.5376**	**0.5376**	**2.0000e-005**	**0.0000**	**0.5383**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0250	0.0126	4.0000e-005		9.1000e-004	9.1000e-004		8.4000e-004	8.4000e-004	0.0000	3.6186	3.6186	1.1300e-003	0.0000	3.6468
Total	**2.3200e-003**	**0.0250**	**0.0126**	**4.0000e-005**	**0.0000**	**9.1000e-004**	**9.1000e-004**	**0.0000**	**8.4000e-004**	**8.4000e-004**	**0.0000**	**3.6186**	**3.6186**	**1.1300e-003**	**0.0000**	**3.6468**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.2000e-003	2.9000e-004	0.0000	6.0000e-005	1.0000e-005	6.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.2498	0.2498	1.0000e-005	0.0000	0.2502
Worker	1.6000e-004	1.5000e-004	1.6000e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2878	0.2878	1.0000e-005	0.0000	0.2881
Total	**2.0000e-004**	**1.3500e-003**	**1.8900e-003**	**0.0000**	**3.6000e-004**	**1.0000e-005**	**3.6000e-004**	**1.0000e-004**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.5376**	**0.5376**	**2.0000e-005**	**0.0000**	**0.5383**

3.3 Yard Piping - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.2500e-003	0.0234	0.0200	3.0000e-005		1.2400e-003	1.2400e-003		1.1400e-003	1.1400e-003	0.0000	3.1700	3.1700	9.9000e-004	0.0000	3.1946
Total	**2.2500e-003**	**0.0234**	**0.0200**	**3.0000e-005**		**1.2400e-003**	**1.2400e-003**		**1.1400e-003**	**1.1400e-003**	**0.0000**	**3.1700**	**3.1700**	**9.9000e-004**	**0.0000**	**3.1946**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.6000e-004	2.6700e-003	1.0000e-005	9.2000e-004	0.0000	9.2000e-004	2.4000e-004	0.0000	2.4000e-004	0.0000	0.4797	0.4797	2.0000e-005	0.0000	0.4802
Total	**2.7000e-004**	**2.6000e-004**	**2.6700e-003**	**1.0000e-005**	**9.2000e-004**	**0.0000**	**9.2000e-004**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**0.4797**	**0.4797**	**2.0000e-005**	**0.0000**	**0.4802**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.2500e-003	0.0234	0.0200	3.0000e-005		1.2400e-003	1.2400e-003		1.1400e-003	1.1400e-003	0.0000	3.1700	3.1700	9.9000e-004	0.0000	3.1946
Total	**2.2500e-003**	**0.0234**	**0.0200**	**3.0000e-005**		**1.2400e-003**	**1.2400e-003**		**1.1400e-003**	**1.1400e-003**	**0.0000**	**3.1700**	**3.1700**	**9.9000e-004**	**0.0000**	**3.1946**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.6000e-004	2.6700e-003	1.0000e-005	9.2000e-004	0.0000	9.2000e-004	2.4000e-004	0.0000	2.4000e-004	0.0000	0.4797	0.4797	2.0000e-005	0.0000	0.4802
Total	**2.7000e-004**	**2.6000e-004**	**2.6700e-003**	**1.0000e-005**	**9.2000e-004**	**0.0000**	**9.2000e-004**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**0.4797**	**0.4797**	**2.0000e-005**	**0.0000**	**0.4802**

3.4 Excavation/Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0271	0.0000	0.0271	0.0149	0.0000	0.0149	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7400e-003	0.0611	0.0331	6.0000e-005		3.0700e-003	3.0700e-003		2.8200e-003	2.8200e-003	0.0000	5.5110	5.5110	1.7200e-003	0.0000	5.5539
Total	**5.7400e-003**	**0.0611**	**0.0331**	**6.0000e-005**	**0.0271**	**3.0700e-003**	**0.0302**	**0.0149**	**2.8200e-003**	**0.0177**	**0.0000**	**5.5110**	**5.5110**	**1.7200e-003**	**0.0000**	**5.5539**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.8000e-004	1.8700e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3358	0.3358	1.0000e-005	0.0000	0.3361
Total	**1.9000e-004**	**1.8000e-004**	**1.8700e-003**	**0.0000**	**3.5000e-004**	**0.0000**	**3.5000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.3358**	**0.3358**	**1.0000e-005**	**0.0000**	**0.3361**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0106	0.0000	0.0106	5.8100e-003	0.0000	5.8100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.7400e-003	0.0611	0.0331	6.0000e-005		3.0700e-003	3.0700e-003		2.8200e-003	2.8200e-003	0.0000	5.5110	5.5110	1.7200e-003	0.0000	5.5539
Total	**5.7400e-003**	**0.0611**	**0.0331**	**6.0000e-005**	**0.0106**	**3.0700e-003**	**0.0136**	**5.8100e-003**	**2.8200e-003**	**8.6300e-003**	**0.0000**	**5.5110**	**5.5110**	**1.7200e-003**	**0.0000**	**5.5539**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.8000e-004	1.8700e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3358	0.3358	1.0000e-005	0.0000	0.3361
Total	**1.9000e-004**	**1.8000e-004**	**1.8700e-003**	**0.0000**	**3.5000e-004**	**0.0000**	**3.5000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.3358**	**0.3358**	**1.0000e-005**	**0.0000**	**0.3361**

3.5 Foundation Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.7500e-003	0.0158	0.0139	2.0000e-005		1.0300e-003	1.0300e-003		9.6000e-004	9.6000e-004	0.0000	1.7470	1.7470	4.8000e-004	0.0000	1.7589
Total	**1.7500e-003**	**0.0158**	**0.0139**	**2.0000e-005**		**1.0300e-003**	**1.0300e-003**		**9.6000e-004**	**9.6000e-004**	**0.0000**	**1.7470**	**1.7470**	**4.8000e-004**	**0.0000**	**1.7589**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.6000e-004	2.6700e-003	1.0000e-005	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4797	0.4797	2.0000e-005	0.0000	0.4802
Total	**2.7000e-004**	**2.6000e-004**	**2.6700e-003**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4797**	**0.4797**	**2.0000e-005**	**0.0000**	**0.4802**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.7500e-003	0.0158	0.0139	2.0000e-005		1.0300e-003	1.0300e-003		9.6000e-004	9.6000e-004	0.0000	1.7470	1.7470	4.8000e-004	0.0000	1.7589
Total	**1.7500e-003**	**0.0158**	**0.0139**	**2.0000e-005**		**1.0300e-003**	**1.0300e-003**		**9.6000e-004**	**9.6000e-004**	**0.0000**	**1.7470**	**1.7470**	**4.8000e-004**	**0.0000**	**1.7589**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	2.6000e-004	2.6700e-003	1.0000e-005	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4797	0.4797	2.0000e-005	0.0000	0.4802
Total	**2.7000e-004**	**2.6000e-004**	**2.6700e-003**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4797**	**0.4797**	**2.0000e-005**	**0.0000**	**0.4802**

3.6 Pump House Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0544	0.4615	0.3328	6.0000e-004		0.0246	0.0246		0.0239	0.0239	0.0000	51.4801	51.4801	9.2700e-003	0.0000	51.7119
Total	**0.0544**	**0.4615**	**0.3328**	**6.0000e-004**		**0.0246**	**0.0246**		**0.0239**	**0.0239**	**0.0000**	**51.4801**	**51.4801**	**9.2700e-003**	**0.0000**	**51.7119**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3700e-003	1.2800e-003	0.0134	3.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.3983	2.3983	1.0000e-004	0.0000	2.4008
Total	**1.3700e-003**	**1.2800e-003**	**0.0134**	**3.0000e-005**	**2.4700e-003**	**2.0000e-005**	**2.4900e-003**	**6.5000e-004**	**2.0000e-005**	**6.7000e-004**	**0.0000**	**2.3983**	**2.3983**	**1.0000e-004**	**0.0000**	**2.4008**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0544	0.4615	0.3328	6.0000e-004		0.0246	0.0246		0.0239	0.0239	0.0000	51.4801	51.4801	9.2700e-003	0.0000	51.7118
Total	**0.0544**	**0.4615**	**0.3328**	**6.0000e-004**		**0.0246**	**0.0246**		**0.0239**	**0.0239**	**0.0000**	**51.4801**	**51.4801**	**9.2700e-003**	**0.0000**	**51.7118**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3700e-003	1.2800e-003	0.0134	3.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.5000e-004	2.0000e-005	6.7000e-004	0.0000	2.3983	2.3983	1.0000e-004	0.0000	2.4008
Total	**1.3700e-003**	**1.2800e-003**	**0.0134**	**3.0000e-005**	**2.4700e-003**	**2.0000e-005**	**2.4900e-003**	**6.5000e-004**	**2.0000e-005**	**6.7000e-004**	**0.0000**	**2.3983**	**2.3983**	**1.0000e-004**	**0.0000**	**2.4008**

3.7 Site Restoration - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5900e-003	0.0335	0.0249	3.0000e-005		2.4800e-003	2.4800e-003		2.2800e-003	2.2800e-003	0.0000	2.9591	2.9591	9.2000e-004	0.0000	2.9822
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.5900e-003**	**0.0335**	**0.0249**	**3.0000e-005**		**2.4800e-003**	**2.4800e-003**		**2.2800e-003**	**2.2800e-003**	**0.0000**	**2.9591**	**2.9591**	**9.2000e-004**	**0.0000**	**2.9822**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.7000e-004	1.7800e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3198	0.3198	1.0000e-005	0.0000	0.3201
Total	**1.8000e-004**	**1.7000e-004**	**1.7800e-003**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.3198**	**0.3198**	**1.0000e-005**	**0.0000**	**0.3201**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5900e-003	0.0335	0.0249	3.0000e-005		2.4800e-003	2.4800e-003		2.2800e-003	2.2800e-003	0.0000	2.9591	2.9591	9.2000e-004	0.0000	2.9822
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.5900e-003**	**0.0335**	**0.0249**	**3.0000e-005**		**2.4800e-003**	**2.4800e-003**		**2.2800e-003**	**2.2800e-003**	**0.0000**	**2.9591**	**2.9591**	**9.2000e-004**	**0.0000**	**2.9822**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.7000e-004	1.7800e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3198	0.3198	1.0000e-005	0.0000	0.3201
Total	**1.8000e-004**	**1.7000e-004**	**1.7800e-003**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.3198**	**0.3198**	**1.0000e-005**	**0.0000**	**0.3201**

Palmdale WSMP Storage Tanks

Antelope Valley APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	3.42	1000sqft	0.08	3,421.00	0
General Light Industry	4.54	1000sqft	0.10	4,536.00	0
General Light Industry	18.27	1000sqft	0.42	18,267.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - .

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Trips and VMT - See Construction Assumptions and Summaries

Grading - See Construction Assumptions and Summaries

Architectural Coating - See Construction Assumptions and Summaries

Construction Off-road Equipment Mitigation - AVAQMD Rule 403

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	13,112.00	54,454.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	39,336.00	0.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstructionPhase	NumDays	5.00	65.00
tblConstructionPhase	NumDays	100.00	28.00
tblConstructionPhase	NumDays	100.00	91.00
tblConstructionPhase	NumDays	2.00	30.00
tblConstructionPhase	NumDays	5.00	9.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblFleetMix	HHD	0.04	0.00
tblFleetMix	LDA	0.61	0.00
tblFleetMix	LDT1	0.04	0.00
tblFleetMix	LDT2	0.15	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.2570e-003	0.00
tblFleetMix	MCY	7.6250e-003	0.00
tblFleetMix	MDV	0.11	0.00
tblFleetMix	MH	1.4220e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	2.1490e-003	0.00

tblFleetMix	SBUS	1.5630e-003	0.00
tblFleetMix	UBUS	1.9000e-003	0.00
tblGrading	AcresOfGrading	0.00	0.61
tblLandUse	BuildingSpaceSquareFeet	18,270.00	18,267.00
tblLandUse	BuildingSpaceSquareFeet	3,420.00	3,421.00
tblLandUse	BuildingSpaceSquareFeet	4,540.00	4,536.00
tblLandUse	LandUseSquareFeet	18,270.00	18,267.00
tblLandUse	LandUseSquareFeet	3,420.00	3,421.00
tblLandUse	LandUseSquareFeet	4,540.00	4,536.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00

tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	PhaseName		Site Prep/Grading
tblOffRoadEquipment	PhaseName		Foundation Installation
tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	PhaseName		Tank Finishes
tblOffRoadEquipment	PhaseName		Site Prep/Grading
tblOffRoadEquipment	PhaseName		Tank Finishes
tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	PhaseName		Site Prep/Grading
tblOffRoadEquipment	PhaseName		Foundation Installation
tblOffRoadEquipment	PhaseName		Tank Finishes
tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	PhaseName		Tank Finishes
tblOffRoadEquipment	PhaseName		Tank Finishes
tblOffRoadEquipment	PhaseName		Landscaping
tblOffRoadEquipment	PhaseName		Tank Installation
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	4.00	0.00
tblTripsAndVMT	VendorTripNumber	4.00	0.00
tblTripsAndVMT	WorkerTripNumber	30.00	15.00
tblTripsAndVMT	WorkerTripNumber	11.00	15.00
tblTripsAndVMT	WorkerTripNumber	11.00	21.00

tblTripsAndVMT	WorkerTripNumber	15.00	12.00
tblTripsAndVMT	WorkerTripNumber	2.00	12.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.6049	2.5068	1.7863	3.1200e-003	0.2866	0.1406	0.4272	0.1531	0.1333	0.2864	0.0000	274.0149	274.0149	0.0606	0.0000	275.5292
Maximum	**0.6049**	**2.5068**	**1.7863**	**3.1200e-003**	**0.2866**	**0.1406**	**0.4272**	**0.1531**	**0.1333**	**0.2864**	**0.0000**	**274.0149**	**274.0149**	**0.0606**	**0.0000**	**275.5292**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.6049	2.5068	1.7863	3.1200e-003	0.1211	0.1406	0.2617	0.0622	0.1333	0.1955	0.0000	274.0146	274.0146	0.0606	0.0000	275.5288
Maximum	**0.6049**	**2.5068**	**1.7863**	**3.1200e-003**	**0.1211**	**0.1406**	**0.2617**	**0.0622**	**0.1333**	**0.1955**	**0.0000**	**274.0146**	**274.0146**	**0.0606**	**0.0000**	**275.5288**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**57.75**	**0.00**	**38.74**	**59.38**	**0.00**	**31.74**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2018	3-31-2018	0.7278	0.7278
		Highest	0.7278	0.7278

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Prep/Grading	Grading	1/1/2018	2/3/2018	6	30	
2	Foundation Installation	Building Construction	2/4/2018	3/8/2018	6	28	
3	Tank Installation	Building Construction	3/9/2018	6/22/2018	6	91	
4	Landscaping	Paving	6/23/2018	7/3/2018	6	9	
5	Tank Finishes	Architectural Coating	7/4/2018	9/17/2018	6	65	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 54,454; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Prep/Grading	Air Compressors	0	6.00	78	0.48
Site Prep/Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Site Prep/Grading	Excavators	2	8.00	158	0.38
Site Prep/Grading	Off-Highway Trucks	2	4.00	402	0.38
Site Prep/Grading	Rubber Tired Dozers	2	8.00	247	0.40
Site Prep/Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Foundation Installation	Cement and Mortar Mixers	2	8.00	9	0.56
Foundation Installation	Cranes	0	4.00	231	0.29
Foundation Installation	Forklifts	0	6.00	89	0.20

Foundation Installation	Plate Compactors	2	8.00	8	0.43
Foundation Installation	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Tank Installation	Aerial Lifts	2	8.00	63	0.31
Tank Installation	Concrete/Industrial Saws	0	8.00	81	0.73
Tank Installation	Cranes	2	8.00	231	0.29
Tank Installation	Forklifts	2	8.00	89	0.20
Tank Installation	Generator Sets	2	8.00	84	0.74
Tank Installation	Rubber Tired Dozers	0	1.00	247	0.40
Tank Installation	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Tank Installation	Welders	2	8.00	46	0.45
Tank Finishes	Air Compressors	2	8.00	78	0.48
Tank Finishes	Concrete/Industrial Saws	0	8.00	81	0.73
Tank Finishes	Forklifts	2	8.00	89	0.20
Tank Finishes	Pressure Washers	3	8.00	13	0.30
Tank Finishes	Rubber Tired Dozers	0	1.00	247	0.40
Tank Finishes	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Landscaping	Cement and Mortar Mixers	0	6.00	9	0.56
Landscaping	Pavers	0	7.00	130	0.42
Landscaping	Rollers	0	7.00	80	0.38
Landscaping	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Landscaping	Trenchers	2	8.00	78	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Prep/Grading	12	15.00	5.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Foundation Installation	9	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Tank Installation	14	21.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Tank Finishes	12	12.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping	6	12.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Prep/Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2713	0.0000	0.2713	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0632	0.6734	0.3627	7.0000e-004		0.0330	0.0330		0.0303	0.0303	0.0000	64.1564	64.1564	0.0200	0.0000	64.6557
Total	**0.0632**	**0.6734**	**0.3627**	**7.0000e-004**	**0.2713**	**0.0330**	**0.3043**	**0.1490**	**0.0303**	**0.1793**	**0.0000**	**64.1564**	**64.1564**	**0.0200**	**0.0000**	**64.6557**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.5000e-004	0.0103	2.4400e-003	2.0000e-005	5.0000e-004	7.0000e-005	5.7000e-004	1.4000e-004	7.0000e-005	2.1000e-004	0.0000	2.1651	2.1651	1.1000e-004	0.0000	2.1678
Worker	1.1000e-003	9.7000e-004	0.0103	2.0000e-005	1.8100e-003	2.0000e-005	1.8300e-003	4.8000e-004	2.0000e-005	5.0000e-004	0.0000	1.7752	1.7752	8.0000e-005	0.0000	1.7771
Total	**1.4500e-003**	**0.0112**	**0.0127**	**4.0000e-005**	**2.3100e-003**	**9.0000e-005**	**2.4000e-003**	**6.2000e-004**	**9.0000e-005**	**7.1000e-004**	**0.0000**	**3.9403**	**3.9403**	**1.9000e-004**	**0.0000**	**3.9449**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1058	0.0000	0.1058	0.0581	0.0000	0.0581	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0632	0.6734	0.3627	7.0000e-004		0.0330	0.0330		0.0303	0.0303	0.0000	64.1563	64.1563	0.0200	0.0000	64.6556
Total	**0.0632**	**0.6734**	**0.3627**	**7.0000e-004**	**0.1058**	**0.0330**	**0.1388**	**0.0581**	**0.0303**	**0.0884**	**0.0000**	**64.1563**	**64.1563**	**0.0200**	**0.0000**	**64.6556**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.5000e-004	0.0103	2.4400e-003	2.0000e-005	5.0000e-004	7.0000e-005	5.7000e-004	1.4000e-004	7.0000e-005	2.1000e-004	0.0000	2.1651	2.1651	1.1000e-004	0.0000	2.1678
Worker	1.1000e-003	9.7000e-004	0.0103	2.0000e-005	1.8100e-003	2.0000e-005	1.8300e-003	4.8000e-004	2.0000e-005	5.0000e-004	0.0000	1.7752	1.7752	8.0000e-005	0.0000	1.7771
Total	**1.4500e-003**	**0.0112**	**0.0127**	**4.0000e-005**	**2.3100e-003**	**9.0000e-005**	**2.4000e-003**	**6.2000e-004**	**9.0000e-005**	**7.1000e-004**	**0.0000**	**3.9403**	**3.9403**	**1.9000e-004**	**0.0000**	**3.9449**

3.3 Foundation Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0102	0.0910	0.0800	1.2000e-004		5.9000e-003	5.9000e-003		5.4800e-003	5.4800e-003	0.0000	10.1039	10.1039	2.7000e-003	0.0000	10.1713
Total	**0.0102**	**0.0910**	**0.0800**	**1.2000e-004**		**5.9000e-003**	**5.9000e-003**		**5.4800e-003**	**5.4800e-003**	**0.0000**	**10.1039**	**10.1039**	**2.7000e-003**	**0.0000**	**10.1713**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0200e-003	9.1000e-004	9.5900e-003	2.0000e-005	1.6900e-003	2.0000e-005	1.7100e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.6569	1.6569	7.0000e-005	0.0000	1.6586
Total	**1.0200e-003**	**9.1000e-004**	**9.5900e-003**	**2.0000e-005**	**1.6900e-003**	**2.0000e-005**	**1.7100e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.6569**	**1.6569**	**7.0000e-005**	**0.0000**	**1.6586**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0102	0.0910	0.0800	1.2000e-004		5.9000e-003	5.9000e-003		5.4800e-003	5.4800e-003	0.0000	10.1039	10.1039	2.7000e-003	0.0000	10.1713
Total	**0.0102**	**0.0910**	**0.0800**	**1.2000e-004**		**5.9000e-003**	**5.9000e-003**		**5.4800e-003**	**5.4800e-003**	**0.0000**	**10.1039**	**10.1039**	**2.7000e-003**	**0.0000**	**10.1713**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0200e-003	9.1000e-004	9.5900e-003	2.0000e-005	1.6900e-003	2.0000e-005	1.7100e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.6569	1.6569	7.0000e-005	0.0000	1.6586
Total	**1.0200e-003**	**9.1000e-004**	**9.5900e-003**	**2.0000e-005**	**1.6900e-003**	**2.0000e-005**	**1.7100e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.6569**	**1.6569**	**7.0000e-005**	**0.0000**	**1.6586**

3.4 Tank Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1582	1.3560	0.9491	1.6500e-003		0.0743	0.0743		0.0711	0.0711	0.0000	143.1353	143.1353	0.0302	0.0000	143.8905
Total	**0.1582**	**1.3560**	**0.9491**	**1.6500e-003**		**0.0743**	**0.0743**		**0.0711**	**0.0711**	**0.0000**	**143.1353**	**143.1353**	**0.0302**	**0.0000**	**143.8905**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6600e-003	4.1300e-003	0.0436	8.0000e-005	7.7000e-003	7.0000e-005	7.7600e-003	2.0400e-003	6.0000e-005	2.1100e-003	0.0000	7.5387	7.5387	3.3000e-004	0.0000	7.5468
Total	**4.6600e-003**	**4.1300e-003**	**0.0436**	**8.0000e-005**	**7.7000e-003**	**7.0000e-005**	**7.7600e-003**	**2.0400e-003**	**6.0000e-005**	**2.1100e-003**	**0.0000**	**7.5387**	**7.5387**	**3.3000e-004**	**0.0000**	**7.5468**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1582	1.3560	0.9491	1.6500e-003		0.0743	0.0743		0.0711	0.0711	0.0000	143.1351	143.1351	0.0302	0.0000	143.8904
Total	**0.1582**	**1.3560**	**0.9491**	**1.6500e-003**		**0.0743**	**0.0743**		**0.0711**	**0.0711**	**0.0000**	**143.1351**	**143.1351**	**0.0302**	**0.0000**	**143.8904**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6600e-003	4.1300e-003	0.0436	8.0000e-005	7.7000e-003	7.0000e-005	7.7600e-003	2.0400e-003	6.0000e-005	2.1100e-003	0.0000	7.5387	7.5387	3.3000e-004	0.0000	7.5468
Total	**4.6600e-003**	**4.1300e-003**	**0.0436**	**8.0000e-005**	**7.7000e-003**	**7.0000e-005**	**7.7600e-003**	**2.0400e-003**	**6.0000e-005**	**2.1100e-003**	**0.0000**	**7.5387**	**7.5387**	**3.3000e-004**	**0.0000**	**7.5468**

3.5 Landscaping - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.4700e-003	0.0603	0.0449	6.0000e-005		4.4600e-003	4.4600e-003		4.1100e-003	4.1100e-003	0.0000	5.3264	5.3264	1.6600e-003	0.0000	5.3679
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.4700e-003**	**0.0603**	**0.0449**	**6.0000e-005**		**4.4600e-003**	**4.4600e-003**		**4.1100e-003**	**4.1100e-003**	**0.0000**	**5.3264**	**5.3264**	**1.6600e-003**	**0.0000**	**5.3679**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	2.3000e-004	2.4600e-003	0.0000	4.3000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.4261	0.4261	2.0000e-005	0.0000	0.4265
Total	**2.6000e-004**	**2.3000e-004**	**2.4600e-003**	**0.0000**	**4.3000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.4261**	**0.4261**	**2.0000e-005**	**0.0000**	**0.4265**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.4700e-003	0.0603	0.0449	6.0000e-005		4.4600e-003	4.4600e-003		4.1100e-003	4.1100e-003	0.0000	5.3264	5.3264	1.6600e-003	0.0000	5.3679
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.4700e-003**	**0.0603**	**0.0449**	**6.0000e-005**		**4.4600e-003**	**4.4600e-003**		**4.1100e-003**	**4.1100e-003**	**0.0000**	**5.3264**	**5.3264**	**1.6600e-003**	**0.0000**	**5.3679**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	2.3000e-004	2.4600e-003	0.0000	4.3000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.4261	0.4261	2.0000e-005	0.0000	0.4265
Total	**2.6000e-004**	**2.3000e-004**	**2.4600e-003**	**0.0000**	**4.3000e-004**	**0.0000**	**4.4000e-004**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**0.4261**	**0.4261**	**2.0000e-005**	**0.0000**	**0.4265**

3.6 Tank Finishes - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3155					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0420	0.3079	0.2634	4.1000e-004		0.0228	0.0228		0.0222	0.0222	0.0000	34.6542	34.6542	5.3000e-003	0.0000	34.7866
Total	**0.3575**	**0.3079**	**0.2634**	**4.1000e-004**		**0.0228**	**0.0228**		**0.0222**	**0.0222**	**0.0000**	**34.6542**	**34.6542**	**5.3000e-003**	**0.0000**	**34.7866**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-003	1.6900e-003	0.0178	3.0000e-005	3.1400e-003	3.0000e-005	3.1700e-003	8.3000e-004	3.0000e-005	8.6000e-004	0.0000	3.0770	3.0770	1.3000e-004	0.0000	3.0803
Total	**1.9000e-003**	**1.6900e-003**	**0.0178**	**3.0000e-005**	**3.1400e-003**	**3.0000e-005**	**3.1700e-003**	**8.3000e-004**	**3.0000e-005**	**8.6000e-004**	**0.0000**	**3.0770**	**3.0770**	**1.3000e-004**	**0.0000**	**3.0803**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3155					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0420	0.3079	0.2634	4.1000e-004		0.0228	0.0228		0.0222	0.0222	0.0000	34.6541	34.6541	5.3000e-003	0.0000	34.7865
Total	**0.3575**	**0.3079**	**0.2634**	**4.1000e-004**		**0.0228**	**0.0228**		**0.0222**	**0.0222**	**0.0000**	**34.6541**	**34.6541**	**5.3000e-003**	**0.0000**	**34.7865**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-003	1.6900e-003	0.0178	3.0000e-005	3.1400e-003	3.0000e-005	3.1700e-003	8.3000e-004	3.0000e-005	8.6000e-004	0.0000	3.0770	3.0770	1.3000e-004	0.0000	3.0803
Total	**1.9000e-003**	**1.6900e-003**	**0.0178**	**3.0000e-005**	**3.1400e-003**	**3.0000e-005**	**3.1700e-003**	**8.3000e-004**	**3.0000e-005**	**8.6000e-004**	**0.0000**	**3.0770**	**3.0770**	**1.3000e-004**	**0.0000**	**3.0803**

Palmdale WSMP Pump Stations

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	0.04	1000sqft	0.00	37.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment -

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Grading - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Trips and VMT - See Construction Assumptions and Summaries

Architectural Coating -

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	6.00
tblConstructionPhase	NumDays	0.00	3.00
tblConstructionPhase	NumDays	0.00	30.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	PhaseEndDate	6/20/2018	3/1/2018
tblConstructionPhase	PhaseEndDate	6/6/2018	1/19/2018
tblConstructionPhase	PhaseEndDate	1/12/2018	1/6/2018
tblConstructionPhase	PhaseEndDate	1/17/2018	1/13/2018
tblConstructionPhase	PhaseEndDate	6/13/2018	2/23/2018
tblConstructionPhase	PhaseEndDate	1/15/2018	1/10/2018
tblConstructionPhase	PhaseStartDate	6/14/2018	2/24/2018
tblConstructionPhase	PhaseStartDate	1/18/2018	1/14/2018
tblConstructionPhase	PhaseStartDate	1/16/2018	1/11/2018
tblConstructionPhase	PhaseStartDate	6/7/2018	1/20/2018
tblConstructionPhase	PhaseStartDate	1/13/2018	1/7/2018
tblGrading	AcresOfGrading	0.00	0.01
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.31	0.31
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators

tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Cement and Mortar Mixers
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Welders
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	VendorTripNumber	0.00	3.00

tblTripsAndVMT	WorkerTripNumber	15.00	12.00
tblTripsAndVMT	WorkerTripNumber	0.00	18.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	25.00	21.00
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	5.00	9.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0942	0.8221	0.5829	1.0500e-003	0.0320	0.0435	0.0755	0.0162	0.0414	0.0576	0.0000	91.8934	91.8934	0.0202	0.0000	92.3972
Maximum	**0.0942**	**0.8221**	**0.5829**	**1.0500e-003**	**0.0320**	**0.0435**	**0.0755**	**0.0162**	**0.0414**	**0.0576**	**0.0000**	**91.8934**	**91.8934**	**0.0202**	**0.0000**	**92.3972**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.0208	0.3880	0.6319	1.0500e-003	0.0155	5.2500e-003	0.0207	7.1100e-003	5.2500e-003	0.0124	0.0000	91.8933	91.8933	0.0202	0.0000	92.3971
Maximum	**0.0208**	**0.3880**	**0.6319**	**1.0500e-003**	**0.0155**	**5.2500e-003**	**0.0207**	**7.1100e-003**	**5.2500e-003**	**0.0124**	**0.0000**	**91.8933**	**91.8933**	**0.0202**	**0.0000**	**92.3971**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**77.90**	**52.81**	**-8.41**	**0.00**	**51.64**	**87.94**	**72.56**	**56.08**	**87.32**	**78.56**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2018**	**3-31-2018**	0.1080	0.0372
		Highest	0.1080	0.0372

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2018	1/6/2018	6	6	
2	Yard Piping	Trenching	1/7/2018	1/10/2018	6	3	
3	Excavation/Grading	Grading	1/11/2018	1/13/2018	6	3	
4	Foundation Installation	Building Construction	1/14/2018	1/19/2018	6	5	
5	Pump House Construction	Building Construction	1/20/2018	2/23/2018	6	30	
6	Site Restoration	Paving	2/24/2018	3/1/2018	6	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Restoration	Air Compressors	0	6.00	78	0.48
Pump House Construction	Cement and Mortar Mixers	0		9	0.56
Yard Piping	Concrete/Industrial Saws	0		81	0.73

Excavation/Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Foundation Installation	Cranes	0	4.00	231	0.29
Foundation Installation	Forklifts	0	6.00	89	0.20
Yard Piping	Graders	0		187	0.41
Pump House Construction	Pavers	0		130	0.42
Pump House Construction	Rollers	0		80	0.38
Yard Piping	Rubber Tired Dozers	0		247	0.40
Excavation/Grading	Rubber Tired Dozers	3	8.00	247	0.40
Foundation Installation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Yard Piping	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Excavation/Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Pump House Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Yard Piping	Tractors/Loaders/Backhoes	0		97	0.37
Site Restoration	Cement and Mortar Mixers	0	6.00	9	0.56
Pump House Construction	Cranes	3	8.00	231	0.29
Pump House Construction	Forklifts	0	6.00	89	0.20
Site Preparation	Graders	0	8.00	187	0.41
Site Restoration	Pavers	0	7.00	130	0.42
Site Restoration	Rollers	0	7.00	80	0.38
Site Restoration	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Off-Highway Trucks	2	4.00	402	0.38
Yard Piping	Excavators	3	8.00	158	0.38
Yard Piping	Off-Highway Trucks	2	2.00	402	0.38
Excavation/Grading	Excavators	3	8.00	158	0.38
Excavation/Grading	Off-Highway Trucks	1	4.00	402	0.38
Foundation Installation	Plate Compactors	3	8.00	8	0.43
Foundation Installation	Cement and Mortar Mixers	3	6.00	9	0.56
Pump House Construction	Aerial Lifts	3	8.00	63	0.31
Pump House Construction	Generator Sets	3	8.00	84	0.74

Pump House Construction	Welders	3	8.00	46	0.45
Site Restoration	Trenchers	3	8.00	78	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Restoration	6	12.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Foundation Installation	9	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Yard Piping	8	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Excavation/Grading	10	21.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Pump House Construction	12	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Yard Piping	8	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	9.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0250	0.0126	4.0000e-005		9.1000e-004	9.1000e-004		8.4000e-004	8.4000e-004	0.0000	3.6186	3.6186	1.1300e-003	0.0000	3.6468
Total	**2.3200e-003**	**0.0250**	**0.0126**	**4.0000e-005**	**0.0000**	**9.1000e-004**	**9.1000e-004**	**0.0000**	**8.4000e-004**	**8.4000e-004**	**0.0000**	**3.6186**	**3.6186**	**1.1300e-003**	**0.0000**	**3.6468**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.1300e-003	3.2000e-004	0.0000	6.0000e-005	1.0000e-005	6.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.2274	0.2274	2.0000e-005	0.0000	0.2278
Worker	1.5000e-004	1.3000e-004	1.3800e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2940	0.2940	1.0000e-005	0.0000	0.2943
Total	**1.9000e-004**	**1.2600e-003**	**1.7000e-003**	**0.0000**	**3.6000e-004**	**1.0000e-005**	**3.6000e-004**	**1.0000e-004**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.5214**	**0.5214**	**3.0000e-005**	**0.0000**	**0.5220**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.5000e-004	0.0104	0.0210	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.6186	3.6186	1.1300e-003	0.0000	3.6468
Total	**6.5000e-004**	**0.0104**	**0.0210**	**4.0000e-005**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**3.6186**	**3.6186**	**1.1300e-003**	**0.0000**	**3.6468**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.1300e-003	3.2000e-004	0.0000	6.0000e-005	1.0000e-005	6.0000e-005	2.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.2274	0.2274	2.0000e-005	0.0000	0.2278
Worker	1.5000e-004	1.3000e-004	1.3800e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2940	0.2940	1.0000e-005	0.0000	0.2943
Total	**1.9000e-004**	**1.2600e-003**	**1.7000e-003**	**0.0000**	**3.6000e-004**	**1.0000e-005**	**3.6000e-004**	**1.0000e-004**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.5214**	**0.5214**	**3.0000e-005**	**0.0000**	**0.5220**

3.3 Yard Piping - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0800e-003	0.0320	0.0284	5.0000e-005		1.7400e-003	1.7400e-003		1.6000e-003	1.6000e-003	0.0000	4.3026	4.3026	1.3400e-003	0.0000	4.3361
Total	**3.0800e-003**	**0.0320**	**0.0284**	**5.0000e-005**		**1.7400e-003**	**1.7400e-003**		**1.6000e-003**	**1.6000e-003**	**0.0000**	**4.3026**	**4.3026**	**1.3400e-003**	**0.0000**	**4.3361**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	2.1000e-004	2.2900e-003	1.0000e-005	9.2000e-004	0.0000	9.2000e-004	2.4000e-004	0.0000	2.4000e-004	0.0000	0.4900	0.4900	2.0000e-005	0.0000	0.4904
Total	**2.5000e-004**	**2.1000e-004**	**2.2900e-003**	**1.0000e-005**	**9.2000e-004**	**0.0000**	**9.2000e-004**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**0.4900**	**0.4900**	**2.0000e-005**	**0.0000**	**0.4904**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.6000e-004	0.0190	0.0334	5.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	4.3026	4.3026	1.3400e-003	0.0000	4.3361
Total	**7.6000e-004**	**0.0190**	**0.0334**	**5.0000e-005**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**4.3026**	**4.3026**	**1.3400e-003**	**0.0000**	**4.3361**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	2.1000e-004	2.2900e-003	1.0000e-005	9.2000e-004	0.0000	9.2000e-004	2.4000e-004	0.0000	2.4000e-004	0.0000	0.4900	0.4900	2.0000e-005	0.0000	0.4904
Total	**2.5000e-004**	**2.1000e-004**	**2.2900e-003**	**1.0000e-005**	**9.2000e-004**	**0.0000**	**9.2000e-004**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**0.4900**	**0.4900**	**2.0000e-005**	**0.0000**	**0.4904**

3.4 Excavation/Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0271	0.0000	0.0271	0.0149	0.0000	0.0149	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.3400e-003	0.0886	0.0482	9.0000e-005		4.4900e-003	4.4900e-003		4.1300e-003	4.1300e-003	0.0000	7.8293	7.8293	2.4400e-003	0.0000	7.8902
Total	**8.3400e-003**	**0.0886**	**0.0482**	**9.0000e-005**	**0.0271**	**4.4900e-003**	**0.0316**	**0.0149**	**4.1300e-003**	**0.0190**	**0.0000**	**7.8293**	**7.8293**	**2.4400e-003**	**0.0000**	**7.8902**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.5000e-004	1.6100e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3430	0.3430	1.0000e-005	0.0000	0.3433
Total	**1.7000e-004**	**1.5000e-004**	**1.6100e-003**	**0.0000**	**3.5000e-004**	**0.0000**	**3.5000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.3430**	**0.3430**	**1.0000e-005**	**0.0000**	**0.3433**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0106	0.0000	0.0106	5.8100e-003	0.0000	5.8100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3900e-003	0.0291	0.0539	9.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	7.8293	7.8293	2.4400e-003	0.0000	7.8902
Total	**1.3900e-003**	**0.0291**	**0.0539**	**9.0000e-005**	**0.0106**	**1.4000e-004**	**0.0107**	**5.8100e-003**	**1.4000e-004**	**5.9500e-003**	**0.0000**	**7.8293**	**7.8293**	**2.4400e-003**	**0.0000**	**7.8902**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.5000e-004	1.6100e-003	0.0000	3.5000e-004	0.0000	3.5000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3430	0.3430	1.0000e-005	0.0000	0.3433
Total	**1.7000e-004**	**1.5000e-004**	**1.6100e-003**	**0.0000**	**3.5000e-004**	**0.0000**	**3.5000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.3430**	**0.3430**	**1.0000e-005**	**0.0000**	**0.3433**

3.5 Foundation Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.6300e-003	0.0237	0.0208	3.0000e-005		1.5500e-003	1.5500e-003		1.4400e-003	1.4400e-003	0.0000	2.6205	2.6205	7.1000e-004	0.0000	2.6383
Total	**2.6300e-003**	**0.0237**	**0.0208**	**3.0000e-005**		**1.5500e-003**	**1.5500e-003**		**1.4400e-003**	**1.4400e-003**	**0.0000**	**2.6205**	**2.6205**	**7.1000e-004**	**0.0000**	**2.6383**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	2.1000e-004	2.2900e-003	1.0000e-005	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.4900	0.4900	2.0000e-005	0.0000	0.4904
Total	**2.5000e-004**	**2.1000e-004**	**2.2900e-003**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4900**	**0.4900**	**2.0000e-005**	**0.0000**	**0.4904**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.1500e-003	0.0141	0.0209	3.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	2.6205	2.6205	7.1000e-004	0.0000	2.6383
Total	**1.1500e-003**	**0.0141**	**0.0209**	**3.0000e-005**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**	**0.0000**	**2.6205**	**2.6205**	**7.1000e-004**	**0.0000**	**2.6383**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5000e-004	2.1000e-004	2.2900e-003	1.0000e-005	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.4900	0.4900	2.0000e-005	0.0000	0.4904
Total	**2.5000e-004**	**2.1000e-004**	**2.2900e-003**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4900**	**0.4900**	**2.0000e-005**	**0.0000**	**0.4904**

3.6 Pump House Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0702	0.5995	0.4146	7.5000e-004		0.0311	0.0311		0.0299	0.0299	0.0000	64.4630	64.4630	0.0130	0.0000	64.7873
Total	**0.0702**	**0.5995**	**0.4146**	**7.5000e-004**		**0.0311**	**0.0311**		**0.0299**	**0.0299**	**0.0000**	**64.4630**	**64.4630**	**0.0130**	**0.0000**	**64.7873**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2500e-003	1.0700e-003	0.0115	3.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.5000e-004	2.0000e-005	6.8000e-004	0.0000	2.4498	2.4498	9.0000e-005	0.0000	2.4521
Total	**1.2500e-003**	**1.0700e-003**	**0.0115**	**3.0000e-005**	**2.4700e-003**	**2.0000e-005**	**2.4900e-003**	**6.5000e-004**	**2.0000e-005**	**6.8000e-004**	**0.0000**	**2.4498**	**2.4498**	**9.0000e-005**	**0.0000**	**2.4521**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0135	0.2911	0.4452	7.5000e-004		4.6500e-003	4.6500e-003		4.6500e-003	4.6500e-003	0.0000	64.4629	64.4629	0.0130	0.0000	64.7872
Total	**0.0135**	**0.2911**	**0.4452**	**7.5000e-004**		**4.6500e-003**	**4.6500e-003**		**4.6500e-003**	**4.6500e-003**	**0.0000**	**64.4629**	**64.4629**	**0.0130**	**0.0000**	**64.7872**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2500e-003	1.0700e-003	0.0115	3.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.5000e-004	2.0000e-005	6.8000e-004	0.0000	2.4498	2.4498	9.0000e-005	0.0000	2.4521
Total	**1.2500e-003**	**1.0700e-003**	**0.0115**	**3.0000e-005**	**2.4700e-003**	**2.0000e-005**	**2.4900e-003**	**6.5000e-004**	**2.0000e-005**	**6.8000e-004**	**0.0000**	**2.4498**	**2.4498**	**9.0000e-005**	**0.0000**	**2.4521**

3.7 Site Restoration - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.3900e-003	0.0502	0.0374	5.0000e-005		3.7200e-003	3.7200e-003		3.4200e-003	3.4200e-003	0.0000	4.4387	4.4387	1.3800e-003	0.0000	4.4732
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.3900e-003**	**0.0502**	**0.0374**	**5.0000e-005**		**3.7200e-003**	**3.7200e-003**		**3.4200e-003**	**3.4200e-003**	**0.0000**	**4.4387**	**4.4387**	**1.3800e-003**	**0.0000**	**4.4732**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.4000e-004	1.5300e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3266	0.3266	1.0000e-005	0.0000	0.3270
Total	**1.7000e-004**	**1.4000e-004**	**1.5300e-003**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.3266**	**0.3266**	**1.0000e-005**	**0.0000**	**0.3270**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.0900e-003	0.0212	0.0367	5.0000e-005		8.0000e-005	8.0000e-005		8.0000e-005	8.0000e-005	0.0000	4.4387	4.4387	1.3800e-003	0.0000	4.4732
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0900e-003**	**0.0212**	**0.0367**	**5.0000e-005**		**8.0000e-005**	**8.0000e-005**		**8.0000e-005**	**8.0000e-005**	**0.0000**	**4.4387**	**4.4387**	**1.3800e-003**	**0.0000**	**4.4732**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.4000e-004	1.5300e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3266	0.3266	1.0000e-005	0.0000	0.3270
Total	**1.7000e-004**	**1.4000e-004**	**1.5300e-003**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.3266**	**0.3266**	**1.0000e-005**	**0.0000**	**0.3270**

Palmdale WSMP Storage Tanks

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	3.42	1000sqft	0.08	3,421.00	0
General Light Industry	4.54	1000sqft	0.10	4,536.00	0
General Light Industry	18.27	1000sqft	0.42	18,267.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	9			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Off-road Equipment - See Construction Assumptions and Summaries

Trips and VMT - See Construction Assumptions and Summaries

Grading - See Construction Assumptions and Summaries

Architectural Coating - See Construction Assumptions and Summaries

Construction Off-road Equipment Mitigation - .

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	13,112.00	54,454.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	39,336.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	0.00
tblArchitecturalCoating	EF_Parking	100.00	0.00
tblArchitecturalCoating	EF_Residential_Exterior	50.00	0.00
tblArchitecturalCoating	EF_Residential_Interior	50.00	0.00
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	5.00	65.00
tblConstructionPhase	NumDays	100.00	28.00
tblConstructionPhase	NumDays	100.00	91.00
tblConstructionPhase	NumDays	2.00	30.00
tblConstructionPhase	NumDays	5.00	9.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	0.61
tblLandUse	BuildingSpaceSquareFeet	18,270.00	18,267.00
tblLandUse	BuildingSpaceSquareFeet	3,420.00	3,421.00
tblLandUse	BuildingSpaceSquareFeet	4,540.00	4,536.00
tblLandUse	LandUseSquareFeet	18,270.00	18,267.00
tblLandUse	LandUseSquareFeet	3,420.00	3,421.00
tblLandUse	LandUseSquareFeet	4,540.00	4,536.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	UsageHours	1.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblSolidWaste	SolidWasteGenerationRate	32.53	32.51
tblTripsAndVMT	VendorTripNumber	0.00	5.00
tblTripsAndVMT	VendorTripNumber	4.00	0.00
tblTripsAndVMT	VendorTripNumber	4.00	0.00
tblTripsAndVMT	WorkerTripNumber	30.00	15.00
tblTripsAndVMT	WorkerTripNumber	11.00	15.00
tblTripsAndVMT	WorkerTripNumber	11.00	21.00
tblTripsAndVMT	WorkerTripNumber	2.00	12.00
tblTripsAndVMT	WorkerTripNumber	15.00	12.00
tblWater	IndoorWaterUseRate	6,065,687.50	6,063,375.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.5510	3.6952	2.6032	4.6100e-003	0.2919	0.2059	0.4978	0.1545	0.1955	0.3499	0.0000	403.3139	403.3139	0.0889	0.0000	405.5350
Maximum	**0.5510**	**3.6952**	**2.6032**	**4.6100e-003**	**0.2919**	**0.2059**	**0.4978**	**0.1545**	**0.1955**	**0.3499**	**0.0000**	**403.3139**	**403.3139**	**0.0889**	**0.0000**	**405.5350**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.2809	1.6965	2.8314	4.6100e-003	0.1264	0.0308	0.1572	0.0636	0.0308	0.0943	0.0000	403.3134	403.3134	0.0889	0.0000	405.5346
Maximum	**0.2809**	**1.6965**	**2.8314**	**4.6100e-003**	**0.1264**	**0.0308**	**0.1572**	**0.0636**	**0.0308**	**0.0943**	**0.0000**	**403.3134**	**403.3134**	**0.0889**	**0.0000**	**405.5346**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**49.03**	**54.09**	**-8.76**	**0.00**	**56.70**	**85.06**	**68.43**	**58.84**	**84.27**	**73.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2018	3-31-2018	1.0851	0.3612
		Highest	1.0851	0.3612

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Prep/Grading	Grading	1/1/2018	2/3/2018	6	30	
2	Foundation Installation	Building Construction	2/4/2018	3/8/2018	6	28	
3	Tank Installation	Building Construction	3/9/2018	6/22/2018	6	91	
4	Tank Finishes	Architectural Coating	7/4/2018	9/17/2018	6	65	
5	Landscaping	Paving	6/23/2018	7/3/2018	6	9	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 54,454; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Excavators	2	8.00	158	0.38
Architectural Coating	Off-Highway Trucks	2	8.00	402	0.38
Architectural Coating	Off-Highway Trucks	1	8.00	402	0.38
Architectural Coating	Rubber Tired Dozers	2	8.00	247	0.40
Architectural Coating	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Prep/Grading	Air Compressors	0	6.00	78	0.48
Site Prep/Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Site Prep/Grading	Excavators	3	8.00	158	0.38
Site Prep/Grading	Off-Highway Trucks	3	4.00	402	0.38
Site Prep/Grading	Rubber Tired Dozers	3	8.00	247	0.40
Site Prep/Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Foundation Installation	Cement and Mortar Mixers	3	8.00	9	0.56
Foundation Installation	Cranes	0	4.00	231	0.29

Foundation Installation	Forklifts	0	6.00	89	0.20
Foundation Installation	Plate Compactors	3	8.00	8	0.43
Foundation Installation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Tank Installation	Aerial Lifts	3	8.00	63	0.31
Tank Installation	Concrete/Industrial Saws	0	8.00	81	0.73
Tank Installation	Cranes	3	8.00	231	0.29
Tank Installation	Forklifts	2	8.00	89	0.20
Tank Installation	Generator Sets	3	8.00	84	0.74
Tank Installation	Rubber Tired Dozers	0	1.00	247	0.40
Tank Installation	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Tank Installation	Welders	3	8.00	46	0.45
Tank Finishes	Air Compressors	3	8.00	78	0.48
Tank Finishes	Concrete/Industrial Saws	0	8.00	81	0.73
Tank Finishes	Forklifts	3	8.00	89	0.20
Tank Finishes	Pressure Washers	6	8.00	13	0.30
Tank Finishes	Rubber Tired Dozers	0	1.00	247	0.40
Tank Finishes	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Landscaping	Cement and Mortar Mixers	0	6.00	9	0.56
Landscaping	Pavers	0	7.00	130	0.42
Landscaping	Rollers	0	7.00	80	0.38
Landscaping	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Landscaping	Trenchers	3	8.00	78	0.50

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Prep/Grading	12	15.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Foundation Installation	9	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Tank Installation	14	21.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Tank Finishes	12	12.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Landscaping	6	12.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Prep/Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2713	0.0000	0.2713	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0949	1.0102	0.5440	1.0500e-003		0.0495	0.0495		0.0455	0.0455	0.0000	96.2345	96.2345	0.0300	0.0000	96.9835
Total	**0.0949**	**1.0102**	**0.5440**	**1.0500e-003**	**0.2713**	**0.0495**	**0.3208**	**0.1490**	**0.0455**	**0.1945**	**0.0000**	**96.2345**	**96.2345**	**0.0300**	**0.0000**	**96.9835**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.5000e-004	9.3900e-003	2.6400e-003	2.0000e-005	4.7000e-004	7.0000e-005	5.4000e-004	1.4000e-004	6.0000e-005	2.0000e-004	0.0000	1.8950	1.8950	1.3000e-004	0.0000	1.8983
Worker	1.2500e-003	1.0700e-003	0.0115	3.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.5000e-004	2.0000e-005	6.8000e-004	0.0000	2.4498	2.4498	9.0000e-005	0.0000	2.4521
Total	**1.6000e-003**	**0.0105**	**0.0141**	**5.0000e-005**	**2.9400e-003**	**9.0000e-005**	**3.0300e-003**	**7.9000e-004**	**8.0000e-005**	**8.8000e-004**	**0.0000**	**4.3448**	**4.3448**	**2.2000e-004**	**0.0000**	**4.3503**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1058	0.0000	0.1058	0.0581	0.0000	0.0581	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0171	0.3428	0.6432	1.0500e-003		1.7200e-003	1.7200e-003		1.7200e-003	1.7200e-003	0.0000	96.2344	96.2344	0.0300	0.0000	96.9834
Total	**0.0171**	**0.3428**	**0.6432**	**1.0500e-003**	**0.1058**	**1.7200e-003**	**0.1075**	**0.0581**	**1.7200e-003**	**0.0598**	**0.0000**	**96.2344**	**96.2344**	**0.0300**	**0.0000**	**96.9834**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.5000e-004	9.3900e-003	2.6400e-003	2.0000e-005	4.7000e-004	7.0000e-005	5.4000e-004	1.4000e-004	6.0000e-005	2.0000e-004	0.0000	1.8950	1.8950	1.3000e-004	0.0000	1.8983
Worker	1.2500e-003	1.0700e-003	0.0115	3.0000e-005	2.4700e-003	2.0000e-005	2.4900e-003	6.5000e-004	2.0000e-005	6.8000e-004	0.0000	2.4498	2.4498	9.0000e-005	0.0000	2.4521
Total	**1.6000e-003**	**0.0105**	**0.0141**	**5.0000e-005**	**2.9400e-003**	**9.0000e-005**	**3.0300e-003**	**7.9000e-004**	**8.0000e-005**	**8.8000e-004**	**0.0000**	**4.3448**	**4.3448**	**2.2000e-004**	**0.0000**	**4.3503**

3.3 Foundation Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0153	0.1365	0.1199	1.8000e-004		8.8400e-003	8.8400e-003		8.2200e-003	8.2200e-003	0.0000	15.1558	15.1558	4.0500e-003	0.0000	15.2570
Total	**0.0153**	**0.1365**	**0.1199**	**1.8000e-004**		**8.8400e-003**	**8.8400e-003**		**8.2200e-003**	**8.2200e-003**	**0.0000**	**15.1558**	**15.1558**	**4.0500e-003**	**0.0000**	**15.2570**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1600e-003	1.0000e-003	0.0107	3.0000e-005	2.3000e-003	2.0000e-005	2.3200e-003	6.1000e-004	2.0000e-005	6.3000e-004	0.0000	2.2865	2.2865	9.0000e-005	0.0000	2.2886
Total	**1.1600e-003**	**1.0000e-003**	**0.0107**	**3.0000e-005**	**2.3000e-003**	**2.0000e-005**	**2.3200e-003**	**6.1000e-004**	**2.0000e-005**	**6.3000e-004**	**0.0000**	**2.2865**	**2.2865**	**9.0000e-005**	**0.0000**	**2.2886**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.0800e-003	0.0829	0.1202	1.8000e-004		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	15.1558	15.1558	4.0500e-003	0.0000	15.2569
Total	**7.0800e-003**	**0.0829**	**0.1202**	**1.8000e-004**		**1.2300e-003**	**1.2300e-003**		**1.2300e-003**	**1.2300e-003**	**0.0000**	**15.1558**	**15.1558**	**4.0500e-003**	**0.0000**	**15.2569**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1600e-003	1.0000e-003	0.0107	3.0000e-005	2.3000e-003	2.0000e-005	2.3200e-003	6.1000e-004	2.0000e-005	6.3000e-004	0.0000	2.2865	2.2865	9.0000e-005	0.0000	2.2886
Total	**1.1600e-003**	**1.0000e-003**	**0.0107**	**3.0000e-005**	**2.3000e-003**	**2.0000e-005**	**2.3200e-003**	**6.1000e-004**	**2.0000e-005**	**6.3000e-004**	**0.0000**	**2.2865**	**2.2865**	**9.0000e-005**	**0.0000**	**2.2886**

3.4 Tank Installation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2291	1.9624	1.3686	2.4000e-003		0.1057	0.1057		0.1013	0.1013	0.0000	208.3550	208.3550	0.0433	0.0000	209.4385
Total	**0.2291**	**1.9624**	**1.3686**	**2.4000e-003**		**0.1057**	**0.1057**		**0.1013**	**0.1013**	**0.0000**	**208.3550**	**208.3550**	**0.0433**	**0.0000**	**209.4385**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2900e-003	4.5300e-003	0.0487	1.2000e-004	0.0105	1.0000e-004	0.0106	2.7800e-003	9.0000e-005	2.8700e-003	0.0000	10.4034	10.4034	3.9000e-004	0.0000	10.4132
Total	**5.2900e-003**	**4.5300e-003**	**0.0487**	**1.2000e-004**	**0.0105**	**1.0000e-004**	**0.0106**	**2.7800e-003**	**9.0000e-005**	**2.8700e-003**	**0.0000**	**10.4034**	**10.4034**	**3.9000e-004**	**0.0000**	**10.4132**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0985	0.9478	1.5064	2.4000e-003		0.0235	0.0235		0.0235	0.0235	0.0000	208.3547	208.3547	0.0433	0.0000	209.4383
Total	**0.0985**	**0.9478**	**1.5064**	**2.4000e-003**		**0.0235**	**0.0235**		**0.0235**	**0.0235**	**0.0000**	**208.3547**	**208.3547**	**0.0433**	**0.0000**	**209.4383**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2900e-003	4.5300e-003	0.0487	1.2000e-004	0.0105	1.0000e-004	0.0106	2.7800e-003	9.0000e-005	2.8700e-003	0.0000	10.4034	10.4034	3.9000e-004	0.0000	10.4132
Total	**5.2900e-003**	**4.5300e-003**	**0.0487**	**1.2000e-004**	**0.0105**	**1.0000e-004**	**0.0106**	**2.7800e-003**	**9.0000e-005**	**2.8700e-003**	**0.0000**	**10.4034**	**10.4034**	**3.9000e-004**	**0.0000**	**10.4132**

3.5 Tank Finishes - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1262					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0653	0.4777	0.4072	6.4000e-004		0.0350	0.0350		0.0340	0.0340	0.0000	53.7100	53.7100	8.1300e-003	0.0000	53.9133
Total	**0.1915**	**0.4777**	**0.4072**	**6.4000e-004**		**0.0350**	**0.0350**		**0.0340**	**0.0340**	**0.0000**	**53.7100**	**53.7100**	**8.1300e-003**	**0.0000**	**53.9133**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1600e-003	1.8500e-003	0.0199	5.0000e-005	4.2700e-003	4.0000e-005	4.3100e-003	1.1400e-003	4.0000e-005	1.1700e-003	0.0000	4.2463	4.2463	1.6000e-004	0.0000	4.2503
Total	**2.1600e-003**	**1.8500e-003**	**0.0199**	**5.0000e-005**	**4.2700e-003**	**4.0000e-005**	**4.3100e-003**	**1.1400e-003**	**4.0000e-005**	**1.1700e-003**	**0.0000**	**4.2463**	**4.2463**	**1.6000e-004**	**0.0000**	**4.2503**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1262					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0196	0.2667	0.3995	6.4000e-004		3.9400e-003	3.9400e-003		3.9400e-003	3.9400e-003	0.0000	53.7100	53.7100	8.1300e-003	0.0000	53.9132
Total	**0.1458**	**0.2667**	**0.3995**	**6.4000e-004**		**3.9400e-003**	**3.9400e-003**		**3.9400e-003**	**3.9400e-003**	**0.0000**	**53.7100**	**53.7100**	**8.1300e-003**	**0.0000**	**53.9132**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1600e-003	1.8500e-003	0.0199	5.0000e-005	4.2700e-003	4.0000e-005	4.3100e-003	1.1400e-003	4.0000e-005	1.1700e-003	0.0000	4.2463	4.2463	1.6000e-004	0.0000	4.2503
Total	**2.1600e-003**	**1.8500e-003**	**0.0199**	**5.0000e-005**	**4.2700e-003**	**4.0000e-005**	**4.3100e-003**	**1.1400e-003**	**4.0000e-005**	**1.1700e-003**	**0.0000**	**4.2463**	**4.2463**	**1.6000e-004**	**0.0000**	**4.2503**

3.6 Landscaping - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.7000e-003	0.0904	0.0673	9.0000e-005		6.6900e-003	6.6900e-003		6.1600e-003	6.1600e-003	0.0000	7.9896	7.9896	2.4900e-003	0.0000	8.0518
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.7000e-003**	**0.0904**	**0.0673**	**9.0000e-005**		**6.6900e-003**	**6.6900e-003**		**6.1600e-003**	**6.1600e-003**	**0.0000**	**7.9896**	**7.9896**	**2.4900e-003**	**0.0000**	**8.0518**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.6000e-004	2.7500e-003	1.0000e-005	5.9000e-004	1.0000e-005	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5880	0.5880	2.0000e-005	0.0000	0.5885
Total	**3.0000e-004**	**2.6000e-004**	**2.7500e-003**	**1.0000e-005**	**5.9000e-004**	**1.0000e-005**	**6.0000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.5880**	**0.5880**	**2.0000e-005**	**0.0000**	**0.5885**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.9600e-003	0.0382	0.0660	9.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	7.9896	7.9896	2.4900e-003	0.0000	8.0518
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.9600e-003**	**0.0382**	**0.0660**	**9.0000e-005**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**	**0.0000**	**7.9896**	**7.9896**	**2.4900e-003**	**0.0000**	**8.0518**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.6000e-004	2.7500e-003	1.0000e-005	5.9000e-004	1.0000e-005	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5880	0.5880	2.0000e-005	0.0000	0.5885
Total	**3.0000e-004**	**2.6000e-004**	**2.7500e-003**	**1.0000e-005**	**5.9000e-004**	**1.0000e-005**	**6.0000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.5880**	**0.5880**	**2.0000e-005**	**0.0000**	**0.5885**

AQ-3: Energy

Palmdale WSMP EIR
Construction Energy Analysis

Annual Fuel Summary

39,431	gallons of diesel fuel for heavy-duty construction equipment
3,873	gallons of fuel (primarily gasoline) for workers
13,144	Annual Average Gallons Diesel
1,291	Annual Average Gallons Gasoline
3.0	Near-Term Project Construction Duration (years)
23.0	Long-Term Project Construction Duration (years)
	Near-Term Fuel Usage
39,431	Total Gallons Diesel
3,873	Total Gallons Gasoline
	Long-Term Fuel Usage
302,306	Total Gallons Diesel
29,691	Total Gallons Gasoline

	State Fuel Consumption (2014, gallons)	Percent of Annual Project Compared to State
Diesel	3,300,000,000	0.00040%
Gasoline	14,400,000,000	0.00001%

Palmdale WSMP EIR
Construction Energy Analysis

Off-Road Equipment

Equipment ≤ 50 hp		
pounds fuel/hp-hr (OFFROAD2011 model, ≤ 50 hp):	0.408	lb/hp-hr
diesel pounds/gallon (CARB density assumption):	7.07	lb/gal
diesel gallons/hp-hr:	0.0577	gal/hp-hr
Total <50	62,565	hp-hr
Total diesel gallons:	3,611	gal
Equipment > 50 hp		
pounds fuel/hp-hr (OFFROAD2011 model, > 50 hp):	0.367	lb/hp-hr
diesel pounds/gallon (CARB density assumption):	7.07	lb/gal
diesel gallons/hp-hr:	0.0519	gal/hp-hr
Total >50	690,060	hp-hr
Total diesel gallons:	35,821	gal
Total diesel gallons (off-road equipment):	**39,431**	**gal**

Tier 4 Equipment: *420,366*
21,821
Estimated Fuel Savings from Tier 3: *2,425*

Phase	Equipment	Number	Hours/Day	HP	Load	Days	Total hp-hr
Storage Tanks							
Site Prep/Grading:	Heavy Equipment Transporter	1	4	402	0.38	30	18,423
	Backhoe	2	8	97	0.37	30	17,157
	Bulldozer	2	8	247	0.40	30	46,867
	Excavator	2	8	158	0.38	30	28,963
	Dump Truck	1	4	402	0.38	30	18,423
Foundation Installation:	Mixer Truck	2	8	9	0.56	28	2,258
	Backhoe	2	8	97	0.37	28	16,079
	Plate Compactor	2	8	8	0.43	28	1,541
Tank Installation:	Welder	2	8	46	0.45	91	30,139
	Crane	2	8	231	0.29	91	97,537
	Boom Lift	2	8	63	0.31	91	28,436
	Generator	2	8	84	0.74	91	90,505
	Forklift	2	8	89	0.2	91	25,917
Tank Finishes:	Sandblaster	2	8	13	0.3	65	4,056
	Compressor	2	8	78	0.48	65	38,938
	Sprayer	2	8	13	0.3	65	4,056
	Forklift	2	8	89	0.2	65	18,512
Landscaping:	Trencher	2	8	78	0.5	9	5,616
	Backhoe	2	8	97	0.37	9	5,168
Pump Stations							
Site Preparation:	Heavy Equipment Transporter	1	4	402	0.38	5	3,070
Yard Piping:	Backhoe	2	8	97	0.37	3	1,723
	Water Truck	2	2	402	0.38	3	1,833
	Excavator	2	8	158	0.38	3	2,882
Excavation/Grading:	Backhoe	2	8	97	0.37	3	1,723
	Bulldozer	2	8	247	0.4	3	4,742
	Excavator	2	8	158	0.38	3	2,882
	Dump Truck	1	4	402	0.38	3	1,833
Foundation Installation:	Mixer Truck	2	6	9	0.56	5	302
	Backhoe	2	8	97	0.37	5	2,871
	Concrete Compactor	2	8	8	0.43	5	275
Pump House Construction:	Welder	2	8	46	0.45	30	9,936
	Crane	2	8	231	0.29	30	32,155
	Boom Lift	2	8	63	0.31	30	9,374
	Generator	2	8	84	0.74	30	29,837
Site Restoration:	Trencher	2	8	78	0.5	5	3,120
	Backhoe	2	8	0.97	0.37	5	29
Pipelines							
Site Preparation:	Heavy Equipment Transporter	1	4	402	0.38	4	2,444
Traffic Control:	Signal Boards	4	8	6	0.82	55	8,659
Pothole:	Pothole Machine	1	8	78	0.48	11	3,295
Pipe Installation:	Backhoe	1	8	97	0.37	36	10,336
	Water Truck	1	4	402	0.38	36	21,997
	Excavator	1	8	158	0.38	36	17,292
	Dump Truck	1	8	402	0.38	36	43,995
	Generator	1	8	84	0.74	36	17,902
	Plate Compactor	1	8	8	0.43	36	991
Paving:	Cement Mixer	1	8	9	0.56	8	323
	Paver	1	8	130	0.42	8	3,494
	Dump Truck	1	8	402	0.38	8	9,777
	Roller	1	8	80	0.38	8	1,946
Site Restoration:	Trencher	1	8	78	0.5	5	1,560
	Backhoe	1	8	97	0.37	5	1,436
						Total >50	690,060
						Total <50	62,565

Palmdale WSMP EIR
Construction Energy Analysis

On-Road Workers (LDA, LDT1, LDT2)

EMFAC2014 Gasoline Fuel Consumption Factor:[1]	0.0422	gallons/mile
Total Worker VMT:	91,772	miles
Total VMT gasoline gallons (workers):	**3,873**	

1. California Air Resources Board, EMFAC2014 (California State-wide; LDA, LDT1, LDT2; CY 2017; Aggregate MY; Aggregate Speed)

Phase	Days	One-Way Trips/Day	Miles/Trip	VMT
Storage Tank				
Site Prep/Grading	30	15	14.7	6,615
Foundation Installation	28	15	14.7	6,174
Tank Installation	91	21	14.7	28,092
Tank Finishes	65	12	14.7	11,466
Landscaping	9	12	14.7	1,588
Pump Station				
Site Preparation	5	9	14.7	662
Yard Piping	3	15	14.7	662
Excavation/Grading	3	21	14.7	926
Foundation Installation	5	18	14.7	1,323
Pump House Construction	30	15	14.7	6,615
Site Restoration	5	12	14.7	882
Pipelines				
Site Preparation	4	9	14.7	529
Traffic Control	55	15	14.7	12,128
Pothole	11	12	14.7	1,940
Pipe Installation	36	18	14.7	9,526
Paving	8	15	14.7	1,764
Site Restoration	5	12	14.7	882
			Total Worker VMT:	91,772

Palmdale WSMP EIR
Operation Energy Analysis

Wells

Well #	Head (ft)	Capacity (gpm)	hp	kW
FW-01	406	512	52	39
FW-02	483	448	55	41
FW-03	450	500	57	43
FW-04	455	2150	247	185
FW-05	520	1000	131	98
			Total kW:	407

Pump Stations

	Pump #	Head (ft)	Capacity (gpm)	hp	kW
Near Term	EB-01	350	3500	350	263
Near Term	FB-01	200	300	75	56
Near Term	FB-02	282	650	25	19
				Total kW:	338
Long Term	EB-02	105	3500	155	116
Long Term	EB-03	146	1000	61	46
Long Term	EB-04	270	500	57	43
Long Term	FB-03	290	1000	122	92
Long Term	FB-04	181	2000	152	114
Long Term	FB-05	230	900	87	65
Long Term	FB-06	160	900	61	45
Long Term	FB-07	270	700	80	60
Long Term	FB-08	290	1000	122	92
Long Term	FB-09	60	3800	96	72
Long Term	FB-10	630	600	159	119
Long Term	FB-11	220	1100	102	76
Long Term	FB-12	200	6800	572	429
				Total kW:	1369

Conversion Factor	0.75	hp/kW
Specific Gravity	1	kg/m3
Pump Efficiency	0.6	

Appendix BIO

Biological Resources Technical Report

ESA

PALMDALE WATER DISTRICT
2016 WATER SYSTEM MASTER PLAN

Biological Resources Technical Report

Prepared for:
Palmdale Water District

July 2018

ESA

PALMDALE WATER DISTRICT
2016 WATER SYSTEM MASTER PLAN

Biological Resources Technical Report

Prepared for:
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550

July 2018

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PALMDALE WATER DISTRICT
2016 WATER SYSTEM MASTER PLAN

Biological Resources Technical Report

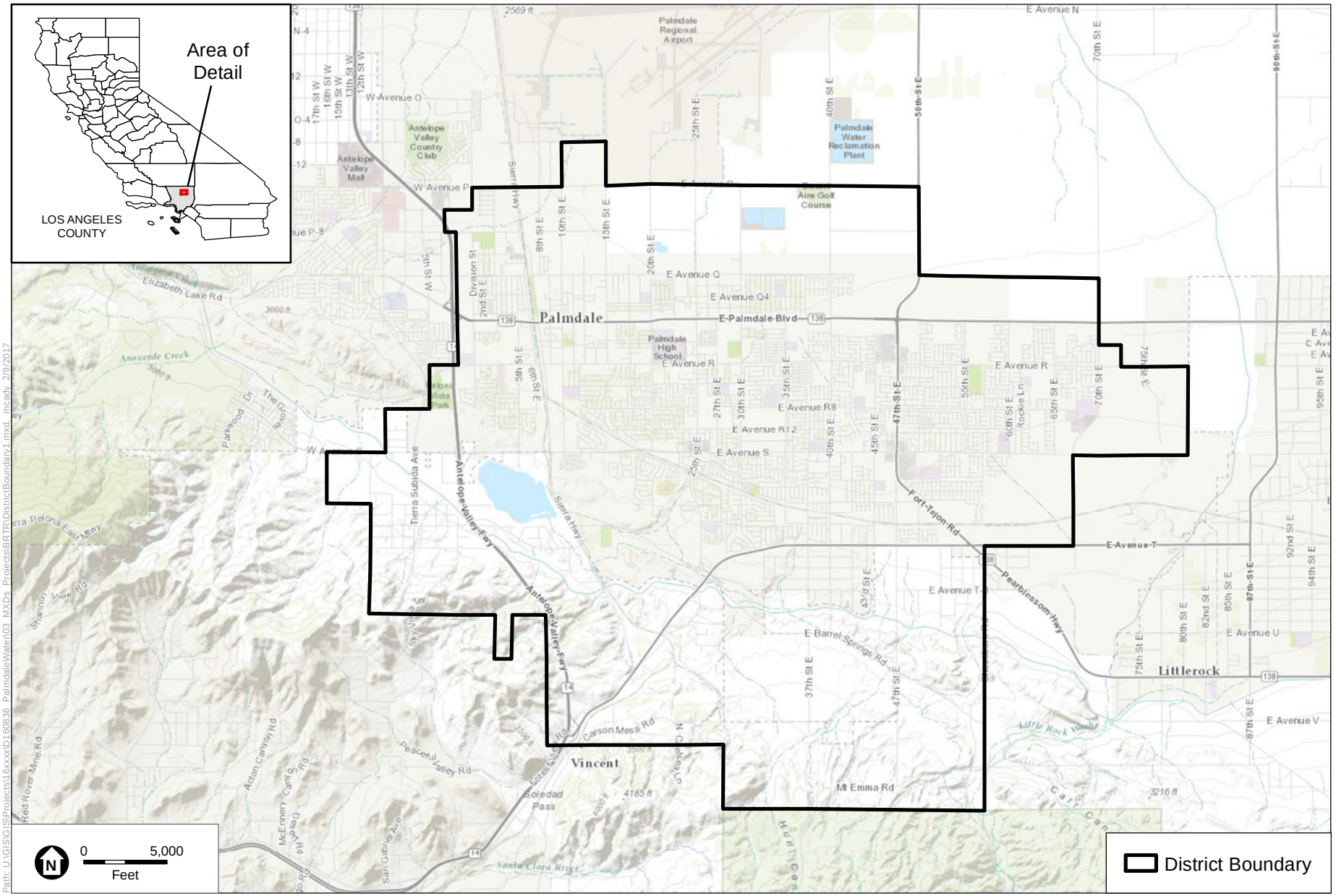
1. Introduction and Project Background

This report has been prepared to document biological resources that occur, or have the potential to occur, within or adjacent to the Palmdale Water District (PWD) primary service area for the 2016 Water System Master Plan Program (WSMP) Project (project). This report describes the environmental conditions, including plant communities, habitats and sensitive biological resources that have the potential to be impacted by the project, and the regulatory framework that would be applicable for minimizing and avoiding impacts to sensitive biological resources.

2. Project Location and Description

The PWD primary service area is located in southern California, approximately 60 miles northeast of the City of Los Angeles, within the Antelope Valley, as shown in **Figure 1**. PWD's primary service area includes the majority of the City of Palmdale and portions of unincorporated Los Angeles County. PWD's primary service area is bordered to the south and west by the San Gabriel Mountain Range, the north by the City of Lancaster, and the east by the unincorporated community of Littlerock. The primary service area encompasses 47 square miles of mainly developed areas of the City of Palmdale and surrounding sphere of influence, with agricultural uses around its perimeter. The proposed project also includes facilities that would be located outside of PWD primary service area in either the City of Palmdale or unincorporated Los Angeles County.

PWD, as the lead agency pursuant to the California Environmental Quality Act (CEQA), is proposing to implement the 2016 WSMP that outlines a programmatic plan for developing PWD's potable water system over the next 25 years. The WSMP provides details for its proposed Capital Improvement Plan (CIP) consisting of recommended projects that will allow PWD to address existing system deficiencies, replace aging infrastructure, and provide the facilities necessary to meet future growth. The proposed project would involve construction of water system improvements throughout the PWD service area in order to meet potable water system needs.



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SOURCE: ESRI

Palmdale Water District

Figure 1
District Boundary

ESA

The proposed project would implement the CIP included in the WSMP. The recommended projects in the CIP would allow PWD to address existing hydraulic system deficiencies, replace aging infrastructure, and provide the facilities necessary to meet future growth. The major categories of facilities in the proposed project consist of distribution pipelines, storage tanks, and pump stations, as shown in **Figure 2**. Projects are categorized into two planning stages: constructed by 2020 and constructed after 2020. Projects constructed by 2020 are considered near-term project components (NTPC) and will be evaluated at a project level in the Program Environmental Impact Report (PEIR), while projects constructed after 2020 are considered long-term project components and will be evaluated at a programmatic level in the PEIR. Project-level CEQA documentation would be required for long-term projects.

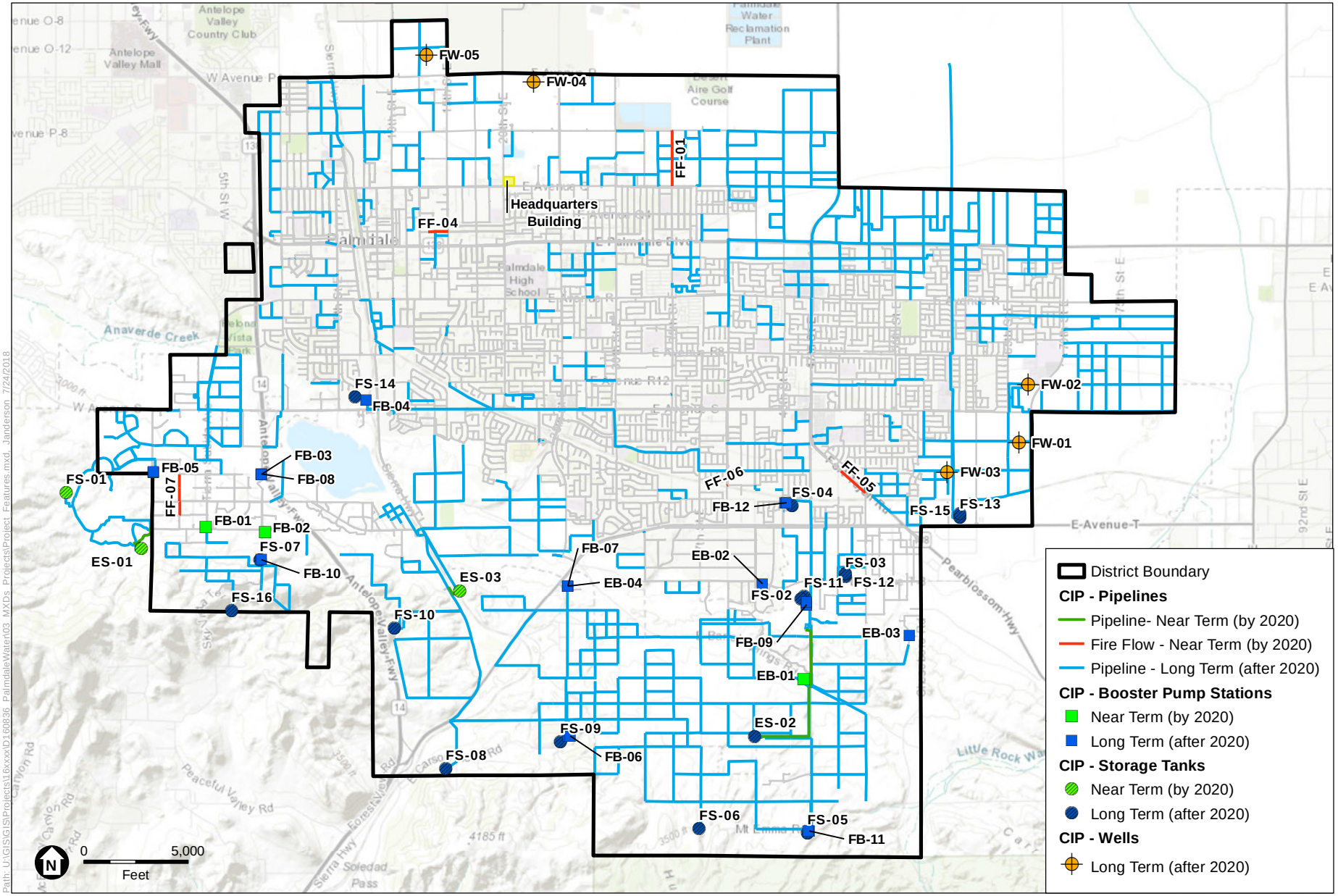
2.1 Near-Term Project Components (by 2020)

Improvements to address existing water system deficiencies that critically affect the ability of PWD to provide a reliable water supply to its customers are assigned highest priority and are scheduled to be constructed prior to 2020. These near-term projects involve either construction of new facilities to compensate for anticipated future growth or improvement of existing facilities that require replacement or upgrades due to system deficiencies. Specifically, the project near-term components include three storage tanks, three new pumps at existing booster pump stations, and segments of transmission pipelines.

2.1.1 Storage Tanks

Three new storage tanks would be constructed to meet existing storage deficiencies within each tank's respective pressure zone.

- Storage tank ES-01 would be constructed approximately 500 feet west of PWD's western service boundary within the new Quail Valley development (Assessor Parcel No. [APN] 3054-004-016), located approximately one mile southwest of Lake Palmdale in an unincorporated portion of Los Angeles County. Storage tank ES-01 would have a diameter of 76 feet and a height of 30 feet. Storage Tank ES-01 would have a footprint of 4,536 square feet (SF) and a capacity of 1.0 million gallons (MG). See **Figure 3a** for the proposed location of storage tank ES-01.
- Storage tank FS-01 would be constructed approximately 1,700 feet west of PWD's western service boundary within the new Quail Valley development (APN 3054-004-016) in an unincorporated portion of Los Angeles County. Storage tank FS-01 would have a diameter of 66 feet and a height of 30 feet. Storage Tank FS-01 would have a footprint of 3,421 SF and a capacity of 0.75 MG. See Figure 3a for the proposed location of storage tank FS-01.
- Storage tank ES-03 would be constructed near the intersection of Sierra Highway and Rae Street (APN 3054-004-016) and within the PWD's service area. Storage tank ES-03 would have a diameter of 154 feet and a height of 30 feet. Storage tank ES-03 would have a footprint of 18,627 SF and a capacity of 4.2 MG. See **Figure 3b** for the proposed location of storage tank ES-03.

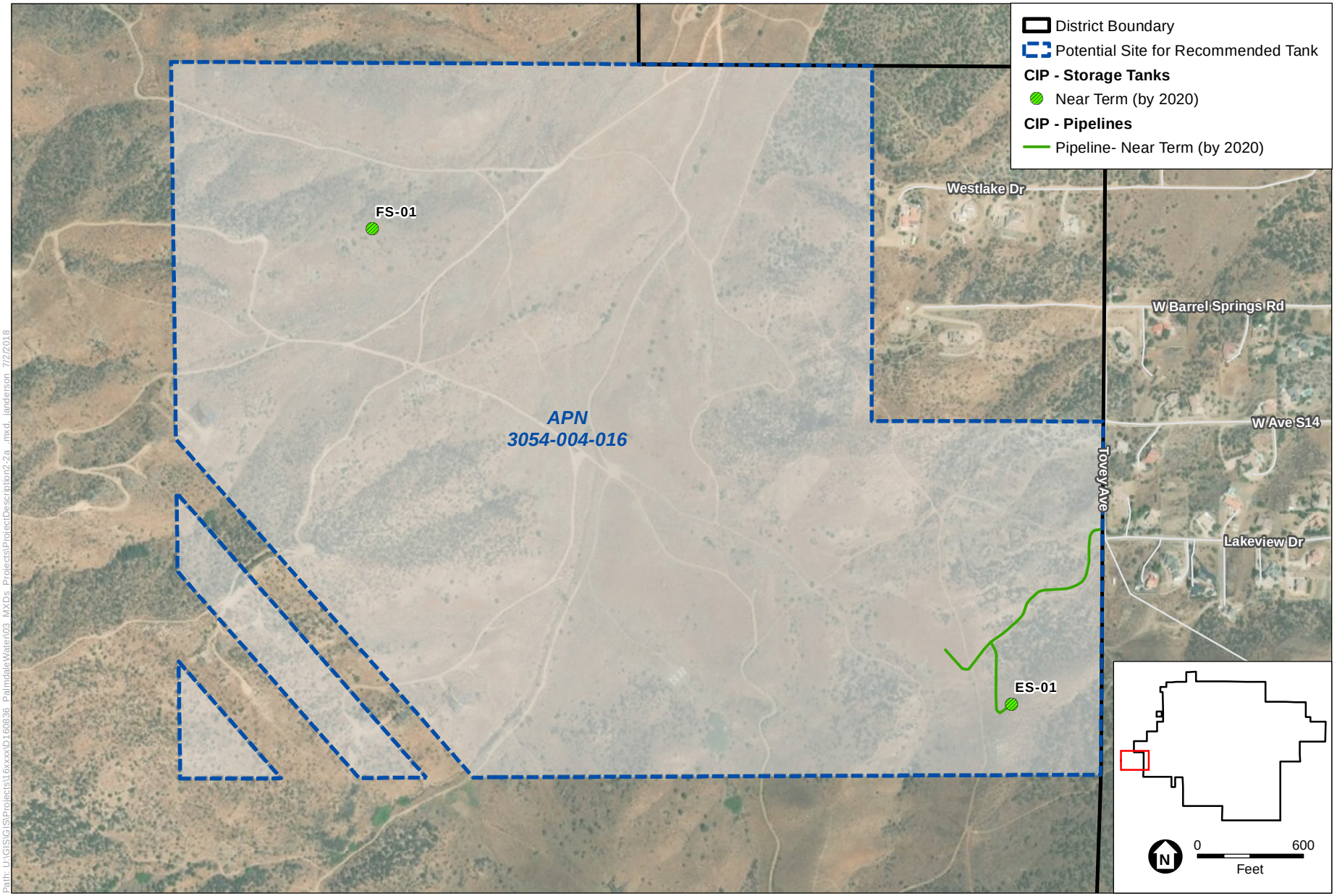


SOURCE: Palmdale Water 2017

Palmdale Water District

Figure 2
2016 Water System Master Plan
Proposed Components

ESA

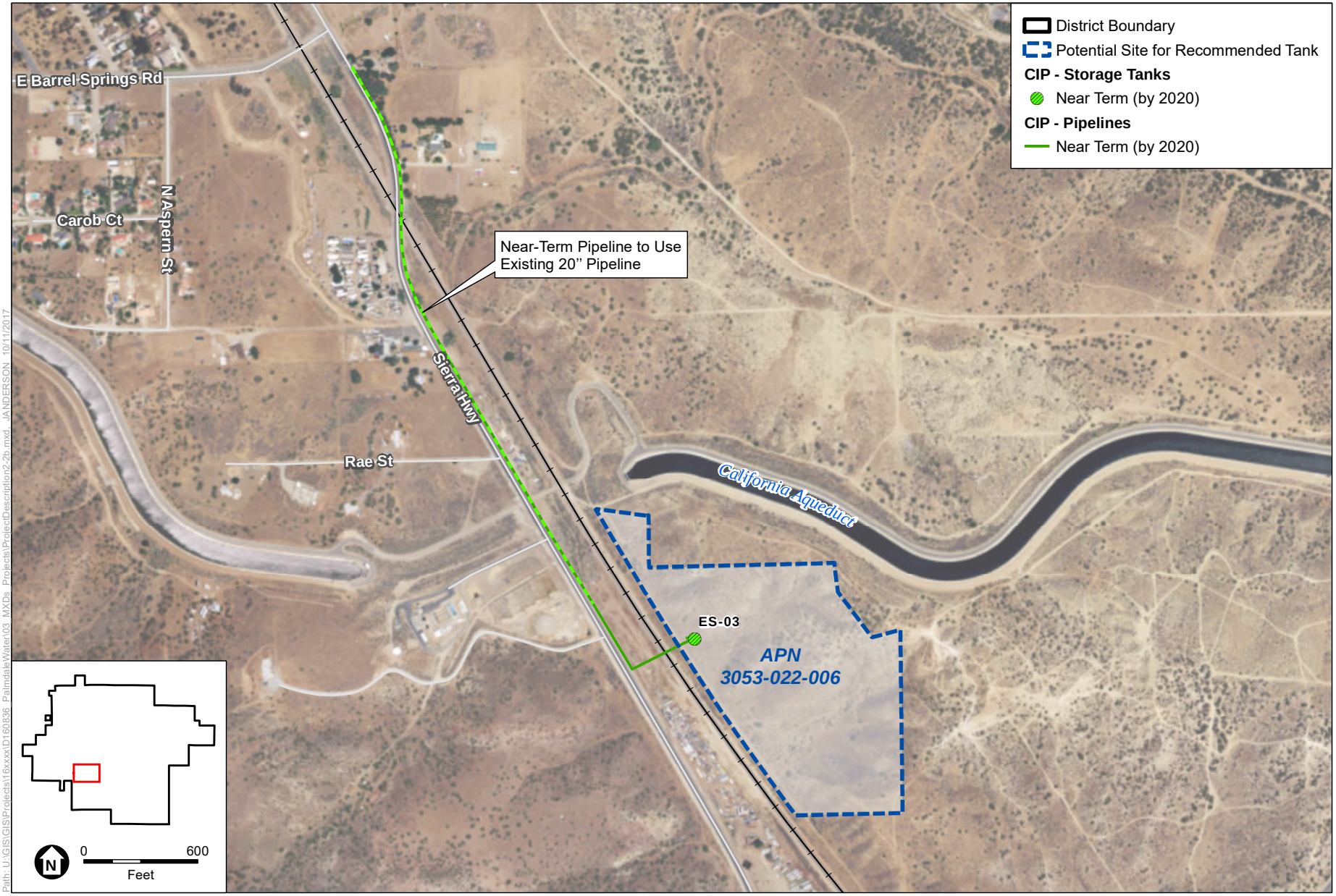


SOURCE: ESRI; Los Angeles County; Palmdale Water 2017

Palmdale Water District

Figure 3a
Storage Tanks ES-01 and FS-01

ESA



SOURCE: ESRI; Los Angeles County; Palmdale Water 2017

Palmdale Water District

Figure 3b
Storage Tank ES-03

ESA

2.1.2 Pump Stations

Three new pumps would be installed at existing pump stations to meet fire flow requirements and improve upon hydraulic deficiencies. One new pump would be installed at the existing V-5 Booster Station (EB-01), near the northwest corner of 47th Street East and Barrel Springs Road, see **Figure 3c**. New pumps also would be installed at the existing 3,600 Ft Booster Pump Station (FB-01), near the intersection of Tierra Subida Avenue and Lakeview Drive, and the existing El Camino Underground Pump Station (FB-02), near the intersection of El Camino Drive and Lakeview Drive. **Figure 3d** shows the locations of FB-01 and FB-02.

2.1.3 Pipelines

Multiple segments of transmission pipelines would be constructed throughout the PWD service area as part of the 2015-2020 planning horizon for CIP implementation. Pipelines to be constructed include fire flow projects, age-based pipeline improvements, and pipeline expansion projects. Estimated segments of pipeline are described below.

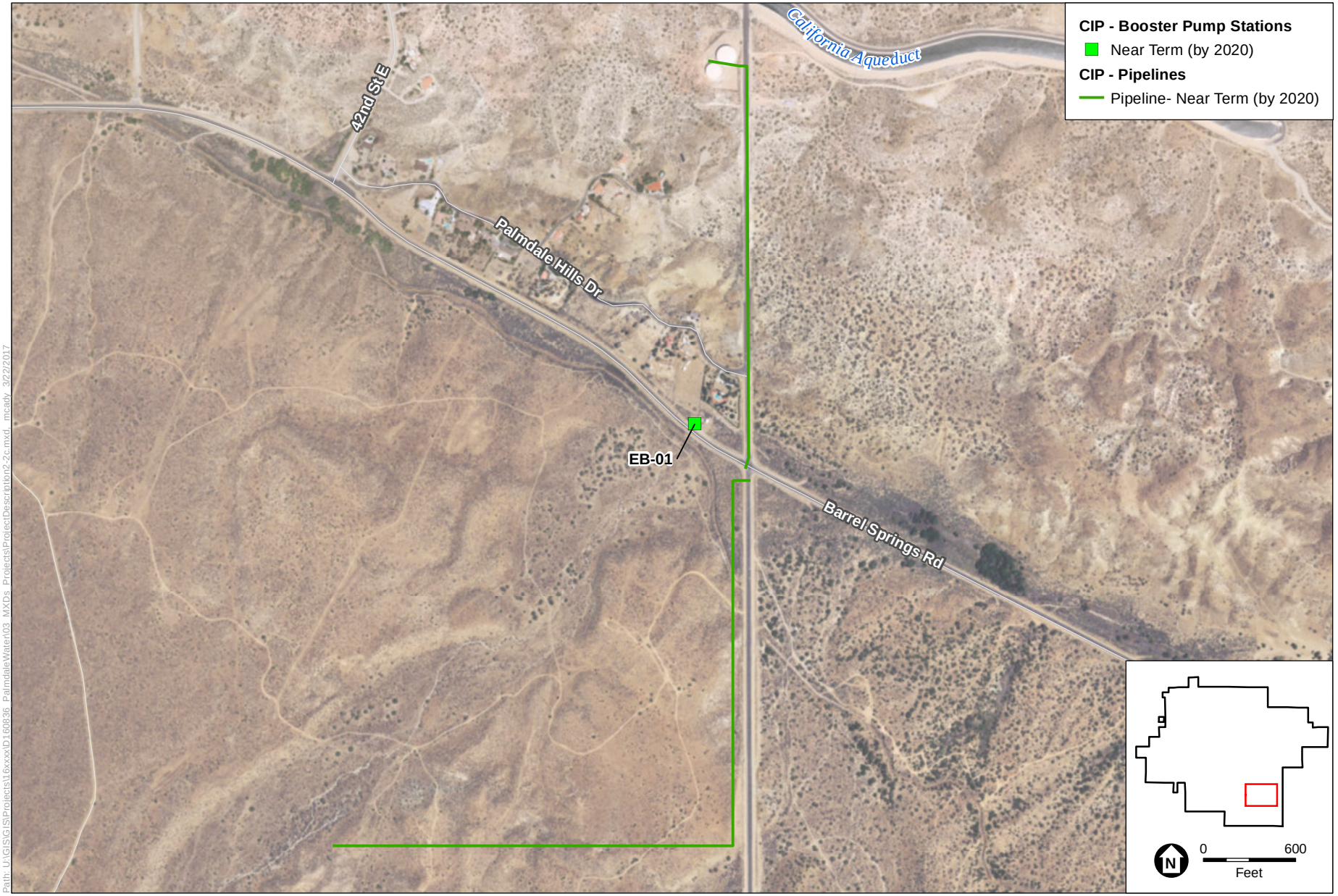
2.1.3.1 Fire Flow Projects

All pipelines to be constructed for fire flow projects are shown on **Figure 3e** and **Figure 3f**.

- Approximately 2,675 feet of 12-inch diameter pipeline replacement along 35th Street East, connecting between East Avenue Q and the Palmdale Water Reclamation Plant (FF-01);
- Approximately 965 feet of 12-inch diameter pipeline along Avenue Q-6 between 12th Street East and 15th Street East (FF-04);
- Approximately 1,570 feet of 16-inch diameter pipeline along Fort Tejon Road and 52nd Street East (FF-05);
- Approximately 48 feet of 8-inch diameter pipeline on Avenue S-10 between 40th Street East and 42nd Street East (FF-06); and
- Approximately 1,400 feet of 8-inch diameter pipeline north of Barrel Springs Drive and Camares Drive, within the Quail Valley development area (FF-07).

2.1.3.2 Pipeline Improvements and Expansion

- Pipeline along 47th Street East, connecting the proposed improvements at pump station EB-01 south and then extending the pipeline west through undeveloped land to an existing deficiency recommended tank (see **Figure 3c**);
- Pipeline within the ROW of Sierra Highway, connecting an existing storage tank and pump station southeast to the deficiency recommended tank ES-03 (see **Figure 3b**); and
- Pipeline west of Lakeview Drive through undeveloped land connecting to the proposed storage tank ES-01 (see **Figure 3a**).



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SOURCE: ESRI; Los Angeles County; Palmdale Water 2017

Palmdale Water District

Figure 3c
Pump Station EB-01

ESA

SOURCE: ESRI; Los Angeles County; Palmdale Water 2017

Palmdale Water District

Figure 3d
Pump Stations FB-01 and FB-02

ESA

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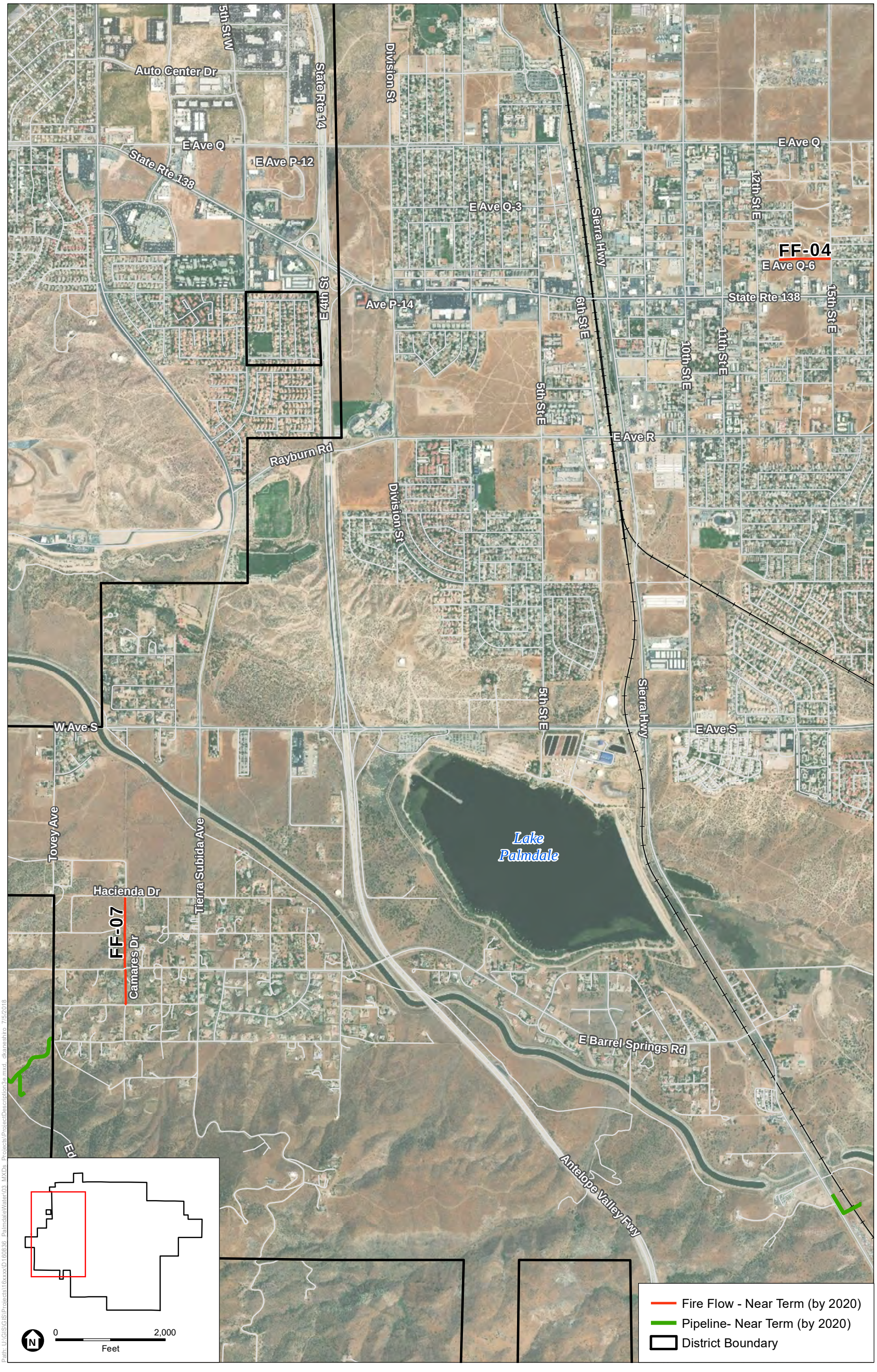

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SOURCE: ESRI; Palmdale Water 2017

Palmdale Water District

Figure 3e
Near Term Pipelines – West

ESA

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SOURCE: ESRI; Palmdale Water 2017

Palmdale Water District

Figure 3f
Near Term Pipelines – East

ESA

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2.2 Long-Term Project Components

Improvements that address existing system deficiencies that are not considered immediately critical or high priority by PWD are proposed as long-term project components. The construction of long-term projects would start in 2021 and continue through buildout, which is anticipated to be in 2040. The phasing of long-term project improvements is based upon many factors, such as the actual rate of growth and the timing of developments expected in the PWD service area. The long-term project components would include the construction of new facilities or improvements to existing facilities, consisting of 16 storage tanks, 7 new pumps at five existing pump stations, 6 new pump stations, 5 production wells, and over 700,000 feet of transmission pipelines ranging from 6-to 24-inches in diameter shown on **Figure 2**. Since the buildout of long-term project components is based on the projected demands for each pressure zone and is subject to the availability of funds, the phasing of the long-term projects is presented as a planning guideline for their future implementation (see **Table 1** and **2**). The actual timing of future facilities will be dependent upon the actual rate of growth and the timing of new developments expected in the service area.

TABLE 1
LONG-TERM STORAGE TANKS

ID	Description and Purpose of Improvement
Phase 2021-2025	
ES-02	New tank location near 47th St and East Avenue V4 (South of E Barrel Springs Road)
FS-05	New tank location on Mt. Emma Rd. and 47th Street E
Phase 2026-2030	
FS-02	New tank location on 47th Street E, South of E Avenue T-8
FS-03	New tank at existing 50th Street tank location
FS-04	New tank at existing 45th Street tank location
Build-out (2040)	
FS-06	New tank location on Mt. Emma Rd
FS-07	Additional tank located at Upper El Camino
FS-08	New tank location at E Carson Mesa Rd and N. Rough Rd
FS-09	New tank location at E Carson Mesa Rd and N Chelsea Ln
FS-10	New tank location north of Rae St and close to the CA-14 N
FS-11	New tank at 47St and E Avenue T-8
FS-12	New tank at existing 50th St tank location
FS-13	New tank location on E Avenue T and 60th Street.
FS-14	6 MG tank near existing 6 MG Clearwell
FS-15	New tank at E Avenue T and 60th Street
FS-16	New tank location at Desert Spring Road and Tierra Subida Ave

1) ES = Existing Storage Tanks, FS = Future Storage Tanks
2) One equivalent dwelling unit (EDU) = 500 gallons per day

TABLE 2
LONG-TERM PUMP STATIONS

ID	Description and Purpose of Improvement
Phase 2021-2025	
EB-02	Fire pumps at existing T-8 Pump Station. Required to meet fire flow requirements
EB-03	Fire pumps at existing Hilltop Pump Station. Required to meet fire flow requirements
EB-04	Fire pumps at existing 5 MG Booster Pump Station. Required to meet fire flow requirements
Phase 2026-2030	
FB-03	New pump at Lower El Camino Pump Station
FB-04	New pump at existing Clearwell 2950 booster PS at WTP to supply additional capacity to the 2950 zone.
Build-out (2040)	
FB-05(1)	New booster pump station at Ana Verde Tovey Tank
FB-06(1)	New pump station on Steven Ambers Way and E Carson Mesa Rd
FB-07	New pump at existing 5 MG Pump Station
FB-08	New pump at Lower El Camino Pump Station
FB-09(1)	New booster pump station at E Avenue T-8 and 47 Street.
FB-10(1)	New booster PS at Upper El Camino tank to 4000 Zone
FB-11(1)	New pump Station on Mt. Emma Rd and 47th Street.
FB-12(1)	New pump station at 45th St existing pump station site (2 pumps)

1) New pump station
2) EB = Existing Booster Pump Improvement, FB = Future Booster Pump Improvement
3) On equivalent dwelling unit (EDU) = 500 gallons per day.

SOURCE: PWD 2016

3. Regulatory Framework

The following provides a general description of the applicable regulatory requirements for the proposed project activities, including both state and federal policies.

3.1 Federal

3.1.1 Endangered Species Act (USC, Title 16, § 1531 through 1543)

The federal Endangered Species Act (FESA) and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend. In addition, the FESA defines species as threatened or endangered and provides regulatory protection for listed species. The FESA also provides a program for the conservation and recovery of threatened and endangered species as well as the conservation of designated critical habitat that USFWS determines is required for the survival and recovery of these listed species.

Section 7 of the FESA requires federal agencies, in consultation with and assistance from the Secretary of the Interior or the Secretary of Commerce, as appropriate, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) share responsibilities for administering the FESA. Regulations governing interagency cooperation under Section 7 are found in CCR Title 50, Part 402. The opinion issued at the conclusion of consultation will include a statement authorizing "take" (i.e., to harass, harm, pursue, hunt, wound, kill, etc.) that may occur incidental to an otherwise legal activity.

Section 9 lists those actions that are prohibited under the FESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 10 provides a means whereby a nonfederal action with the potential to result in take of a listed species can be allowed under an incidental take permit. Application procedures are found at 50 CFR 13 and 17 for species under the jurisdiction of USFWS and 50 CFR 217, 220, and 222 for species under the jurisdiction of NMFS.

3.1.2 Migratory Bird Treaty Act (16 USC 703 through 711)

The Migratory Bird Treaty Act (MBTA) is the domestic law that affirms, or implements, a commitment by the U.S. to four international conventions (with Canada, Mexico, Japan, and Russia) for the protection of a shared migratory bird resource. The MBTA makes it unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, or kill migratory birds. The law also applies to the removal of nests occupied by migratory birds during the breeding season. The MBTA makes it unlawful to take, pursue, molest, or disturb these species, their nests, or their eggs anywhere in the United States.

3.1.3 Federal Clean Water Act (33 USC 1251 through 1376)

The Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires a project operator for a federal license or permit that allows activities resulting in a discharge to waters of the U.S. to obtain state certification, thereby ensuring that the discharge will comply with provisions of the CWA. The California State Water Resources Control Board administers the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the United States. Section 404 establishes a permit program administered by the U.S. Army Corps of Engineers (USACE) that regulates the discharge of dredged or fill material into waters of the United States, including wetlands. USACE implementing regulations are found at 33 CFR 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the

United States Environmental Protection Agency in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Wetlands and Other Waters of the United States

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources and can fall under the jurisdiction of several regulatory agencies. USACE exerts jurisdiction over waters of the United States, including all waters that are subject to the ebb and flow of the tide; wetlands and other waters such as lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds; and tributaries of the above features. The extent of waters of the United States is generally defined as that portion that falls within the limits of the ordinary high water mark (OHWM). Typically, the OHWM corresponds to the two-year flood event.

Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas, are defined by USACE as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (USACE 1987).

3.2 State

3.2.1 California Endangered Species Act (California Fish and Game Code § 2050 et seq.)

The California Endangered Species Act (CESA) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. The CESA mandates that state agencies should not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no state agency consultation procedures under the CESA. For projects that would affect a listed species under both the CESA and the FESA, compliance with the FESA would satisfy the CESA if the California Department of Fish and Wildlife (CDFW) determines that the federal incidental take authorization is "consistent" with the CESA under California Fish and Game Code Section 2080.1. For projects that would result in take of a species listed under the CESA only, the project operator would have to apply for a take permit under Section 2081(b).

3.2.2 California State Fish and Game Code § 1600 et seq.

Under these sections of the California Fish and Game Code, the project operator is required to notify CDFW prior to any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the code, a "stream" is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having

banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports or has supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial watercourses valuable to fish and wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events.

Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement, which becomes part of the plans, specifications, and bid documents for the project.

3.2.3 California State Fish and Game Code §§ 2080 and 2081

Section 2080 of the California Fish and Game Code states that "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to Section 2081 of the code, CDFW may authorize individuals or public agencies to import, export, take, or possess State-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or Memoranda of Understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by CDFW, which makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

3.2.4 California State Fish and Game Code §§ 3503 and 3503.5

Under these sections of the California Fish and Game Code, the project operator is not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds of prey; the taking or possessing of any migratory nongame bird as designated in the MBTA; the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or nongame birds protected by the MBTA; or the taking of any nongame bird pursuant to California Fish and Game Code Section 3800.

3.2.5 California Environmental Quality Act Guidelines, § 15380

Although threatened and endangered species are protected by specific federal and state statutes, *California Environmental Quality Act (CEQA) Guidelines* § 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on,

for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected, and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the *CEQA Guidelines* for addressing impacts. Local planning documents such as general plans often identify these resources as well.

3.2.6 Native Plant Protection Act (California Fish and Game Code §§ 1900 through 1913)

California's Native Plant Protection Act (NPPA) requires all state agencies to use their authority to carry out programs to conserve endangered and rare native plants. Provisions of the NPPA prohibit the taking of listed plants from the wild and require notification of CDFW at least 10 days in advance of any change in land use. This allows CDFW to salvage listed plant species that would otherwise be destroyed. The project operator is required to conduct botanical inventories and consult with CDFW during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants. However, this act does not apply to the clearing of land for agricultural purposes or to public agencies and does not apply to this project.

3.2.8 Regional Water Quality Control Board

Under Section 401 of the CWA, the RWQCB must certify that actions receiving authorization under Section 404 of the CWA also meet state water quality standards. The RWQCB also regulates waters of the state under the Porter-Cologne Act Water Quality Control Act (Porter Cologne Act). The RWQCB requires projects to avoid impacts to wetlands if feasible and requires that projects do not result in a net loss of wetland acreage or a net loss of wetland function and values. The RWQCB typically requires compensatory mitigation for impacts to wetlands and/or waters of the state. The RWQCB also has jurisdiction over waters deemed 'isolated' or not subject to Section 404 jurisdiction under the SWANCC decision. Dredging, filling, or excavation of isolated waters constitutes a discharge of waste to waters of the state and prospective dischargers are required obtain authorization through an Order of Waste Discharge or waiver thereof from the RWQCB and comply with other requirements of Porter-Cologne Act.

3.3 Local

3.3.1 Los Angeles County General Plan

The Los Angeles County 2035 General Plan provides the policy framework for how and where the unincorporated County will grow through the year 2035, and is designed to guide the long-term physical development and conservation of the County's land and environment in the unincorporated areas, through a framework of goals, policies and implementation programs.

The Significant Ecological Areas (SEA) Program (Los Angeles County Department of Regional Planning 2009) is a component of General Plan 2035. An SEA is a designation given to land that contains irreplaceable biological resources. The objective of the SEA Program is to preserve the genetic and physical diversity of the County by designing biological resource areas capable of sustaining themselves in the future. The County's current SEAs are regulated by a conditional use permit (CUP) to Significant Ecological Areas Technical Advisory Committee (SEATAC) Review. SEATAC is an advisory committee to the Regional Planning Commission. SEATAC reviews conceptual project designs and carefully evaluates the biologic resources within a project site, taking into account the surrounding area (e.g., linear features such as streams). This process supports consideration and approval of the CUP for any project that occurs in an SEA.

3.3.2 City of Palmdale's Joshua Tree and Native Desert Vegetation Preservation Ordinance

City of Palmdale's "Joshua Tree and Native Desert Vegetation" ordinance (Chapter 14.04) was established to protect and preserve desert vegetation, particularly Joshua trees (*Yucca brevifolia*) and California juniper (*Juniperus californica*), but also species protected under the California Desert Native Plants Act (Food and Agricultural Code section 80001, et seq.). All development proposal applications for sites containing native desert vegetation shall include a desert vegetation preservation plan, submitted with the development application, to receive a native desert vegetation removal permit from the City of Palmdale. All development proposals for land which contains desert vegetation shall be subject to the provisions stated in the ordinance regarding the preservation of native desert vegetation both on-and off-site.

4. Methodology

The following describes the methodology used to determine the biological resources characteristics and species potential for the PWD primary service area, as well as an additional parcel (Assessor Parcel No. 3054-004-016) located adjacent to the southwest boundary of the primary service area, which constitutes the "study area."

4.1 Background Research and Desktop Analysis

A literature and database review was conducted that included a review of aerial photographs (Holland 2017) of the study area and surrounding vicinity, and United States Geological Survey (USGS) topographic maps. Biological resource databases that were queried included the CDFW California Natural Diversity Database (CNDDB), California Native Plant Society (CNPS) On-line Inventory of Rare and Endangered Vascular Plants of California, and the USFWS Information, Planning, and Conservation System (IPaC). Additional resources reviewed included:

- USGS Gap Analysis Program (GAP) Land Cover Data Set (USGS 2011).
- USFWS web-based Critical Habitat Portal map application (USFWS 2017a).
- eBird's web-based bird database (Sullivan et al. 2009).
- Calflora's *What Grows Here* web-based plant database (Calflora 2017).

- USFWS web-based Wetlands Mapper (USFWS 2017b).
- USFWS National Wetlands Inventory data (USFWS 2017c).
- U.S. Department of Agriculture (USDA)-Natural Resources Conservation Service Web Soil Survey (USDA 2017).
- Los Angeles County SEA Program (Los Angeles County 2017).

Database searches helped identify which special-status species have been previously recorded within the region, which assisted in establishing a list of "target species" that could be affected by the implementation of the project. The CNDDB, CNPS and IPaC were queried for special-status resources with the potential to occur within the USGS *Palmdale* 7.5-minute topographic quadrangle map for which the project area occurs, and the surrounding eight quadrangles: *Lancaster West, Lancaster West, Alpine Butte, Ritter Ridge, Littlerock, Acton, Pacifico Mountain,* and *Juniper Hills*. The CNDDB was also queried for the purposes of identifying sensitive natural communities that have been recorded in the vicinity of the project area. Sensitive natural communities are designated as such by various resource agencies, such as the CDFW, or in local policies and regulations, and are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent or distribution, and are considered threatened enough to warrant some level of protection. Sensitive natural communities include those that are identified in the CDFW *List of California Terrestrial Communities* (CDFW 2010).

4.2 Biological Resources Reconnaissance Survey

A biological resources reconnaissance survey was conducted by ESA Senior Biologist Michael Cady on July 6, 2017, that focused on the NTPC within the study area. The reconnaissance survey was conducted on foot within accessible portions of each component and the surrounding vicinity. Additionally, a windshield survey was conducted through the remaining portions of the survey area to groundtruth the background research and desktop analysis.

The ESA biologist identified potential biological resources within the study area. Special attention was paid to habitats having the potential to support sensitive biological resources (e.g., special-status species, sensitive natural communities and riparian habitats), including waterways and associated habitats potentially subject to U.S. Army Corps of Engineers (USACE), CDFW, and/or RWQCB jurisdiction. Aerial photography and Geographic Positioning System (GPS) technology was used to accurately record the location of any sensitive biological resources encountered.

During the biological resource reconnaissance survey, plant communities were characterized to quantify their limits within the study area. Plant communities were initially mapped directly on aerial photographs and then digitized in ArcGIS. Plant taxonomy followed Hickman (1993), as updated in Baldwin, et al. (2012), and plant community descriptions were characterized using Sawyer et al. (2009); however, plant communities, land uses and habitats not clearly described within the manuals were characterized based on the CDFW's *List of California Terrestrial Natural Communities* (CDFW 2010) and/or based on the dominant species or other visual characteristics observed. Representative photographs are included in **Appendix A**.

Wildlife species were identified during the field reconnaissance by sight or call, or other evidence of presence such as tracks, nests, scat, or remains, and with use of taxonomic keys where appropriate. Vertebrate taxonomy followed CDFW (2016) for fish, amphibians, reptiles, birds, and mammals.

The analysis of potential wildlife habitat linkages (i.e., wildlife migration corridors) within the study area and surrounding landscape was assessed based on the conditions documented during the field reconnaissance surveys, as well as information compiled from literature and analysis of aerial photographs. This information was used to identify whether the study area, in its current condition, is critical to large-scale wildlife movement within the region. The discussions in this report related to wildlife movement focus on areas within the study area, immediate vicinity, and general region.

4.3 Land Cover and Vegetation Mapping

The USGS GAP Land Cover Data Set (USGS 2011) was used to obtain a general overview of the land cover within the study area, using the Level 1-U.S. National Vegetation Classification standard (Federal Geographic Data Committee 1997). Six land cover types occur in the study area: Agricultural Vegetation, Developed and Other Human Use, Forest and Woodland, Open Water, Semi-Desert, and Shrubland and Grassland. The land covers were then assigned, where applicable, habitats described in *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986) based upon the windshield survey of the study area. These natural habitat communities provide a context of the overall aspect of the community, the abiotic site factors, and the characteristic plant species (Holland 1986). For the NTPC within the study area, *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009), was used to determine the dominant plant species alliance that were found at each location.

4.4 Special-status Species Habitat Assessment

"Special-status" species discussed in this report include plants and animals that are listed under the California Endangered Species Act (CESA) or Federal Endangered Species Act (FESA), species that are considered sufficiently rare or sensitive under the California Environmental Quality Act (CEQA), and species protected under other regulations. Special-status species include the following:

- Species listed or proposed for listing as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under CESA or FESA;
- Species protected under the federal Bald and Golden Eagle Protection Act;
- Species that meet the definitions of rare or endangered under CEQA (CEQA Guidelines § 15380);
- Plants listed as rare under the California NPPA (Fish and Game Code § 1900 et seq.);
- Plants considered by the CNPS to be rare, threatened, or endangered in California (California Rare Plant Rank [CRPR] 1,2 and 4);
- Species covered under an adopted Natural Community Conservation Plan/Habitat Conservation Plan;

- CDFW wildlife species of special concern;
- Wildlife fully protected in California (Fish and Game Code § 3511, 4700, and 5050); and/or,
- Avian species protected by the MBTA.

A list of target special-status species and sensitive natural communities was developed based on the search results of the databases listed in Section 4.1. Potentially-occurring special-status species were defined as having potential to occur within and/or immediately adjacent to the study area based upon known range and habitat suitability. Available background information, including USGS topographic maps and current and historical aerial photographs, and available online databases were used in conjunction with Geographic Information System (GIS) data to characterize and map plant communities, and identify any USFWS-designated critical habitat or CDFW sensitive natural communities.

The status of special-status species with potential to occur within the study area and/or the immediate vicinity was assessed following the database searches and field survey. Following the assessment, each species was assigned to one of the categories listed below:

Present: Species is known to occur within the study area, based on recent (within 20 years) CNDDB or other records, and there is suitable habitat present within the study area, or the species was observed within the study area during the field survey.

Medium Potential: Species is known to occur in the vicinity of the study area (based on recent [within 20 years] CNDDB or other records or based on professional expertise specific to the study area or species), and there is suitable habitat within the study area that makes the probability of the species occurring there high. Alternatively, there is suitable habitat within the study area and within the known range of the species.

Low Potential: Species is known to occur in the vicinity of the study area (within the area comprised by the surrounding USGS quadrangles); however, there is only poor quality or marginal habitat within the study area and the probability of the species occurring is low.

Absent: There is no suitable habitat for the species within the study area, or the area is located outside the known range of the species. Alternatively, a species was surveyed for during the appropriate season with unequivocal negative results for species occurrence.

Bird species are differentiated on the basis of their occurrence in the study area as nesters, foragers, winter residents and/or transients. When determining potential for impacts, only bird species that have potential to nest in the study area were considered, since it is expected that there would be no direct impact from project activities to species in the other categories because of their ability to leave the project area.

5. Environmental Setting

5.1 Regional Setting

The study area is located in the Antelope Valley. The area is comprised of the western tip of the Mojave Desert, opening up to the Victor Valley to the east and the Great Basin to the northeast.

The Antelope Valley is north of the San Gabriel Mountains and southeast of the Tehachapi Mountains and the Diablo Range of the Coast Ranges. The San Andreas Rift Zone occurs along the southern boundary of the Antelope Valley and it is the tectonic movement between the Pacific and North American plates in this zone that has produced the topographical differences found in the region.

The Mojave Desert is known as the "High Desert" because most of the region is found between 2,000 and 4,000 feet. The climate of the Mojave Desert has extreme fluctuations of daily temperatures, strong seasonal winds, and clear skies. Temperatures have been as low as 8° Fahrenheit (F) in January and as high as 119° F in August. In late winter and early spring, the wind is a prominent feature, with dry winds blowing in the afternoon and evening. Winds in excess of 25 miles per hour (mph), with gusts of 75 mph or more are not uncommon. Although it is windy during all months, November, December, and January are the calmest. The humidity is below 40% most of the year; however, during most winter nights, and during and after summer rains the humidity can reach above 50%. The Mojave Desert lies in the rainshadow of the Coast Ranges and receives an average annual precipitation of 5 inches. Most of the rain falls between November and April. There is, however, a summer thunderstorm season from July to September with violent and heavy, highly localized, rainstorms possible (Bureau of Land Management 2005).

The Antelope Valley supports a variety of vegetation communities due the varied geography that occurs in the region. In the higher elevations of the valley along the lower, northern slopes of the San Gabriel Mountains, northern mixed chaparral and Joshua tree woodland scrub occur. At lower elevations big sagebrush scrub intergrades with creosote bush scrub on the desert floor. Rosamond Lake is a closed basin that receives water from the Antelope Valley watershed, which includes Big Rock and Little Rock Creeks from the San Gabriel Mountains, Amargosa Creek which collects runoff from the Sierra Pelona Mountain Range, and runoff from the southeastern slopes of the Tehachapi Mountains (French et al. 2006).

5.2 Local Setting

The study area southern boundary is located in the northern foothills of the San Gabriel Mountains and Sierra Pelona Ridge, which has low to moderately steep slopes and has sparse development. The San Andreas Rift Zone trends from the central portion of the western boundary to the southeast corner of the study area. Portions of the study area north of the San Andreas Rift Zone have relatively flat topography and are predominantly developed for residential, retail, and industrial zones. The extreme east-northeastern portions of the study area also have sparse development and have ecological characteristics that a more similar to the Mojave Desert.

5.3 Land Cover and Vegetation Communities

Land Cover and Vegetation Communities are provided as a general overview of the study area and more precisely for the NTPC.

5.3.1 General Overview of the Study Area

The following are the Level 1-U.S. National Vegetation Classification standard (Federal Geographic Data Committee 1997), as shown on **Figure 4**, found within the study area that are sub-classified by the associated terrestrial natural communities (Holland 1986). The description for the terrestrial natural communities is for the typical conditions associated with each type.

5.3.1.1 Agricultural Vegetation

Agricultural Vegetation are areas that are currently being used for agriculture or have been fallow for several years. The fallow areas typically become dominated by ruderal species, such as non-native herbaceous species and grasses (primarily *Bromus* spp.). Activities, such as livestock grazing, mowing and disking, which disturb the soils and remove vegetation, are common in the areas and limit successional growth to native, shrub-based plant communities. Agricultural Vegetation is found primarily in the northern portion of the study area.

5.3.1.2 Developed and Other Human Use

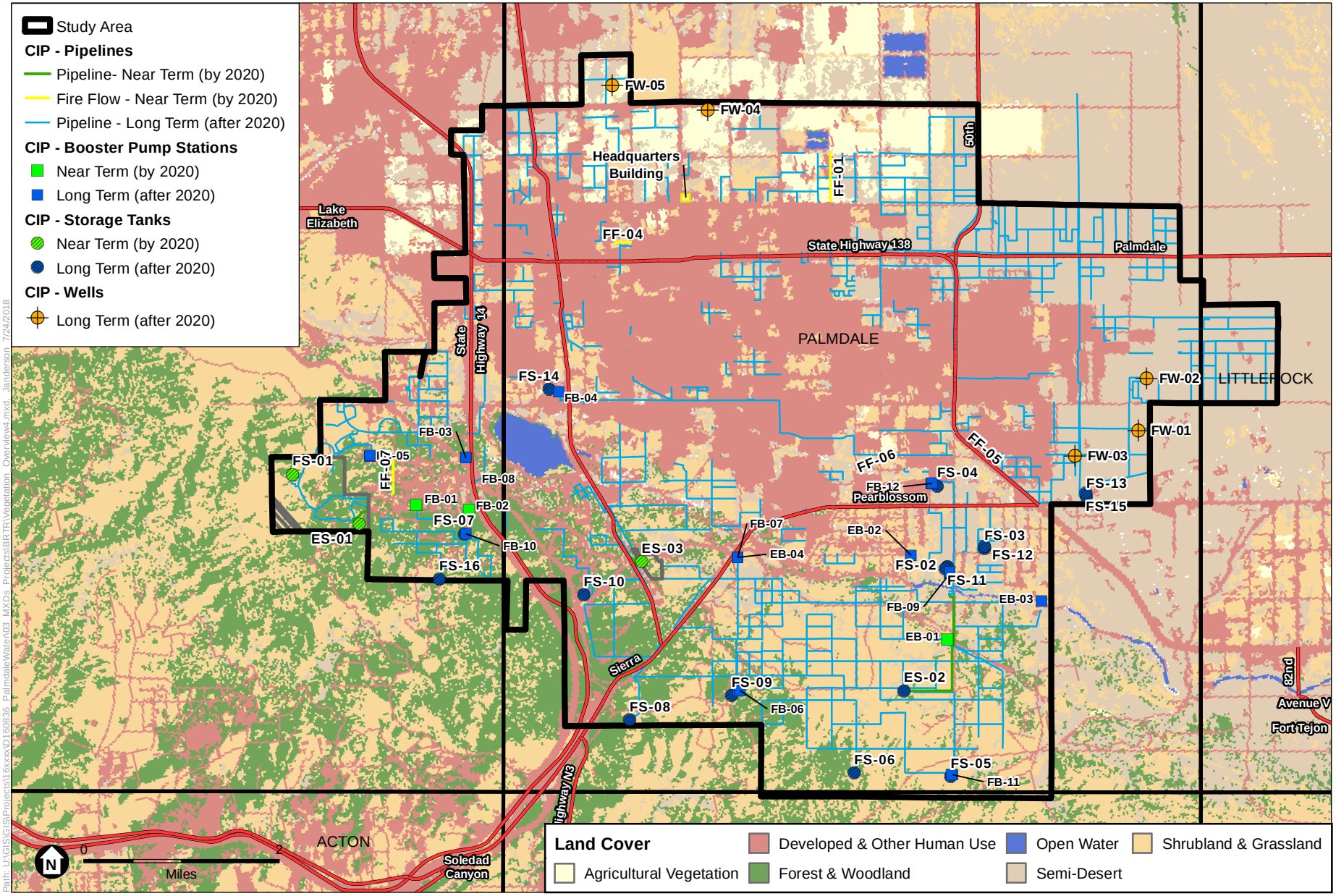
Developed and Other Human Use areas have been either built upon with impervious structures or groundcover (roads and parking lots), or have been converted to parks that are typically used for recreational activities. These areas support little to no native vegetation and are not expected to support special-status species. Developed and Other Human Use areas are found throughout the study area.

5.3.1.3 Forest and Woodland

Tropical, temperate and boreal forests, woodlands and tree savannas characterized by broadly mesomorphic (those that are soft and with little fibrous tissue, but not succulent), including scleromorphic (a plant with hard, stiff leaves), tree growth forms (including broad-leaved, needle-leaved, sclerophyllous [hard, stiff leaves], palm, bamboo trees, and tree ferns), typically with at least 10 percent cover, irregular horizontal spacing of vegetation structure, and spanning humid to seasonally dry tropical to boreal and subalpine climates and wet to dry substrate conditions. This community includes native as well as managed forests, and some plantation forests where human management is infrequent (USNVC 2016).

Joshua Tree Woodland

Joshua Tree Woodland is fairly open with Joshua tree typically as the only arborescent species (up to 40 feet tall), with numerous shrub species between three and 15 feet tall. Typically, little to no herbaceous, annual understory is present for most of the year. The dominant species display a diversity of life forms: sclerophyllous evergreen trees and shrubs (*Yucca* spp.), microphyllous (small plant leaf with one single, unbranched leaf vein), evergreen shrubs (*Juniperus* spp.), semi-deciduous shrubs (*Eriogonum* spp.), semi-succulents (*Lycium* spp.), and succulents (*Opuntia* spp.). The main growing season is spring, with growth limited by cold temperatures in the winter and limited rainfall in the summer and fall. Many species of species of annual herbs may germinate following sufficient rainfall in the late fall or winter and flower in mid-spring (Holland 1986). Within the study area, Joshua Tree Woodland occurs primarily in the south and southwest along the lower slopes of the San Gabriel Mountains and Sierra Pelona Range.



SOURCE: Palmdale Water 2017; USGS 2011

Palmdale Water District

Figure 4
Vegetation Overview

ESA

Mojavean Juniper Woodland and Scrub

Mojavean juniper woodland and scrub is an extremely open woodland dominated by California juniper, with an understory that is composed of elements typically found in the Mojave Mixed Woody Scrub community (ex.: *Eriogonum* spp., *Ephedra* spp., and *Opuntia* spp.). The community typically occurs on gentle slopes or alluvium and intergrades with Joshua tree woodland or Mojave creosote bush scrub at lower elevations (Holland 1986). Within the study area, Mojavean juniper woodland and scrub occurs primarily along the slopes and hilltops in southwest.

Semi-desert Chaparral

The semi-desert chaparral community consists of shrubs between 5 and 10 feet in height, and is somewhat more open than most chaparrals. Some of the dominant taxa include California juniper, California buckwheat (*Eriogonum fasciculatum*), and cacti (*Opuntia* spp.); these are not broad-leaved sclerophylls that are typically associated with chaparral communities. The vegetation is dormant, or nearly so, in the winter due to lower temperatures and in the late summer due to low availability of water. Semi-desert chaparral is less fire-prone than other chaparrals because of the lower fuel loads (Holland 1986). Within the study area, semi-desert chaparral occurs in the south at higher elevations. This community often intergrades with Joshua tree woodland.

5.3.1.4 Open Water

Open water in the study area is associated with Lake Palmdale, Una Lake, and sump ponds located within the San Andreas Rift Zone, as well as the artificial California Aqueduct, which generally parallels the San Andreas Rift Zone. The terrestrial communities associated with this land cover include the following.

Transmontane Freshwater Marsh

Transmontane freshwater marshes develop in or adjacent to areas of slow-moving or still permanent freshwater. This community is dominated by cattail (*Typha* spp.), which often form a closed canopy, with bulrushes (*Schoenoplectus* spp.) and sedges (*Carex* spp.) in the understory. The growing season for this community is short due to low winter temperatures. This community often intergrades with transmontane alkali marsh (Holland 1986). Within the study area, transmontane freshwater marsh occurs in small patches along the San Andreas Rift Zone.

Transmontane Alkali Marsh

Transmontane alkali marsh is similar to transmontane freshwater marsh, which it often intergrades with, but is usually dominated by more salt-tolerant hydrophytes. Plant species typically found in this community include cattail, sedges, saltgrass (*Distichlis spicata*), bulrushes, and boraxweed (*Nitrophila occidentalis*) (Holland 1986). Within the study area, transmontane alkali marsh occurs in small patches along the San Andreas Rift Zone.

5.3.1.5 Semi-Desert

Succulents, small-leaved shrubs and trees, desert grasses and other xeromorphic growth forms (those with adaptation mechanisms against water loss) are dominant or characteristic in this type, which can include very open rocky or sandy desert types. Vegetation often has open and irregular horizontal canopy spacing, typically less than five meters tall. Mesomorphic trees have less than 10% cover, and xeromorphic growth forms, including succulent trees and shrubs (e.g., cacti,

euphorbias), and small-leaved shrubs and trees, have the majority of cover compared to mesomorphic or cryomorphic (plants that have adaptations to survive cold temperatures and resist frost damage) growth forms. The herb cover varies from open to absent, with various growth forms, including ephemerals and succulent forbs (USNVC 2016).

Desert Saltbush Scrub

Desert Saltbush Scrub is usually strongly dominated by one of several species of saltbush (*Atriplex* spp.), with other characteristic species including spiny hopsage (*Grayia spinosa*), cheesebush (*Hymenoclea salsola*), and boxthorn (*Lycium* spp.). This vegetation community is found in poorly drained alkaline and/or saline soils, widely distributed above and on the margins of dry desert lake beds in the Mojave, Great Basin, and Colorado deserts. Desert Saltbush Scrub usually is composed of fine scale mosaics of vegetation series and associations with different component species becoming dominant. It is dependent on small changes in topography and water table depth (Holland 1986). Within the study area, Desert Saltbush Scrub occurs primarily in the north and northeast in low-lying areas mixed in with Rabbitbrush Scrub and Mixed Woody Scrub.

Mojave Creosote Bush Scrub

Mojave Creosote Bush Scrub is composed of medium-sized shrubs dominated by creosote (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) that are widely spaced with little vegetation in between. Many species of ephemeral herbs may flower in late March and April if the winter rains are sufficient. Other, less numerous, species of annuals appear following summer thundershowers. Growth is prevented by cold in winter and limited by drought in other seasons. Mojave Creosote Bush Scrub typically occurs on well-drained secondary soils with very low available water holding capacity on slopes, fans, and valleys rather than upland sites with thin residual soils or sites with high soil salinity. This community intergrades at higher elevations with shadscale scrub or Joshua tree woodland, and at lower elevations, or more osmotic sites, with desert chenopod scrub (Holland 1986). Within the study area, Mojave Creosote Bush Scrub occurs primarily in the east in portions near Little Rock Wash.

Mojave Wash Scrub

Mojave Wash Scrub community is composed of widely spaced shrubs, with scattered to locally dense tree canopy cover, on usually otherwise barren sandy soils at the bottoms of wide canyons along incised arroyos of upper bajadas and along braided washes of lower bajadas. Characteristic species include scalebroom (*Lepidospartum squamatum*), catclaw acacia (*Acacia greggii*), allscale, desert willow (*Chilopsis linearis*), brittlebush (*Encelia farinosa*), cheesebush (*Hymenoclea salsola*), creosote bush, and boxthorn. The usual aspect is widely scattered shrubs, including allscale and cheesebush, with mostly barren sandy soil between (Holland 1986). Within the study area, Mojave Wash Scrub occurs primarily in the east in portions within Little Rock Wash.

5.3.1.6 Shrubland and Grassland

Shrubs and herbs with broadly mesomorphic (including scleromorphic) growth forms (including broad-leaved, needle-leaved, and sclerophyllous shrubs, some types of rosette shrubs, and herbaceous forbs and grasses) dominate this type. Vegetation structure is typically moderately open to closed canopy, with irregular horizontal canopy spacing and variable height, but typically

less than five meters, and where mesomorphic trees have less than 10 percent cover and mesomorphic shrub and herb growth forms have the majority of cover compared to xeromorphic or cryomorphic growth forms (USNVC 2016).

Big Sagebrush Scrub

Big Sagebrush Scrub is mostly a treeless, soft-woody shrub-dominated community, composed of shrubs approximately 1.5 to 6.5 feet tall that is dominated by big sagebrush (*Artemisia tridentata*). The understory is characterized by patches of bare ground and scattered herbs. This community often is found in close proximity to woodlands and coniferous forests. This vegetation can occur in the understory of tree-dominated, high elevation communities of pinyon-juniper woodlands, montane mixed coniferous forest, and alpine forest (Holland and Kiel 1995). At lower elevations, Big Sagebrush Scrub occurs adjacent to saltbush scrub, blackbush scrub, Joshua tree woodland, and creosote bush scrub communities. This community is well-suited to a variety of soils and terrain ranging from rocky, well-drained slopes to fine-textured valley soils with high a water table (Holland 1986). Within the study area, Big Sagebrush Scrub occurs primarily in the southwest along the slopes and valleys. This community often intergrades with rabbitbrush scrub in areas that have been regularly disturbed.

Mojave Mixed Woody Scrub

Mojave Mixed Woody Scrub is complex community that is open enough to be passable and usually characterized by Joshua tree, desert tea (*Ephedra* spp.), beavertail cactus (*Opuntia basilaris*), California buckwheat, and bladderpod (*Isomeris arborea*). This community typically occurs on very shallow, overly-drained, often rolling to steep soils that are usually derived from granitic parent materials. The sites where this community is located have extremely low water holding capacity, mild alkalinity, and are not very saline. On deeper soils with higher water holding capacity, or at cooler elevations, the community intergrades with Great Basin scrubs, Blackbush Scrub, or Pinyon Woodlands; at warmer elevations with Creosote Bush Scrub (Holland 1986). Within the study area, Mojave Mixed Woody Scrub occurs primarily in the southwest along the slopes and valleys.

Rabbitbrush Scrub

Rabbitbrush Scrub is dominated by rubber rabbitbrush (*Ericameria nauseosus*), a three-foot-tall gray, woody shrub that has a yellowish inflorescence that blooms in late summer or fall. Elements from other communities, such as big sagebrush scrub and Mojave mixed woody scrub, are also found in rabbitbrush scrub. This community occurs in areas that have undergone disturbances such as fire, grazing, and/or soil tilling. Within the study area, Rabbitbrush Scrub throughout the region in areas that have undergone regular disturbances (agricultural practices, grubbing, grazing, etc.).

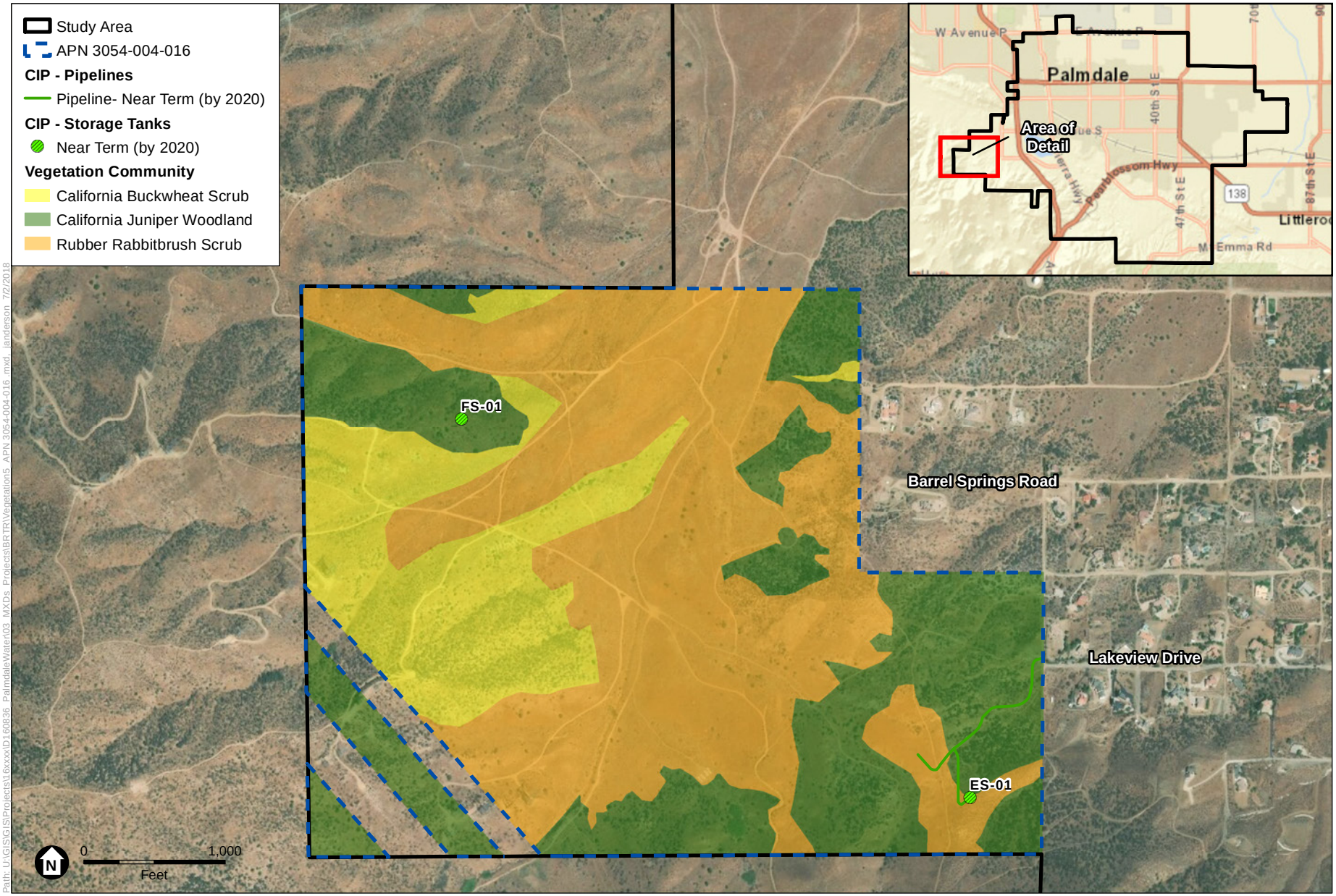
5.3.2 Near-Term Project Components

Table 3 summarizes the land cover and vegetation communities for each of the NTPC using *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009). Vegetation mapping was also conducted on APN 3054-004-016 (storage tanks ES-01 and FS-01; see **Figure 5**) and APN 3053-022-006 (storage tank ES-03; see **Figure 6**) to assist in siting of the associated components to reduce impacts to vegetation.

TABLE 3
VEGETATION COMMUNITIES AND PLANT COMPOSITION FOR EACH NEAR-TERM PROJECT COMPONENT

Project Component	Figure No.	Vegetation Alliance(s)	Plant Species within the Component Location
Storage tank ES-01	3a	California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)	California buckwheat (*Eriogonum fasciculatum*), desert needle grass (*Stipa speciosa*), cheatgrass (*Bromus tectorum*), red brome (*B. madritensis* ssp. *rubens*), California four o' clock (*Mirabilis laevis*), California juniper (*Juniperus californica*), interior goldenbush (*Ericameria linearifolia*), Tucker's oak (*Quercus john-tuckeri*), shortpod mustard (*Hirschfeldia incana*), checker fiddleneck (*Amsinckia tessellata*)
Storage tank FS-01	3a	California Juniper Woodland (*Juniperus californica* Woodland Alliance)	California juniper, California buckwheat, Acton encelia (*Encelia actoni*), chaparral yucca (*Hesperoyucca whipplei*), rubber rabbitbrush (*Ericameria nauseosa*), California ephedra (*Ephedra californica*), Cooper's boxthorn (*Lycium cooperi*), California four o' clock, cheatgrass, red brome, desert needle grass
APN 3054-004-016	4	California Buckwheat Scrub, California Juniper Woodland, Rubber Rabbitbrush Scrub (*Ericameria nauseosa* Shrubland Alliance), Cheatgrass Grassland (*Bromus tectorum* herbaceous)	California juniper, California buckwheat, Acton encelia, chaparral yucca, rubber rabbitbrush, California ephedra, big sagebrush (*Artemisia tridentata*), California four o' clock, cheatgrass, red brome, Tucker's oak, California juniper, shortpod mustard, checker fiddleneck, Joshua tree, interior goldenbush, big berry manzanita (*Arctostaphylos glauca*), hollyleaf redberry (*Rhamnus ilicifolia*), beavertail cactus (*Opuntia basilaris* ssp. *basilaris*)
Storage tank ES-03	3b	California Joint Fir Scrub (*Ephedra californica* Shrubland Alliance)	California ephedra, California buckwheat, Joshua tree, rubber rabbitbrush checker fiddleneck, cheatgrass, red brome, beavertail cactus, shortpod mustard, chaparral yucca, creosote
APN 3053-022-006	5	California Joint Fir Scrub, Rubber Rabbitbrush, California Juniper Woodland	California ephedra, California buckwheat, rubber rabbitbrush, Joshua tree, checker fiddleneck, cheatgrass, red brome, beavertail cactus, shortpod mustard, chaparral yucca, creosote, fourwing saltbush (*Atriplex canescens*), big sagebrush, Acton encelia
Pump Station EB-01	3c	Developed - within existing facility. Adjacent: Rubber Rabbitbrush Scrub, Fourwing Saltbush Scrub (*Atriplex canescens* Shrubland Alliance)	Adjacent: rubber rabbitbrush, fourwing saltbush
Pump Station FB-01	3d	Developed – within existing facility. Adjacent: California Buckwheat Scrub	Adjacent: California buckwheat
Pump Station FB-02	3d	Developed – within existing facility. Adjacent: California Buckwheat Scrub, Rubber Rabbitbrush Scrub	Adjacent: California buckwheat, rubber rabbitbrush

Project Component	Figure No.	Vegetation Alliance(s)	Plant Species within the Component Location
Pipeline FF-01	3e and 3f	Sited within the existing dirt road (west 35th St. E.) in the southern half and through Rubber Rabbitbrush Scrub in the north. Adjacent: Rubber Rabbitbrush Scrub, Cheatgrass Grassland, Sandbar Willow Thickets (*Salix exigua* Shrubland Alliance); within manmade canal on the eastside of the southern half of the pipeline)	rubber rabbitbrush, sandbar willow (*Salix exigua*), cheatgrass, red brome, shortpod mustard, jimsonweed (*Datura wrightii*)
Pipeline FF-04	3e and 3f	Rubber Rabbitbrush Scrub, Cheatgrass Grassland	rubber rabbitbrush, cheatgrass, red brome, shortpod mustard, common sunflower (*Helianthus annuus*)
Pipeline FF-05	3e and 3f	Sited within cleared shoulder of State Route 138. Adjacent: Rubber Rabbitbrush Scrub,	Adjacent: rubber rabbitbrush, Russian thistle (*Salsola tragus*), cheatgrass, red brome, shortpod mustard, jimsonweed
Pipeline FF-06	3e and 3f	Developed – within asphalt road. Adjacent: Cheatgrass Grassland.	Adjacent: cheatgrass, red brome
Pipeline FF-07	3e and 3f	Sited within the existing dirt road (Camares Dr.). Adjacent: California Juniper Woodland, California Buckwheat Scrub	Adjacent: California juniper, California buckwheat, cheatgrass, red brome, Tucker's oak, big berry manzanita, Joshua tree, rubber rabbitbrush
Pipeline along 47th Street East, connecting the proposed improvements at pump station EB-01 south and then extending the pipeline west through undeveloped land to an existing deficiency recommended tank	3b	Sited within an asphalt road (47th St E.) north of Barrel Springs Rd. and within natural lands south. California Joint Fir Scrub, Rubber Rabbitbrush Scrub, Cheatgrass Grassland, California Juniper Woodland, Creosote Bush Scrub (*Larrea tridentata* Shrubland Alliance)	California buckwheat, California ephedra, rubber rabbitbrush, interior goldenbush, Mexican bladdersage (*Scutellaria mexicana*), California juniper, creosote, Cooper's boxthorn, chaparral yucca, checker fiddleneck, cheatgrass, red brome, shortpod mustard, desert needle grass
Pipeline within the ROW of Sierra Highway, connecting an existing storage tank and pump station southeast to the deficiency recommended tank ES-03	3c	California Joint Fir Scrub, Rubber Rabbitbrush Scrub, Cheatgrass Grassland,	California ephedra, California buckwheat, rubber rabbitbrush, checker fiddleneck, cheatgrass, red brome,
Pipeline west of Lakeview Drive through undeveloped land connecting to the proposed storage tank ES-01	3a	Sited within the existing dirt road (unnamed) and California Buckwheat Scrub. Adjacent: California Buckwheat Scrub, California Juniper Woodland, Rubber Rabbitbrush Scrub, Cheatgrass Grassland, Tucker Oak Chaparral (*Quercus john-tuckeri* Shrubland Alliance)	Adjacent: California buckwheat, rubber rabbitbrush, Tucker's oak, California juniper, cheatgrass, red brome, interior goldenbush, big berry manzanita, hollyleaf redberry, California ephedra, desert needle grass

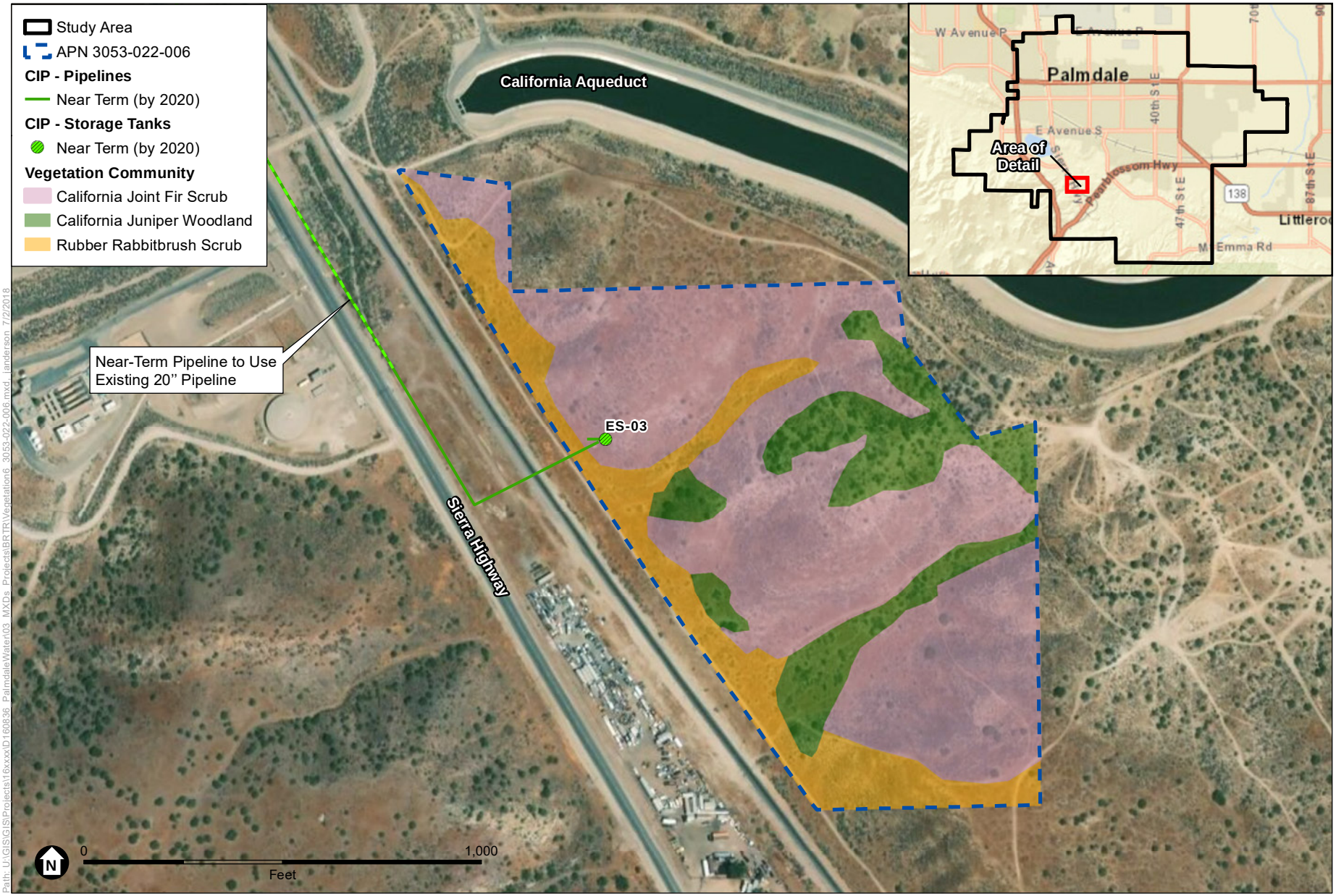


SOURCE: Palmdale Water 2017

Palmdale Water District

Figure 5
Vegetation on APN 3054-004-016

ESA



SOURCE: Palmdale Water 2017

Palmdale Water District

Figure 6
Vegetation on APN 3053-022-006

ESA

5.4 Common Wildlife Species

The developed portions of the study area have little habitat value for native wildlife. Species that occur within developed areas are typically very common and acclimated to human activity and are able to utilize the introduced ornamental plant species or artificial structures for foraging and breeding behaviors. In natural environments, many wildlife species may be habitat specialists; however, most wildlife species are not restricted to a single vegetation community, occurring instead in several communities, especially those of similar species composition and physical structure. Some animals, birds, and wide-ranging mammals in particular, may utilize an array of dissimilar communities for forage and cover.

5.4.1 Fish

No naturally occurring native fish populations are present within the study area based upon species' range and habitat requirements. Nonnative species that have been introduced into the perennial water bodies in the study area (including Palmdale Lake, Una Lake, and the California Aqueduct) include brown bullhead, (*Ameiurus nebulosus*), carp (Cyprinidae), mosquitofish (*Gambusia affinis*), and striped bass (*Morone saxatilis*).

5.4.2 Amphibians

Native amphibians that may occur in the study area based upon species' range and habitat requirements are limited to western toad (*Anaxyrus boreas*) and Baja California treefrog (*Pseudacris hypochondriaca*). These species are found in areas where drainages, cattle ponds, lakes, seeps, etc. provide standing water that persist long enough for breeding and metamorphosis of tadpoles to occur. An example of this is the freshwater marshes along the San Andreas Rift Zone, Lake Palmdale, and Una Lake. Nonnative amphibians introduced to the area could include bullfrog (*Lithobates catesbeiana*) and African clawed frog (*Xenopus laevis*), which are primarily aquatic and depend on perennial water sources.

5.4.3 Reptiles

Common reptiles observed during the surveys or expected to occur within the study area (due to the presence of habitat elements with which the species are typically associated and the study area occurring within the range of the species) include: common side-blotched lizard (*Uta stansburiana*), western fence lizard (*Sceloporus occidentalis*), yellow-backed spiny lizard (*Sceloporus uniformis*), desert night lizard (*Xantusia vigilis*), tiger whiptail (*Aspidoscelis tigris*), California kingsnake (*Lampropeltis californiae*), coachwhip (*Coluber flagellum*), Great Basin gopher snake (*Pituophis catenifer*), western rattlesnake (*Crotalus oreganus*), and Mohave rattlesnake (*Crotalus scutulatus*).

5.4.4 Birds

Birds observed during the surveys or expected to occur within the study area (due to the presence of habitat elements with which the species are typically associated and the study area occurring within the range of the species) include: California Quail (*Callipepla californica*), red-tailed hawk (*Buteo jamaicensis*), mourning dove (*Zenaida macroura*), barn owl (*Tyto alba*), Anna's

hummingbird (*Calypte anna*), western scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), cactus wren (*Campylorhynchus brunneicapillus*), Bewick's wren (*Thryomanes bewickii*), California towhee (*Pipilo crissalis*), northern mockingbird (*Mimus polyglottos*), sagebrush sparrow (*Artemisiospiza nevadensis*), and house finch (*Carpodacus mexicanus*). Nonnative species found in the urbanized areas of the study area include rock pigeon (*Columba livia*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*). This list does not include transient birds that may utilize the habitats within the study area for only a short duration, but would not nest there.

5.4.5 Mammals

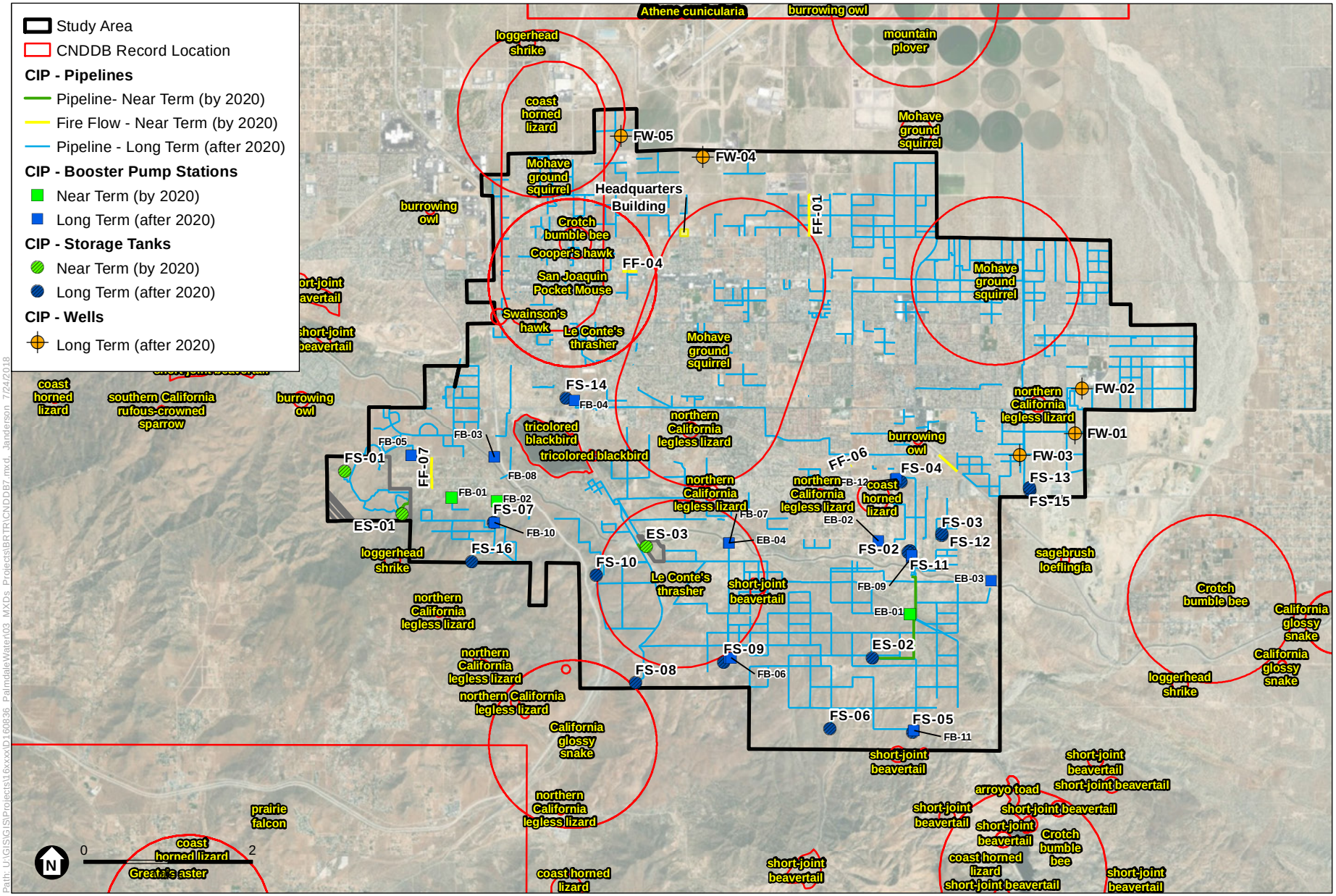
Mammals observed during the surveys or expected to occur within the study area (due to the presence of habitat elements with which the species are typically associated and the study area occurring within the range of the species) include: desert cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyi*), white-tailed antelope ground squirrel (*Ammospermophilus leucurus*), Merriam's kangaroo rat (*Dipodomys merriami*), deer mouse (*Peromyscus maniculatus*), desert woodrat (*Neotoma lepida*), and coyote (*Canis latrans*). Common nonnative species found in the urbanized areas of the study area include black rat (*Rattus rattus*), Norway rat, (*Rattus norvegicus*), house mouse (*Mus musculus*), domestic cat (*Felis catus*), and domestic dog (*Canis lupus familiaris*). In addition to the common mammals listed, the study area is used by a variety of bats for foraging.

5.5 Special-Status Species Habitat Assessment

A total of 50 special-status plant (20) and wildlife (30) species have been recorded in the CNDDB, CNPS, and/or USFWS IPaC database (see **Figure 7)**. Of these, it was determined that 28 of the species (16 plant and 12 wildlife) do not have the potential to occur in the vicinity due to habitat and/or range restrictions, and are excluded from further discussion in this report (see **Appendix B**). Therefore, four special-status plant species and 18 wildlife species have the potential or are known to occur within the study area and are evaluated in this report. No critical habitats or sensitive plant communities are located in the study area.

5.5.1 Special-Status Plant Species

Based on the vegetation and habitats that were characterized during the field survey, it was determined that four special-status plant species (slender mariposa lily, *Calochortus clavatus* var. *gracilis*; Robbins' nemacladus, *Nemacladus secundiflorus* var. *robbinsii*; short-joint beavertail, *Opuntia basilaris* var. *brachyclada*; and Mason's neststraw, *Stylocline masonii*) had a potential of occurring within the study area based on the presence of suitable habitat (i.e., soils, vegetation, elevation, topography, and known geographic range; see Appendix B) and recent, local occurrences of the species. All four plant species are CNPS listed species, but not federally or state listed threatened or endangered species. **Table 4** indicates the protective status of each special-status plant species (and its associated habitats) that has potential or is known to occur within the study area, and its potential to occur at the NTPC.



SOURCE: Palmdale Water 2017; CNDDB 2017

Palmdale Water District

Figure 7
CNDDB Record Locations in the Study Area and Vicinity

ESA

TABLE 4
STATUS OF POTENTIALLY OCCURRING SPECIAL-STATUS PLANT SPECIES WITHIN THE STUDY AREA AND AT NEAR-TERM PROJECT COMPONENTS (NTPC)

Common Name *Scientific Name*	Federal/State/ CRPR[1] Status	Status within the Study Area	Status for NTPC
slender mariposa lily *Calochortus clavatus* var. *gracilis*	None / None / 1B.2	Low Potential. The nearest known record of the species is located approximately seven miles to the west of the study area on Portal Ridge. Marginal habitat is located in the hilly topography in the southern portion of the study area.	Low Potential. Marginal habitat for the species is found at ES-01, FS-01, Pipeline west of Lakeview Drive, and APN 3054-004-016.
Robbins' nemacladus *Nemacladus secundiflorus* var. *robbinsii*	None / None / 1B.2	Medium Potential. The nearest known record of the species is located approximately one mile to the south of the study area and that record is located within habitat (California Juniper Woodland) found in the southern and southwestern portions of the study area, including the San Andreas Rift Zone and the hilly topography south of it..	Medium Potential. Marginal habitat for the species is found at ES-01, FS-01, Pipeline west of Lakeview Drive, and APN 3054-004-016.
short-joint beavertail *Opuntia basilaris* var. *brachyclada*	None / None / 1B.2	Present. There are two records from the southern portion of the study area. There is suitable habitat for the species in the including the San Andreas Rift Zone and the hilly topography south of it.	Medium Potential. The species was not observed, but suitable habitat for the species is found at ES-01, FS-01, ES-03, Pipeline along 47th Street East, Pipeline within the ROW of Sierra Highway, Pipeline west of Lakeview Drive, APN 3053-022-006, and APN 3054-004-016.
Mason's neststraw *Stylocline masonii*	None / None / 1B.1	Low Potential. The nearest known record of the species is located approximately 5.3 miles to the southwest of the study area; however, that record is located within habitat (California Juniper Woodland) that is found in the southern and southwestern portions of the study area This includes the San Andreas Rift Zone and the hilly topography south of it.	Low Potential. Marginal habitat for the species is found at ES-01, FS-01, Pipeline west of Lakeview Drive, and APN 3054-004-016.

1. CRPR = California Rare Plant Rank
   1B CNPS Priority List 1B: plant Rare, Threatened, or Endangered in CA and elsewhere; eligible for state listing.
   .1 - Seriously threatened in California (high degree/immediacy of threat).
   .2 - Fairly threatened in California (moderate degree/immediacy of threat).

5.5.2 Special-Status Wildlife Species

Based on the habitats that were characterized during the field survey, previously recorded occurrences, and known distribution and range limitations, it was determined that 18 special-status wildlife species have a potential to occur or were determined to be present within the project area based on historic records. **Table 5** identifies the protective status and preferred habitat of each sensitive wildlife species that has potential or is known to occur within the study area, and its potential to occur at the NTPC.

TABLE 5
STATUS OF POTENTIALLY OCCURRING SPECIAL-STATUS WILDLIFE SPECIES WITHIN THE STUDY AREA AND AT NEAR-TERM PROJECT COMPONENTS (NTPC)

Common Name ***Scientific Name***	**Federal/State/ CDFW[1] Status**	**Status within the Study Area**	**Status for NTPC**
Reptiles			
silvery legless lizard *Anniella pulchra*	None / None / SSC	Present. There are recent records of the species within the study area. Habitat for the species is found throughout the study area in areas with relative undisturbed native vegetation communities.	Medium Potential. The species was not observed, but suitable habitat is found at ES-01, FS-01, ES-03, Pipeline along 47th Street East, Pipeline west of Lakeview Drive, APN 3053-022-006, and APN 3054-004-016.
coast horned lizard *Phrynosoma blainvillii*	None / None / SSC	Present. There are recent records of the species within the study area. Habitat for the species is found throughout the study area in areas with relative undisturbed native vegetation communities.	Medium Potential. The species was not observed, but suitable habitat is found at ES-01, FS-01, ES-03, Pipeline along 47th Street East, Pipeline within the ROW of Sierra Highway, Pipeline west of Lakeview Drive, APN 3053-022-006, and APN 3054-004-016.
Birds			
Cooper's hawk *Accipiter cooperii*	None / None / WL	Present. The majority of the records for the species in the study area are from winter and typical nesting habitat does not occur; however, the species is known to be adapting to urban environments.	Present. An individual was observed as a transient over APN 3054-004-016. The species is not expected to nest on the parcel due to the lack of suitable habitat. Low Potential. As a forager at the remaining NTPC.
tricolored blackbird *Agelaius tricolor*	None / Candidate Endangered / SSC	Present. The species is known to nest at Lake Palmdale and Una Lake in cattails (*Typha* sp.) and tule (*Schoenoplectus acutus*).	Absent. None of the NTPC support habitat for the species.
southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	None / None / WL	Low Potential. Marginal nesting habitat for the species is located in the southern portion of the study area, south of the San Andreas Fault Rift Zone.	Low Potential. Marginal nesting habitat is found at ES-01, FS-01, Pipeline west of Lakeview Drive, and APN 3054-004-016.
golden eagle *Aquila chrysaetos*	None / None / FP	Present. The species occurs as a transient during migration, during foraging activities, or as a winter resident. Absent-Nesting. Typical nesting habitat is not found in the study area.	Low Potential. The species may occur as a transient during migration, during foraging activities, or as a winter resident on ES-01, FS-01, ES-03, Pipeline along 47th Street East, Pipeline within the ROW of Sierra Highway, Pipeline west of Lakeview Drive, APN 3053-022-006, and APN 3054-004-016.
Bell's sage sparrow *Artemisiospiza belli*	None / None / WL	Low Potential. Typical nesting habitat is not found in the study area. The species may occur as a transient during migration or as winter resident.	Low Potential. The species may occur as a transient during migration or as a winter resident. Typical nesting habitat is not found at any near-term project component. The species may occur during foraging or wintering.

Common Name ***Scientific Name***	**Federal/State/ CDFW[1] Status**	**Status within the Study Area**	**Status for NTPC**
burrowing owl *Athene cunicularia*	None / None / SSC	Present. There are recent occurrences of the species in the study area and suitable nesting and wintering habitats are present.	Low Potential. Marginal breeding/wintering habitat is found at ES-01, FS-01, ES-03, Pipeline FF-05, FF-06, Pipeline along 47th Street East, Pipeline west of Lakeview Drive, APN 3053-022-006, and APN 3054-004-016.
ferruginous hawk *Buteo regalis*	None / None / WL	Present. The species occurs as a transient during migration or as a winter resident. Absent-Nesting. Typical nesting habitat is not found in the study area.	Low Potential. The species may occur as a transient during migration or as a winter resident on ES-01, FS-01, ES-03, Pipeline FF-05, Pipeline along 47th Street East, Pipeline within the ROW of Sierra Highway, Pipeline west of Lakeview Drive, APN 3053-022-006, and APN 3054-004-016.
Swainson's hawk *Buteo swainsoni*	None / Threatened / None	Present. The species occurs as a transient during migration or during foraging activities. Absent-Nesting. Typical nesting habitat is not found in the study area.	Low Potential. The species may occur as a transient during migration or as a winter resident at ES-01, FS-01, ES-03, Pipeline FF-05, Pipeline along 47th Street East, Pipeline within the ROW of Sierra Highway, Pipeline west of Lakeview Drive, APN 3053-022-006, and APN 3054-004-016.
mountain plover *Charadrius montanus*	None / None / SSC	Low Potential. The species may occur as a wintering resident. Absent-Nesting. Typical nesting habitat is not found in the study area.	Absent. None of the NTPC support wintering habitat for the species.
merlin *Falco columbarius*	None / None / WL	Present. The species occurs as a transient during migration or as a winter resident. Absent-Nesting. Typical nesting habitat is not found in the study area.	Low Potential. The species may occur as a transient during migration or as a winter resident at ES-01, FS-01, ES-03, Pipeline FF-05, Pipeline along 47th Street East, Pipeline within the ROW of Sierra Highway, Pipeline west of Lakeview Drive, APN 3053-022-006, and APN 3054-004-016.
prairie falcon *Falco mexicanus*	None / None / WL	Present. The species occurs as a transient during migration or as a winter resident. Absent-Nesting. Typical nesting habitat is not found in the study area.	Low Potential. The species may occur as a transient during migration or as a winter resident at ES-01, FS-01, ES-03, Pipeline FF-05, Pipeline along 47th Street East, Pipeline within the ROW of Sierra Highway, Pipeline west of Lakeview Drive, APN 3053-022-006, and APN 3054-004-016.
loggerhead shrike *Lanius ludovicianus*	None / None / SSC	Present. There are recent occurrences of the species in the study area and suitable nesting habitat is present in Forest and Woodland, Semi-Desert, and Shrubland and Grassland vegetation communities.	Present. Individual observed at Pipeline along 47th Street East. Medium Potential for nesting and foraging at ES-01, FS-01, ES-03, Pipeline within the ROW of Sierra Highway, Pipeline west of Lakeview Drive, Pipeline west of Lakeview Drive, APN 3053-022-006, and APN 3054-004-016.

Common Name *Scientific Name*	Federal/State/ CDFW[1] Status	Status within the Study Area	Status for NTPC
least Bell's vireo *Vireo bellii pusillus*	Endangered / Endangered / WL	Present. The species has potential nesting records from Una Lake and there is potential nesting habitat at Lake Palmdale. The species is not expected to nest in the study area outside of these two locations.	Absent. None of the NTPC support suitable nesting/foraging habitat for the species.
Mammals			
pallid bat *Antrozous pallidus*	None / None / SSC	Low Potential. Typical roosting habitat does not occur in the study area. The species may occur as a transient during migration or foraging activities.	Low Potential. Typical roosting habitat does not occur at any of the NTPC. The species may occur as a transient during migration or foraging activities.
Townsend's big-eared bat *Corynorhinus townsendii*	None / None / SSC	Low Potential. Typical roosting habitat does not occur in the study area. The species may occur as a transient during migration or foraging activities.	Low Potential. Typical roosting habitat does not occur at any of the NTPC. The species may occur as a transient during migration or foraging activities.
Yuma myotis *yumanensis*	None / None / SA	Low Potential. Typical roosting habitat does not occur in the study area. The species may occur as a transient during migration or foraging activities.	Low Potential. Typical roosting habitat does not occur at any of the NTPC. The species may occur as a transient during migration or foraging activities.

1. CDFW Status
FP = Fully Protected. species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.
SA = Special Animal tracked by CDFW or has been given special-status by a non-governmental agency.
SSC = Species of Special Concern. Species are given this designation by CDFW due to declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.
WL = Watch List. For species that were previously SSC but no longer merit SSC status, or which do not meet SSC criteria but for which there is concern and a need for additional information to clarify its status.

5.6 Joshua Trees and California Junipers

Joshua tree and California juniper, which are protected under the City of Palmdale's "Joshua Tree and Native Desert Vegetation" ordinance (Chapter 14.04), occur throughout the study area, including in developed areas that have retained native vegetation. The only NTPC located within the city limits of Palmdale with Joshua tree and California juniper is the southern portion of Pipeline along 47th Street East.

5.6 Jurisdictional Waters

On January 9, 2001, the United States Supreme Court issued a decision in Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (2001) 121 S.Ct. 675 (SWANCC) that held that the language of the CWA cannot be interpreted as conferring authority for the federal government to regulate "isolated, intrastate, and nonnavigable waters" merely because migratory birds may frequent them. The Court emphasized the states' responsibility for regulating such waters. The Antelope Valley is an internally drained basin with no connection to navigable waters; therefore, the USACE has disclaimed all wetlands and drainages within the basin based upon the SWANCC decision, with the exception of Lake Palmdale. Lake Palmdale is a man-

made lake originally constructed for water supply and storage, and currently also receives water inputs from the State Water Project. Though Lake Palmdale does not have a downstream surface connection with the lower Antelope Valley watershed (i.e. isolated), past approved jurisdictional determinations[1] have demonstrated a potential nexus to commerce (i.e. (a)(3)(i) water). Lake Palmdale has and currently does support navigation and substantial surface water related recreation with the potential for interstate commerce.

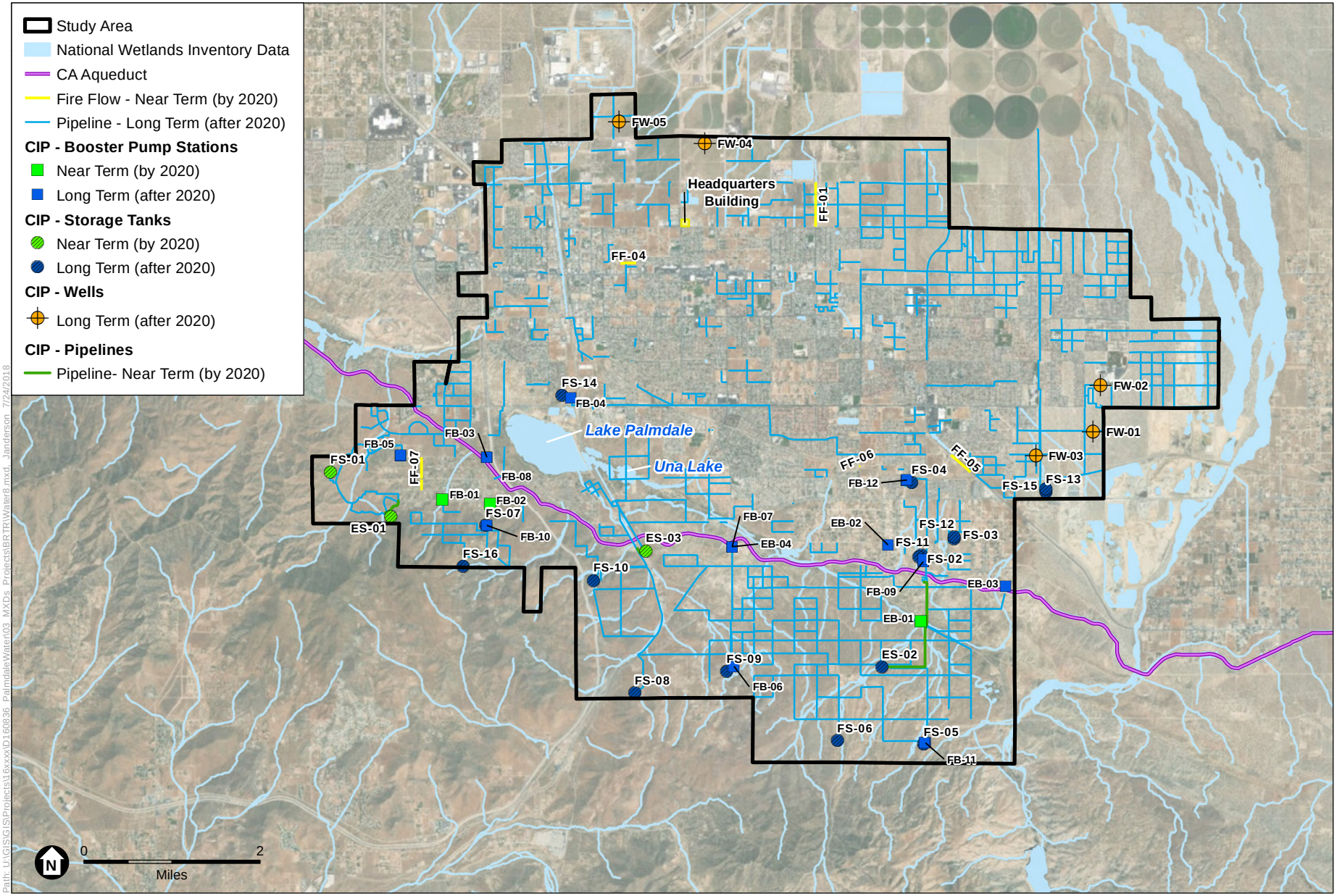
With the exception of impacts to Lake Palmdale and Palmdale Ditch, there is no need for 404 determinations within the study area and permitting under CWA 401 and 404. However, water features in the study area are still jurisdictional as waters of the State and also fall under California State Fish and Game Code § 1600 et seq. Substantial natural water features found in the study area are Una Lake, Littlerock Wash, and Anaverde Creek, see **Figure 8**. Within the San Andreas Rift Zone there are springs and wetland areas that support riparian vegetation. Two manmade structures, the California Aqueduct and the Palmdale Ditch (managed by the District), convey water through the study area. The watershed within the study area north of the California Aqueduct and San Andreas Rift Zone has been primarily been removed or altered by development, but runoff water from streets may be conveyed into canals that may be jurisdictional waters.

Two NTPC and APN 3054-004-016 have potential jurisdictional waters. **Table 6** summarizes the water features in relation to the project components.

TABLE 6
POTENTIAL JURISDICTIONAL WATERS OCCURRING WITHIN OR ADJACENT TO NTPC AND ON THE APNS

Project Component	Type of Water Feature	Notes
Pipeline along 47th Street East, connecting the proposed improvements at pump station EB-01 south and then extending the pipeline west through undeveloped land to an existing deficiency recommended tank	Ephemeral stream	The proposed pipeline route crosses a potential stream toward the end of the portion of the line that goes west from 47th Street East. Vegetation within the potential stream consists of
Pipeline FF-01	Ephemeral canal in the southern half and meandering stream in the northern half.	Waters sources for the stream appears to be runoff from E. Ave. Q and the residential community to the south. Groundwater levels in the area are also affected by seepage from Sanitation Districts of Los Angeles County facility to the north. The proposed pipeline route crosses the stream several times in the northern half. The route could be sited further to the west to avoid the stream. Vegetation within the stream consists of Rubber Rabbitbrush Scrub.
APN 3054-004-016	Ephemeral stream	Several ephemeral streams are found in the canyon bottoms within the parcel. Vegetation within the stream consists of California Buckwheat Scrub and Rubber Rabbitbrush Scrub. The proposed locations from ES-01 and FS-01, including its associated pipeline, are located outside of the streams.

1 SPL-2004-00063-AOA, SPL-2004-00073-KW, 2009-00634-PHT



SOURCE: Palmdale Water 2017; USFWS 2017

Palmdale Water District

Figure 8
Overview of Mapped Waters in the Study Area and Vicinity

ESA

5.7 Significant Ecological Areas

The study area contains portions of the Antelope Valley SEA and the San Andreas Rift Zone SEA that are outside of the Palmdale city limits, see **Figure 9**, within unincorporated Los Angeles County. None of the NTPC are within the SEAs. Any long-term projects proposed for these areas would have to adhere to the design compatibility criteria for each SEA (Los Angeles County Department of Regional Planning 2009).

5.8 Wildlife Movement and Habitat Linkages

Migration of wildlife either seasonally or in response to resource availability is vital for survival in virtually all ecosystems. Migration corridors are linkages between large open space areas. Top tier predators, mezzo predators and prey species alike utilize migration corridors for travel and refuge between open space areas, as well as for wintering and breeding grounds. Some migration corridors are created naturally by topography and have been used by wildlife for hundreds or thousands of years, and some have been constructed by humans to mitigate for the loss of existing natural corridors, such as bridge crossings, underpasses and culverts. Natural features commonly utilized for local wildlife movement and migration include creeks, rivers, canyons and valleys, because these low-lying riparian areas are generally flat and include an over story of vegetation that provides shelter from predators.

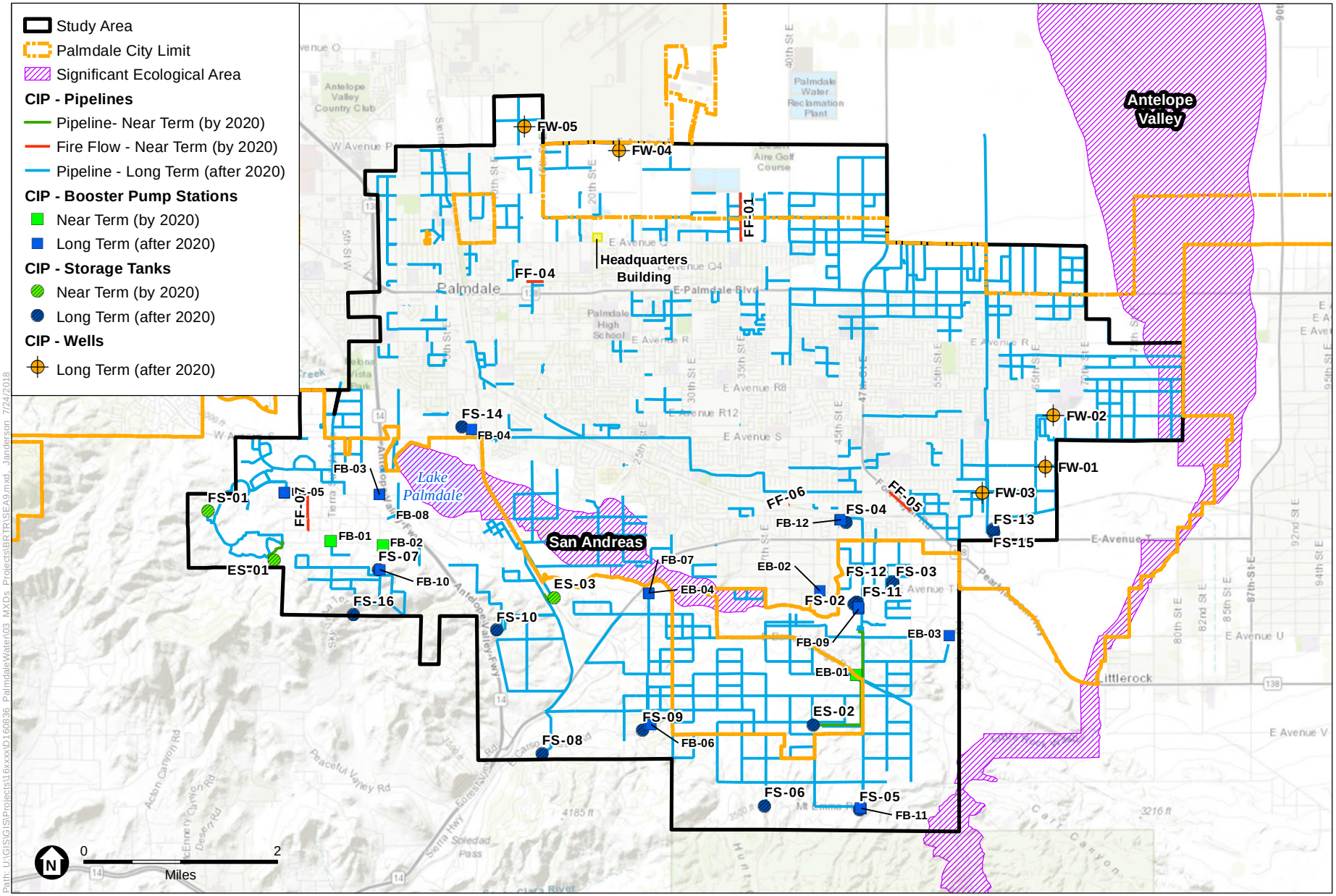
On a regional level, the study area is not a part of, nor does it contain a portion of, a major wildlife corridor or habitat linkage (South Coast Missing Linkages 2008). The majority of the study area is developed and the remaining natural open space is fragmented by developments, which limits the area's use by wildlife for movement on a regional scale. On a local scale, for each of the proposed NTPC, there is wildlife movement across each site, lending to the intrinsic habitat value, but none of the sites provide a critical linkage between two large, undisturbed habitat areas.

6. Recommendations

The following are recommendations to avoid and minimize project impacts to sensitive biological resources.

6.1 Nesting Birds – Including Special-Status Species

All NTPC and long-term project activities could negatively impact nesting birds protected by the MBTA and Fish and Game Code due to the potential for nesting birds to occur within the study area. If project activities occur within the bird nesting season (generally defined as February 1st through August 31st), a qualified biologist should conduct a nesting bird survey within two weeks of the anticipated start date to identify any active nests within 300 feet of impact areas for most birds, but 500 feet for raptors. If an active nest is found, the nest should not be impacted and project activities should be conducted as recommended by the biologist to avoid the nest, such as implementation of suitable buffer zones or postponing construction until the young have fledged and are no longer associated with the nest. A common nest buffer for most bird species is 300 feet, whereas raptors may require a buffer up to 500 feet; however, avoidance buffers may be reduced within urban areas, where appropriate, at the discretion of the biologist.



SOURCE: Palmdale Water 2017; Los Angeles Department of Regional Planning 2017

Palmdale Water District

Figure 9
Overview of Significant Ecological Areas in the Project Area and Vicinity

This recommendation also serves to avoid and minimize impacts for three of the special-status bird species that may nest in the study area: Cooper's hawk (*Accipiter cooperii*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), and loggerhead shrike (*Lanius ludovicianus*). No NTPC and long-term projects are planned for Lake Palmdale and Una Lake, so the need for protocol surveys for least Bell's vireo (*Vireo bellii pusillus*) and tricolored blackbird (*Agelaius tricolor*) are not anticipated.

Project activities are not expected to directly impact special-status bird species (golden eagle, *Aquila chrysaetos*; Bell's sage sparrow, *Artemisiospiza belli*; ferruginous hawk, *Buteo regalis*; Swainson's hawk, *Buteo swainsoni*; mountain plover, *Charadrius montanus*; Merlin, *Falco columbarius*; and prairie falcon, *Falco mexicanus*) that may occur within the study area and/or individual NTPC as transients during migration or as winter residents. The species are expected to avoid project areas due to human activity and good housekeeping policies (e.g. trash removal, keeping trash cans covered, etc.) should be implemented to reduce attracting potential prey species to the project area. See Section 6.3.2 for recommendations regarding burrowing owl (*Athene cunicularia*).

6.2 Special-Status Plant Species

A focused survey for rare plants was not conducted as part of the survey; however, four CNPS-listed special-status plant species (slender mariposa lily, Robbins' nemacladus, short-joint beavertail, and Mason's neststraw) were determined to have some potential to occur within the southern portion of the study area based on the presence of suitable habitat and recent local records (see Section 5.5.1). This includes the potential occurrence for some or all of the four species on the following NTPC: ES-01, FS-01, ES-03, Pipeline along 47th Street East, Pipeline along Sierra Highway, Pipeline west of Lakeview Drive, APN 3053-022-006, and APN 3054-004-016 (see Table 4).

The following measures are recommended to avoid and/or reduce potential impacts to special-status plants as a result of proposed project activities on the aforementioned NTPC and for long-term projects in portions of the study area with suitable habitat:

- A floristic survey focusing on the four special-status species with some potential to occur should be conducted by a qualified biologist for the aforementioned NTPC and the long-term project components that are located in the San Andreas Rift Zone and the hilly topography south of it. The surveys should take place from April to May to cover the blooming period of the four species. The results of the survey should be documented in a report that will be submitted to CDFW.
- If the floristic survey is positive for any of the four species, or any other sensitive plant species, and the avoidance of the special-status plant species is not feasible, coordination with CDFW would be required to determine suitable mitigation. The mitigation strategy may include avoidance, on-site or off-site restoration, translocation, and/or seed collection. If restoration and/or translocation are needed, a restoration/revegetation plan must be prepared and approved by CDFW. At a minimum, the plan should include a description of the existing conditions, site selection criteria, site preparation and planting methods, maintenance and monitoring schedule, performance standards, adaptive management strategies, and identification of responsible parties.

6.3 Special-Status Wildlife

Three CDFW Species of Special Concern (silvery legless lizard, *Anniella pulchra*, coast horned lizard, *Phrynosoma blainvillii*, and burrowing owl) have the potential to occur in the study area and could be directly impacted by project activities (see Section 5.5.2). Mitigation recommendations for these species are outlined below. Three bat species (pallid bat, *Antrozous pallidus*; Townsend's big-eared bat, *Corynorhinus townsendii*; and Yuma myotis, *Myotis yumanensis*) may occur as transients during migration or foraging activities in the study area, but are not expected to roost at any of the NTPC.

6.3.1 Silvery Legless Lizard and Coast Horned Lizard

NTPC with suitable habitat for silvery legless lizard and coast horned lizard are ES-01, FS-01, ES-03, Pipeline along 47th Street East, Pipeline west of Lakeview Drive, APN 3053-022-006, and APN 3054-004-016 (see Table 5). Habitat for the two lizard species is found throughout the study area in areas with relative undisturbed native vegetation communities.

The following measures are recommended to avoid and/or reduce potential impacts to special-status wildlife as a result of proposed project activities on the aforementioned NTPC and in portions of the study area with suitable habitat for silvery legless lizard and coast horned lizard:

- A qualified biologist should conduct a preconstruction clearance survey throughout proposed impact areas for silvery legless lizard and coast horned lizard. If individuals are observed within or near the project work areas during preconstruction clearance surveys or construction monitoring, a qualified biologist should relocate the individuals to suitable habitat outside of the proposed impact areas so that construction-related impacts are avoided.
- A qualified biologist should monitor the removal of vegetation to confirm special-status species are not impacted.
- Prior to the commencement of construction activities, construction personnel should check under stationary equipment to confirm no wildlife species are present.
- All trash should be collected daily and taken offsite for proper disposal.

6.3.2 Burrowing Owl

Burrowing owl-preferred habitat is generally typified by short, sparse vegetation with few shrubs, level to gentle topography and well-drained soils. Grassland, shrub steppe, and desert are naturally occurring habitat types used by the species. In addition, burrowing owls may occur in some agricultural areas, ruderal grassy fields, vacant lots and pastures if the vegetation structure is suitable and there are useable burrows and foraging habitat in proximity. Breeding (nesting) season for the species begins as early as February 1 and continues through August 31 (CDFW 2012).

Burrowing owl has records of occurrence within the study area during both breeding and wintering seasons. Potential habitat is found throughout the study area in areas that have enough contiguous open space to support foraging by the species. There is marginal breeding/wintering habitat for the species at the following NTPC (see Table 5): ES-01, FS-01, ES-03, Pipeline FF-

05, FF-06, Pipeline along 47th Street East, Pipeline west of Lakeview Drive, APN 3053-022-006, and APN 3054-004-016. A burrowing owl habitat assessment using CDFW protocols (CDFW 2012) will be conducted by a qualified biologist for these NTPC and any long-term project component that is located within areas that may support the species.

For any NTPC and long-term project components in areas that are assessed as having potential habitat to support burrowing owl, surveys will be conducted per CDFW protocol (CDFW 2012) to determine presence or absence of the species. Four site visits are necessary to complete the protocol. For breeding season surveys, at least one site visit will be conducted between February 15 and April 15, and a minimum of three survey visits, at least three weeks apart, between April 15 and July 15, with at least one visit after 15 June. The initial survey will consist of the project site and a buffer of 150 meters, where access is available, that will be covered by qualified biologists using transects spaced seven to 20 meters apart, adjusting for vegetation height and density. All potential burrows used by burrowing owl as determined by the presence of one or more burrowing owls, pellets, prey remains, whitewash, or decoration will be mapped using a GPS device. Follow up surveys will then check any burrows that have been mapped. If conducting non-breeding season surveys, the same methods for breeding season surveys, but the three follow up visits will be spread evenly throughout the nonbreeding season.

If the surveys are positive for the presence of burrowing owl, CDFW will be consulted on how to proceed to avoid and minimize potential project-related impacts to this species. Mitigation and avoidance measures may include no-work buffers and/or seasonal limitations for burrows that cannot be avoided. Burrowing owl artificial burrow and exclusion plans are a potential option for burrows that would be directly impacted by project activities.

6.4 Joshua Tree and California Juniper

Joshua trees and/or California juniper occur on one NTPC within the limits of Palmdale and can be found throughout the study area within the City limits, including in developed areas (see Table 4). If project components, near-term or long-term, within the boundaries of Palmdale cannot be sited to avoid impacts to the species, then a native desert vegetation removal permit may be necessary from the City.

Prior to removal of Joshua trees and/or California junipers on project sites with a ratio equal to or greater than two individuals per acre (per the Joshua Tree and Native Desert Vegetation Preservation), PWD 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/or California juniper and, if determined necessary by the City of Palmdale, a long-term maintenance program for any Joshua trees and/or California junipers left onsite.
- Joshua trees and/or California junipers to be left onsite 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 and/or California junipers per acre cannot be preserved

onsite (the minimum standard of preservation), the trees shall be transplanted to an offsite location by PWD as approved by the City of Palmdale.

- In lieu of transplantation of Joshua trees and/or California junipers from areas to be developed by the project, PWD may satisfy the requirements of the City code through payment of a fee to the City.
- Joshua trees and/or California junipers preserved onsite, in landscape easements, or landscape assessment districts are to be maintained in a healthy condition for a minimum of two (2) 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.

6.5 Jurisdictional Waters

Formal jurisdictional waters delineations were not conducted for the study, but three potential jurisdictional features (see Table 6) were identified in the field at two NTPC and within one parcel, and numerous others are expected in the study area. It is first recommended that project components be sited to avoid impacts to features that appear to convey or pond water. If potential features cannot be avoided, and proposed project activities could potentially result in discharges into Waters of the State or alteration of the bed and banks of streams regulated under Fish and Game Code, a formal jurisdictional waters delineation should be conducted to determine the limits of the feature.

The results of the formal jurisdictional waters delineation will be used along with the project design for the project component to determine if jurisdictional waters will be impacted by project activities. If no impacts are anticipated, then no further mitigation is necessary. If jurisdictional water features will be potentially impacted by the proposed project component, then a Report of Water Discharge will be submitted to the Lahontan RWQCB and, if deemed necessary, Waste Discharge Requirements will be obtained from the agency. Concurrently, a Notification of Lake or Streambed Alteration will be submitted to the CDFW and, if deemed necessary, a Lake or Streambed Alteration Agreement will be obtained. Conditions for the certification and agreement may require additional surveys for plants and wildlife, as well as best management practices to minimize impacts.

6.6 Significant Ecological Areas

All of the NTPC within the Antelope Valley SEA and the San Andreas Rift Zone SEA are also within the limits of Palmdale and do not fall under County jurisdiction. Long-term components that are located within the SEAs and in unincorporated Los Angeles County are limited to recommended pipelines. If the pipelines cannot be sited outside of those areas, then the projects would have to adhere to the design compatibility criteria for each SEA. Proposals for project impacts within the SEAs in unincorporated Los Angeles County shall be submitted to the Los County Department of Regional Planning to determine if SEATAC review is necessary and if the individual projects are consistent with the SEA CUP compatibility criteria. SEATAC recommendations for reduction of project impacts will be followed to acceptable levels (Los Angeles County Department of Regional Planning 2009).

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APPENDIX A

Photo Exhibit

Photo 1. Storage Tank ES-01 with California Buckwheat Scrub.

Photo 4. Storage tank ES-03 with California Joint Fir Scrub.

Photo 2. Storage Tank FS-01 with California Juniper Woodland.

Photo 5. Representative photo of APN 3053-022-006.

Photo 3. Overview of APN 3054-004-016.

Photo 6. Pump Station EB-01.

Photo 7. Pump Station FB-01.

Photo 8. Pump Station FB-02.

Photo 9. Southern portion of Pipeline FF-01 (sited in the road) with adjacent Sandbar Willow Thickets on the right and Cheatgrass Grassland on the left.

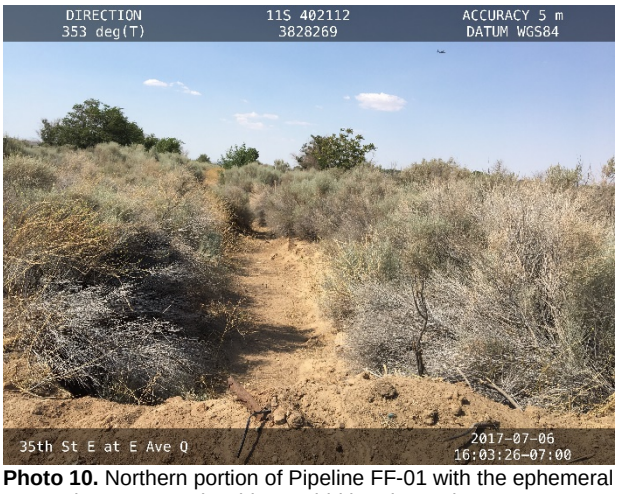

Photo 10. Northern portion of Pipeline FF-01 with the ephemeral stream it crosses and Rubber Rabbitbrush Scrub.

Photo 11. Pipeline FF-04 with Cheatgrass Grassland and Rubber Rabbitbrush Scrub.

Photo 12. Pipeline FF-05 site in shoulder of State Route 138 with Rubber Rabbitbrush Scrub.

Photo 13. Pipeline FF-06 sited within 40th St. East.

Photo 14. Northern portion of Pipeline FF-07 sited within Camares Road.

Photo 15. Northern portion of Pipeline along 47th Street East, sited within 47th St. East.

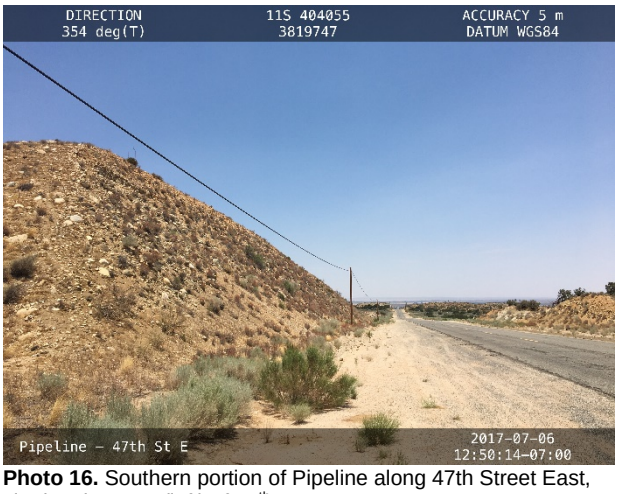

Photo 16. Southern portion of Pipeline along 47th Street East, sited to the west (left) of 47th St. East.

Photo 17. Portion of Pipeline along 47th Street East that runs west from 47th St. East with California Juniper Woodland.

Photo 18. Pipeline within the ROW of Sierra Highway at connection point with Storage Tank ES-03.

Photo 19. Pipeline along Sierra Highway where it crosses the PWD-maintained Palmdale Ditch.

Photo 22. Representative photo of silvery legless lizard and coast horned lizard habitat on APN 3054-004-016 that includes an ephemeral stream.

Photo 20. Pipeline west of Lakeview Drive, sited within unnamed dirt road, with adjacent Tucker Oak Chaparral.

Photo 21. Representative photo of potential burrowing owl habitat near Pipeline FF-07.

APPENDIX B

Special-status Species Habitat Assessment

TABLE B-1
HABITAT ASSESSMENT FOR SPECIAL-STATUS PLANT SPECIES WITH RECORDED OCCURRENCES IN THE STUDY AREA AND VICINITY

Common Name Scientific Name	Federal ESA Status	California ESA Status	CRPR[1]	General Habitat[2]	Micro-Habitat[2]	Status Within the Study Area[3]
San Gabriel manzanita *Arctostaphylos glandulosa* ssp. *gabrielensis*	None	None	1B.1	Chaparral.	Rocky outcrops; can be dominant shrub where it occurs. 3,150-6,610 feet (ft).	Absent. The nearest known record of the species is located approximately six miles south of the study area and the species associated habitat is not found in the study area.
Lancaster milk-vetch *Astragalus preussii* var. *laxiflorus*	None	None	1B.1	Chenopod scrub.	Alkaline clay flats or gravelly or sandy washes and along draws in gullied badlands. 2,300-2,410 ft.	Absent. The nearest known record of the species is located 16.8 miles northeast of the study area in alkali flats associated with Rogers Lake (dry) and the species' microhabitat is not found in the study area.
Slender mariposa lily *Calochortus clavatus* var. *gracilis*	None	None	1B.2	Chaparral, coastal scrub, valley and foothill grassland.	Shaded foothill canyons; often on grassy slopes within other habitat. 690-5,950 ft.	Low Potential. The nearest known record of the species is located approximately seven miles to the west of the study area on Portal Ridge. Marginal habitat is located in the hilly topography in the southern portion of the study area.
Palmer's mariposa-lily *Calochortus palmeri* var. *palmeri*	None	None	1B.2	Meadows and seeps, chaparral, lower montane coniferous forest.	Vernally moist places in yellow-pine forest, chaparral. 1,590-8,200 ft.	Absent. The study area is outside of the known range of the species. The nearest known record of the species is located approximately seven miles to the west of the study area.
alkali mariposa-lily *Calochortus striatus*	None	None	1B.2	Chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps.	Alkaline meadows and ephemeral washes. 230-7,250 ft.	Absent. The study area is south of the range of the species. The nearest known records are located approximately 6.5 miles north of the study area primarily in alkaline meadows and moist creosote-bush scrub, which are not found in the study area.

TABLE B-1
HABITAT ASSESSMENT FOR SPECIAL-STATUS PLANT SPECIES WITH RECORDED OCCURRENCES IN THE STUDY AREA AND VICINITY

Common Name Scientific Name	Federal ESA Status	California ESA Status	CRPR[1]	General Habitat[2]	Micro-Habitat[2]	Status Within the Study Area[3]
Mt. Gleason paintbrush *Castilleja gleasoni*	None	None	1B.1	Lower montane coniferous forest, chaparral, pinyon and juniper woodland.	On open flats or slopes in granitic soil. Restricted to the San Gabriel Mountains. 3,200-6,400 ft.	Absent. The microhabitat conditions are not found in the study area. The nearest known records are located approximately 5.5 miles southwest of the study area.
San Fernando Valley spineflower *Chorizanthe parryi var. fernandina*	None	None	1B.1	Coastal scrub, valley and foothill grassland.	Sandy soils. 50-3,330 ft.	Absent. The nearest known record of the species is located approximately 15 miles northwest of the study area and the species associated habitat is not found in the study area.
Parry's spineflower *Chorizanthe parryi* var. *parryi*	None	None	1B.1	Coastal scrub, chaparral, cismontane woodland, valley and foothill grassland.	Dry slopes and flats; sometimes at interface of two vegetation types, such as chaparral and oak woodland. Dry, sandy soils. 290-4,000 ft.	Absent. The nearest known record of the species is located approximately 15 miles west of the study area and the species is not known to occur north of the Transverse Range.
Rosamond eriastrum *rosamondense*	None	None	1B.2	Chenopod scrub, vernal pools.	Alkali pool beds separated by very low hummocks with open chenopod scrub. Often sandy soil. 2,300-2,360 ft.	Absent. The microhabitat conditions are not found in the study area. The nearest known records are located approximately 6.2 miles north of the study area.
lemon lily *Lilium parryi*	None	None	1B.2	Lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest.	Wet, mountainous terrain; generally in forested areas; on shady edges of streams, in open boggy meadows and seeps. 2,050-9,620 ft.	Absent. The microhabitat conditions are not found in the study area. The nearest known records are located approximately 8.3 miles south of the study area.
San Gabriel linanthus *concinnus*	None	None	1B.2	Lower montane coniferous forest, upper montane coniferous forest, chaparral.	Dry rocky slopes, often in Jeffrey pine/canyon oak forest. 4,300-8,400 ft.	Absent. The microhabitat conditions are not found in the study area. The nearest known records are located approximately 6.3 miles south of the study area.

TABLE B-1
HABITAT ASSESSMENT FOR SPECIAL-STATUS PLANT SPECIES WITH RECORDED OCCURRENCES IN THE STUDY AREA AND VICINITY

Common Name Scientific Name	Federal ESA Status	California ESA Status	CRPR[1]	General Habitat[2]	Micro-Habitat[2]	Status Within the Study Area[3]
sagebrush loeflingia *squarrosa* var. *artemisiarum*	None	None	2B.2	Great Basin scrub, Sonoran desert scrub, desert dunes.	Sandy flats and dunes. Sandy areas around clay slicks with *Sarcobatus, Atriplex, Tetradymia*, etc. 2,300-5,300 ft.	Absent. The habitat conditions are not found in the study area. The nearest known records are located approximately 15 miles north of the study area.
Peirson's lupine *Lupinus peirsonii*	None	None	1B.3	Joshua tree woodland, pinyon and juniper woodland, lower montane coniferous forest, upper montane coniferous forest.	Decomposed granite slide and talus, on slopes and ridges. 4,590-7,810 ft.	Absent. The microhabitat conditions are not found in the study area. The nearest known records are located approximately 10.5 miles southwest of the study area.
Ojai navarretia *ojaiensis*	None	None	1B.1	Chaparral, coastal scrub, valley and foothill grassland.	Openings in shrublands or grasslands. 900-2,030 ft.	Absent. The study area is well outside the range of the species. The nearest known records are located approximately 32 miles southwest of the study area.
Robbins' nemacladus *Nemacladus secundiflorus* var. *robbinsii*	None	None	1B.2			Medium Potential. The nearest known record of the species is located approximately one mile to the south of the study area and that record is located within habitat (California Juniper Woodland) found in the southern and southwestern portions of the study area, including the San Andreas Rift Zone and the hilly topography south of it..
Short-joint beavertail *Opuntia basilaris* var. *brachyclada*	None	None	1B.2			Present. There are two records from the southern portion of the study area. There is suitable habitat for the species in the including the San Andreas Rift Zone and the hilly topography south of it.

TABLE B-1
HABITAT ASSESSMENT FOR SPECIAL-STATUS PLANT SPECIES WITH RECORDED OCCURRENCES IN THE STUDY AREA AND VICINITY

Common Name Scientific Name	Federal ESA Status	California ESA Status	CRPR[1]	General Habitat[2]	Micro-Habitat[2]	Status Within the Study Area[3]
woolly mountain-parsley *Oreonana vestita*	None	None	1B.3	Subalpine coniferous forest, upper montane coniferous forest, lower montane coniferous forest.	High ridges; on scree, talus, or gravel. 5,300-11,480 ft.	Absent. The habitat and microhabitat conditions are not found in the study area. The nearest known records are located approximately 10.6 miles southeast of the study area.
white rabbit-tobacco *Pseudognaphalium leucocephalum*	None	None	2B.2	Riparian woodland, cismontane woodland, coastal scrub, chaparral.	Sandy, gravelly sites. 110-1,690 ft.	Absent. The study area is well outside the range of the species. The nearest known records are located approximately 15 miles south of the study area.
Mason's neststraw *Stylocline masonii*	None	None	1B.1	Chenopod scrub, pinyon and juniper woodland.	Sandy washes. 330-3,940 ft.	Low Potential. The nearest known record of the species is located approximately 5.3 miles to the southwest of the study area; however, that record is located within habitat (California Juniper Woodland) that is found in the southern and southwestern portions of the study area This includes the San Andreas Rift Zone and the hilly topography south of it.
Greata's aster *Symphyotrichum greatae*	None	None	1B.3	Chaparral, cismontane woodland, broadleaved upland forest, lower montane coniferous forest, riparian woodland.	Mesic canyons. 1,100-6,610 ft.	Absent. The study area is well outside the range of the species. The nearest known records are located approximately 13.5 miles south of the study area.

TABLE B-1
HABITAT ASSESSMENT FOR SPECIAL-STATUS PLANT SPECIES WITH RECORDED OCCURRENCES IN THE STUDY AREA AND VICINITY

Common Name Scientific Name	Federal ESA Status	California ESA Status	CRPR[1]	General Habitat[2]	Micro-Habitat[2]	Status Within the Study Area[3]

1. CRPR = California Rare Plant Rank
   - 1B Priority List 1B: plant Rare, Threatened, or Endangered in CA and elsewhere; eligible for state listing.
   - 2 Priority List 2: plant rare, threatened, or Endangered in CA, but more common elsewhere; eligible for state listing.
     - .1 - Seriously threatened in California (high degree/immediacy of threat).
     - .2 - Fairly threatened in California (moderate degree/immediacy of threat).
     - .3 - Not very threatened in California (low degree/immediacy of threats or no current threats known).
2. General Habitat and Micro-Habitat are taken from the CNDDB descriptions of the species.
3. The status of special-status species to be found on within the project area and the immediate vicinity was assessed following the database searches and field survey. During the assessment, each species was assigned to one of the categories listed below:

   Present: Species is known to occur within the study area, based on recent (within 20 years) CNDDB or other records, and there is suitable habitat present within the study area, or the species was observed within the study area during the field survey. The presence of bird species was distinguished further into those that 1) nest on the study area, 2) forage on the study area, and/or 3) occur on the study area only as transients during migratory flights or other dispersal events.

   Medium Potential: Species is known to occur in the vicinity of the study area (based on recent [within 20 years] CNDDB or other records or based on professional expertise specific to the study area or species), and there is suitable habitat within the study area that makes the probability of the species occurring there high. Alternatively, there is suitable habitat within the study area and within the known range of the species. Bird species that fell in this category were differentiated on the basis of their occurrence in the study area as nesters, foragers, and/or transients.

   Low Potential: Species is known to occur in the vicinity of the study area (within the area comprised by the surrounding USGS quadrangles); however, there is only poor quality or marginal habitat within the study area and the probability of the species occurring is low.

   Absent: There is no suitable habitat for the species within the study area, or the area is located outside the known range of the species. Alternatively, a species was surveyed for during the appropriate season with unequivocal negative results for species occurrence.

TABLE B-2
HABITAT ASSESSMENT FOR SPECIAL-STATUS WILDLIFE SPECIES WITH RECORDED OCCURRENCES IN THE STUDY AREA AND VICINITY

Common Name Scientific Name	Federal ESA Status	State ESA Status	CDFW Status[1]	General Habitat[2]	Micro-Habitat[2]	Status Within the Study Area[3]
Insects						
Crotch bumble bee *Bombus crotchii*	None	None	SA	Coastal California east to the Sierra-Cascade crest and south into Mexico.	Food plant genera include *Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum*.	Absent. Outside of the known range of the species.
Fish						
Santa Ana sucker *Catostomus santaanae*	Threatened	None	None	Endemic to Los Angeles Basin south coastal streams.	Habitat generalists, but prefer sand-rubble-boulder bottoms, cool, clear water, and algae.	Absent. Outside of the known range of the species and no suitable habitat.
unarmored threespine stickleback *Gasterosteus aculeatus williamsoni*	Endangered	Endangered	FP	Weedy pools, backwaters, and among emergent vegetation at the stream edge in small Southern California streams.	Cool (<75° Fahrenheit), clear water with abundant vegetation.	Absent. Outside of the known range of the species and no suitable habitat.
Amphibians						
arroyo toad *Anaxyrus californicus*	Endangered	None	SSC	Semi-arid regions near washes or intermittent streams, including valley-foothill and desert riparian, desert wash, etc.	Rivers with sandy banks, willows, cottonwoods, and sycamores; loose, gravelly areas of streams in drier parts of range.	Absent. Portions of the Little Rock Wash occur in the southeastern corner and central-western edge of the study area; however, it is believed to be restricted to a 3-mile stretch of stream habitat above Little Rock Reservoir. This population is approximately two miles from the study area boundary. A historical population, since considered extirpated, did occur in the Little Rock Wash approximately 0.5 miles from the study area boundary. The reservoir has altered the water flow regime into the wash, reducing the habitat value for the species.

TABLE B-2
HABITAT ASSESSMENT FOR SPECIAL-STATUS WILDLIFE SPECIES WITH RECORDED OCCURRENCES IN THE STUDY AREA AND VICINITY

Common Name Scientific Name	Federal ESA Status	State ESA Status	CDFW Status[1]	General Habitat[2]	Micro-Habitat[2]	Status Within the Study Area[3]
California red-legged frog *Rana draytonii*	Threatened	None	SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Requires 11-20 weeks of permanent water for larval development. must have access to estivation habitat.	Absent. Outside of the known range of the species.
southern mountain yellow-legged frog *Rana muscosa*	Endangered	Endangered	SSC	Inhabits rocky streams in narrow canyons and in the chaparral belt.	Always encountered within a few feet of water. Tadpoles may require 2-4 years to complete their aquatic development.	Absent. Outside of the known range of the species.
Reptiles						
silvery legless lizard *Anniella pulchra*	None	None	SSC	Sandy or loose loamy soils under sparse vegetation.	Soil moisture is essential. they prefer soils with a high moisture content.	Present. There are recent records of the species within the study area. Habitat for the species is found throughout the study area in areas with relative undisturbed native vegetation communities.
California glossy snake *Arizona elegans occidentalis*	None	None	SSC	Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular Ranges, south to Baja California.	Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	Absent. Outside of the known range of the species. More research needed to differentiate subspecies.
western pond turtle *Emys marmorata*	None	None	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation.	Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 1,640 ft. from water for egg-laying.	Absent. The species is not known from any of the perennial aquatic habitats that occur within the study area. Nonnative species, including red-eared sliders (*Trachemys scripta*), are found in Lake Palmdale and Una Lake.

TABLE B-2
HABITAT ASSESSMENT FOR SPECIAL-STATUS WILDLIFE SPECIES WITH RECORDED OCCURRENCES IN THE STUDY AREA AND VICINITY

Common Name Scientific Name	Federal ESA Status	State ESA Status	CDFW Status[1]	General Habitat[2]	Micro-Habitat[2]	Status Within the Study Area[3]
desert tortoise *Gopherus agassizii*	Threatened	Threatened	None	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat.	Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	Absent. The species does not have any records within the queried area. The nearest CNDDB record, from 1990, for the species is approximately eight miles to the northeast of the study area near Lake Los Angeles. The study area is primarily urbanized and lacks connectivity with known populations of the species. There are few large areas of creosote bush scrub in the study area.
coast horned lizard *Phrynosoma blainvillii*	None	None	SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes.	Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Present. There are recent records of the species within the study area. Habitat for the species is found throughout the study area in areas with relative undisturbed native vegetation communities.
two-striped gartersnake *Thamnophis hammondii*	None	None	SSC	Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 feet elevation.	Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	Absent. The species is not known from any of the perennial aquatic habitats that occur within the study area and migration from known occupied habitats is not expected.
Birds						
Cooper's hawk *Accipiter cooperii*	None	None	WL	Woodland, chiefly of open, interrupted or marginal type.	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Present. The majority of the records for the species in the study area are from winter and typical nesting habitat does not occur; however, the species is known to be adapting to urban environments.

TABLE B-2
HABITAT ASSESSMENT FOR SPECIAL-STATUS WILDLIFE SPECIES WITH RECORDED OCCURRENCES IN THE STUDY AREA AND VICINITY

Common Name Scientific Name	Federal ESA Status	State ESA Status	CDFW Status[1]	General Habitat[2]	Micro-Habitat[2]	Status Within the Study Area[3]
tricolored blackbird *Agelaius tricolor*	None	None	SSC	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California.	Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometer of the colony.	Present. The species is known to nest at Lake Palmdale and Una Lake in cattails (*Typha* sp.) and tule (*Schoenoplectus acutus*).
southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	None	None	WL	Resident in Southern California coastal sage scrub and sparse mixed chaparral.	Frequents relatively steep, often rocky hillsides with grass and forb patches.	Low Potential. Marginal nesting habitat for the species is located in the southern portion of the study area.
golden eagle *Aquila chrysaetos*	None	None	FP	Rolling foothills, mountain areas, sage-juniper flats, and desert.	Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Present. The species occurs as a transient during migration, during foraging activities, or as a winter resident. Absent-Nesting. Typical nesting habitat is not found in the study area.
Bell's sage sparrow *Artemisiospiza belli*	None	None	WL	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range.	Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground. Territories about 50 yards apart.	Low Potential. Typical nesting habitat is not found in the study area. The species may occur as a transient during migration or as winter resident.
burrowing owl *Athene cunicularia*	None	None	SSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation.	Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Present. There are recent occurrences of the species in the study area and suitable nesting and wintering habitats are present.
ferruginous hawk *Buteo regalis*	None	None	WL	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats.	Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	Present. The species occurs as a transient during migration or as a winter resident. Absent-Nesting. Typical nesting habitat is not found in the study area.

TABLE B-2
HABITAT ASSESSMENT FOR SPECIAL-STATUS WILDLIFE SPECIES WITH RECORDED OCCURRENCES IN THE STUDY AREA AND VICINITY

Common Name Scientific Name	Federal ESA Status	State ESA Status	CDFW Status[1]	General Habitat[2]	Micro-Habitat[2]	Status Within the Study Area[3]
Swainson's hawk *Buteo swainsoni*	None	Threatened	None	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees.	Antelope Valley Swainson's hawks are known to have historically nested in Joshua tree woodlands and foraged in grasslands and native desert scrub communities. Currently, they nest in Joshua tree woodlands, ornamental roadside trees, and windrow or perimeter trees in active and historical agricultural areas. Foraging habitat includes dry land and irrigated pasture, alfalfa, fallow fields, low-growing row or field crops, new orchards, and cereal grain crops. The species may also forage in grasslands, Joshua tree woodlands, and other desert scrub habitats that support a suitable prey base.[4]	Present. The species occurs as a transient during migration or during foraging activities. Absent-Nesting. Typical nesting habitat is not found in the study area. The single record for nesting in the study area is from 1921 and it is mapped to vicinity of Palmdale, per specimen locality, with the exact collection location unknown. The nearest recent recorded nest location is located approximately eight miles to the northeast of the study area in an area that was historically agriculture.
mountain plover *Charadrius montanus*	None	None	SSC	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms.	Short vegetation, bare ground and flat topography. Prefers grazed areas and areas with burrowing rodents.	Low Potential. The species may occur as a wintering resident. Absent-Nesting. Typical nesting habitat is not found in the study area.
Merlin *Falco columbarius*	None	None	WL	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms and ranches.	Clumps of trees or windbreaks are required for roosting in open country.	Present. The species occurs as a transient during migration or during foraging activities. Absent-Nesting. Typical nesting habitat is not found in the study area.

TABLE B-2
HABITAT ASSESSMENT FOR SPECIAL-STATUS WILDLIFE SPECIES WITH RECORDED OCCURRENCES IN THE STUDY AREA AND VICINITY

Common Name Scientific Name	Federal ESA Status	State ESA Status	CDFW Status[1]	General Habitat[2]	Micro-Habitat[2]	Status Within the Study Area[3]
prairie falcon *Falco mexicanus*	None	None	WL	Inhabits dry, open terrain, either level or hilly.	Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	Present. The species occurs as a transient during migration or as a winter resident. Absent-Nesting. Typical nesting habitat is not found in the study area.
loggerhead shrike *Lanius ludovicianus*	None	None	SSC	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes.	Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Present. There are recent occurrences of the species in the study area and suitable nesting habitat is present in Forest and Woodland, Semi-Desert, and Shrubland and Grassland vegetation communities.
least Bell's vireo *Vireo bellii pusillus*	Endangered	Endangered	WL	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet.	Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	Present. The species has potential nesting records from Una Lake and there is potential nesting habitat at Lake Palmdale. The species is not expected to nest in the study area outside of these two locations.
Mammals						
pallid bat *Antrozous pallidus*	None	None	SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting.	Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Low Potential. Typical roosting habitat does not occur in the study area. The species may occur as a transient during migration or foraging activities.
pallid San Diego pocket mouse *Chaetodipus fallax pallidus*	None	None	SSC	Desert border areas in eastern San Diego County in desert wash, desert scrub, desert succulent scrub, pinyon-juniper, etc.	Sandy herbaceous areas, usually in association with rocks or coarse gravel.	Absent. The study area is outside of the known range of the species.

TABLE B-2
HABITAT ASSESSMENT FOR SPECIAL-STATUS WILDLIFE SPECIES WITH RECORDED OCCURRENCES IN THE STUDY AREA AND VICINITY

Common Name Scientific Name	Federal ESA Status	State ESA Status	CDFW Status[1]	General Habitat[2]	Micro-Habitat[2]	Status Within the Study Area[3]
Townsend's big-eared bat *Corynorhinus townsendii*	None	None	SSC	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. extremely sensitive to human disturbance.	Low Potential. Typical roosting habitat does not occur in the study area. The species may occur as a transient during migration or foraging activities.
Yuma myotis *Myotis yumanensis*	None	None	SA	Optimal habitats are open forests and woodlands with sources of water over which to feed.	Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	Low Potential. Typical roosting habitat does not occur in the study area. The species may occur as a transient during migration or foraging activities.
San Joaquin pocket mouse *Perognathus inornatus*	None	None	SA	Grassland, oak savanna and arid scrubland in the southern Sacramento Valley, Salinas Valley, San Joaquin Valley and adjacent foothills, south to the Mojave Desert.	Associated with fine-textured, sandy, friable soils.	Absent. Outside of the known range of the species. Local record is from 1931 and its identification as the species is questionable (per CNDDB record).
Mohave ground squirrel *Xerospermophilus mohavensis*	None	Threatened	None	Open desert scrub, alkali scrub and Joshua tree woodland. Also feeds in annual grasslands. Restricted to Mojave Desert.	Prefers sandy to gravelly soils, avoids rocky areas. Uses burrows at base of shrubs for cover. Nests are in burrows.	Absent. Protocol trapping efforts in northeastern Los Angeles County from 2008–2012 have failed to find the species. Just as in the previous 10-year period, the only positive records were at several sites within or very close to Edwards Air Force Base. The species is believed to be extirpated from the study area and southwestern Antelope Valley.[5]

TABLE B-2
HABITAT ASSESSMENT FOR SPECIAL-STATUS WILDLIFE SPECIES WITH RECORDED OCCURRENCES IN THE STUDY AREA AND VICINITY

Common Name Scientific Name	Federal ESA Status	State ESA Status	CDFW Status[1]	General Habitat[2]	Micro-Habitat[2]	Status Within the Study Area[3]

1. CDFW Status
   FP = Fully Protected. species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.
   SA = Special Animal tracked by CDFW or has been given special-status by a non-governmental agency.
   SSC = Species of Special Concern. Species are given this designation by CDFW due to declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.
   WL = Watch List. For species that were previously SSC but no longer merit SSC status, or which do not meet SSC criteria but for which there is concern and a need for additional information to clarify its status.
2. General Habitat and Micro-Habitat are taken from the CNDDB descriptions of the species.
3. The status of special-status species to be found on within the project area and the immediate vicinity was assessed following the database searches and field survey. During the assessment, each species was assigned to one of the categories listed below:
   Present: Species is known to occur within the study area, based on recent (within 20 years) CNDDB or other records, and there is suitable habitat present within the study area, or the species was observed within the study area during the field survey. The presence of bird species was distinguished further into those that 1) nest on the study area, 2) forage on the study area, and/or 3) occur on the study area only as transients during migratory flights or other dispersal events.
   Medium Potential: Species is known to occur in the vicinity of the study area (based on recent [within 20 years] CNDDB or other records or based on professional expertise specific to the study area or species), and there is suitable habitat within the study area that makes the probability of the species occurring there high. Alternatively, there is suitable habitat within the study area and within the known range of the species. Bird species that fell in this category were differentiated on the basis of their occurrence in the study area as nesters, foragers, and/or transients.
   Low Potential: Species is known to occur in the vicinity of the study area (within the area comprised by the surrounding USGS quadrangles); however, there is only poor quality or marginal habitat within the study area and the probability of the species occurring is low.
   Absent: There is no suitable habitat for the species within the study area, or the area is located outside the known range of the species. Alternatively, a species was surveyed for during the appropriate season with unequivocal negative results for species occurrence.
4. California Energy Commission and California Department of Fish and Wildlife (CDFW). 2010. Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California. Available at https://www.wildlife.ca.gov/Conservation/Birds/Swainson-Hawks. Accessed June 2017.
5. Leitner, P. 2015. Current Status of the Mohave Ground Squirrel (*Xerospermophilus mohavensis*): A Five-Year Update (2008–2012). Western Wildlife 2:9–22.

Appendix HRA

Historical Resources Assessment Report

ESA

PALMDALE WATER DISTRICT HEADQUARTERS EXPANSION, PALMDALE, CALIFORNIA

Historical Resources Assessment Report

Prepared for
Palmdale Water District
2029 East Avenue Q
Palmdale, California, 93550

July 2018

ESA

PALMDALE WATER DISTRICT HEADQUARTERS EXPANSION, PALMDALE, CALIFORNIA

Historical Resources Assessment Report

Prepared for:
Palmdale Water District
2029 East Avenue Q
Palmdale, California, 93550

July 2018

Prepared by:
ESA
626 Wilshire Boulevard
Suite 1100
Los Angeles, CA 90017

Project Manager:
Candace Ehringer, M.A., RPA

Report Authors:
Christian Taylor, M.H.P.
Hanna Winzenried, M.S.

Project Location:
Palmdale (CA) USGS 7.5-minute Topographic Quad
Township 6 North, Range 12 West, Section 19

APN: 3022-012-918
Acreage: Approx. 35 acres

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D160836.00

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EXECUTIVE SUMMARY

Palmdale Water District Headquarters Expansion – Historical Resources Assessment Report

Environmental Science Associates (ESA) has been retained by the Palmdale Water District (PWD; District) to conduct a Historical Resources Assessment (HRA) for the Headquarter Expansion Project (Project) in support of a Program Environmental Impact Report (PEIR) for the Water System Master Plan (WSMP). The subject property is currently improved with seven buildings and structures, including the original PWD Headquarters building constructed in 1962, designed in the Mid-Century Modern style. Of the seven buildings surveyed on the subject property, only the original headquarters building (Building A) and a garage (Garage A) meet the age threshold for eligibility under the national, state, and County criteria. These two buildings were evaluated for their eligibility as historical resources pursuant to CEQA. PWD is the lead agency responsible for compliance with CEQA.

The subject property is located at 2029 E. Avenue Q in Palmdale, California (APN: 3022-012-918), approximately 60 miles northeast of the City of Los Angeles, within the Antelope Valley and encompasses 35 acres of mainly undeveloped land. All of the buildings surveyed were located near the southwest corner of the subject property. The Project consists of demolition of existing buildings and construction of a new single-story 21,000-square-foot building.

Building A and Garage A were constructed in 1962 and are associated with the suburban growth of Palmdale. Upon further review of the history of Palmdale and its suburban growth following World War II, it was determined that Building A did not play a significant role in development of the community or reflect important settlement patterns for the area. Building A is a simplistic expression of Mid-Century style, which was popular at the time of its construction and is not considered an excellent example of its style or property type. Further, the building was not associated with any significant personages and does not appear to contain information important in prehistory or history. Therefore, Building A is recommended not eligible for listing in the National Register or California Register. Garage A is a utilitarian structure that lacks individual distinction and therefore does not appear eligible under any of the applicable criteria. Building A and Garage A do not qualify as historical resources and they require no further consideration under CEQA.

PALMDALE WATER DISTRICT HEADQUARTERS EXPANSION

Historical Resources Assessment Report

Introduction

Environmental Science Associates (ESA) has been retained by the Palmdale Water District (PWD; District) to conduct a Historical Resources Assessment (HRA) for the Headquarter Expansion Project (Project) in support of a Program Environmental Impact Report (PEIR) for the Water System Master Plan (WSMP). The subject property is currently improved with seven buildings and structures, including the original PWD Headquarters building constructed in 1962, designed in the Mid-Century Modern style. Of the seven buildings surveyed on the subject property, only the original headquarters building and a garage meet the age threshold for eligibility under the national, state, and County criteria. These two buildings were evaluated for their eligibility as historical resources pursuant to CEQA. PWD is the lead agency responsible for compliance with CEQA.

This report documents the existing conditions of the subject property with regards to historical resources, for use in the proposed Project CEQA analysis. ESA personnel involved in the preparation of this report are as follows: Candace Ehringer, M.A., RPA, project manager; Christian Taylor, M.H.P., and Hanna Winzenried, M.S., report authors. Resumes of key personnel are included in **Appendix A**.

Project Location

The subject property is located at 2029 E. Avenue Q in Palmdale, California (APN: 3022-012-918), approximately 60 miles northeast of the City of Los Angeles, within the Antelope Valley (**Figure 1**). The subject property encompasses 35 acres, bounded by Avenue Q to the south, 20th Street to the west, and privately owned properties to the north and east (**Figure 2**). The subject property consists mainly of open undeveloped land, with all of the buildings on the site situated near the southwest corner.

Project Description

The headquarter expansion would consist of demolition of existing buildings at the corner of E. Avenue Q and 20th Street in Palmdale and construction of a new 21,000–square-foot building. The building to be constructed would be one story in height and would be constructed on land currently owned by PWD. PWD anticipates the demolition and construction would occur between 2020 and 2030, which puts it within the long-term component category analyzed in the WSMP PEIR.

Path: U:\GIS\GIS\Projects\16xxx\D160836 PalmdaleWater\03 MXDs Projects\Fig1 RegionalLocation.mxd rr 5/11/2018

SOURCE: ESRI

Palmdale Water District

Figure 1
Regional Location

ESA

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SOURCE: ESA, 2018; ESRI Imagery, 2018

Palmdale Water District

Figure 2
Location Map

ESA

Setting

Historic Setting

This thematic historic context presents the history of the region and the subject property, and was developed to document and support the identification and evaluation of historic architectural resources. Research indicates the property is associated with the following historical and architectural themes: Settlement of the Antelope Valley; Development of Palmdale; the History of the Palmdale Water District; and Mid-Century Modern Architecture.

Antelope Valley

The first Europeans known to have visited the Mojave were Pedro Fages in 1772 and Juan Bautista de Anza and Father Francisco Garces in 1774 (Greene, 1983). In 1775, Father Garces separated from de Anza and crossed the Mojave along the ancient Mojave Trail from Needles west to the San Gabriel Mission.

The Spanish missions that dotted the California coast never spread inland to the Mojave, and the desert remained relatively unexplored and unsettled by Europeans for much of the next century. The Romero-Estudillo Expedition of 1823-24 was an attempt by the Spanish to establish a secure route between the California Coast and Tucson; however, despite two attempts, the expedition never managed to make it as far as the Colorado River (Greene, 1983).

The first recorded American visitors to the Mojave were the party of Jedediah Smith, who crossed the Mojave along the Mojave Trail in 1826. Ewing Young and Kit Carson followed his route in the 1820s and 1830s. Kit Carson, who had participated in Jedediah Smith's 1828 expedition, later was the guide for John C. Fremont in 1844. This expedition was one of the first to document in detail the Antelope Valley.

Prior to the advent of the railroad, stagecoach routes were the primary means of transportation across the Antelope Valley. Willow Springs, located about 20 miles northwest of Palmdale, was an established resting place along historic-era Spanish and American trails and stage routes. Jedediah Smith stopped there in 1827, and later John C. Fremont in 1844 (Pacific Legacy, 2007). In 1876, the railroad came to the Antelope Valley when the Southern Pacific Railroad's line that ran south from the San Joaquin Valley was connected to the line from Los Angeles. In 1884, this line joined the Atchison, Topeka, & Santa Fe line that ran east through Needles (Pacific Legacy, 2007).

Although settlement had been encouraged by the Homestead Act of 1862 and the Desert Land Act of 1877, the Antelope Valley did not see much growth until after the coming of the railroad. In the 1880s, a number of groups established colonies in the Antelope Valley, including the Quakers, German Lutherans, and Utopian Socialists. However, fluctuating water levels and years of severe drought brought a quick end to many of these colonies (Jones & Stokes, 2005).

By 1930, over eighty settlements had been established in the region, most along railroad lines (Jones & Stokes, 2005). The town of Rosamond, located north of Palmdale, was established in 1877 along the Southern Pacific line and named for the daughter of a Southern Pacific executive (Gudde, 1960). The community of Fairmont, located south of the subject property, was established in 1910, around the time of the construction of the Fairmont Reservoir and Los Angeles Aqueduct (Jones & Stokes, 2005). Also during the construction of the First Los Angeles Aqueduct in 1907-1913, the Willow Springs Station, which was near the construction zone for the aqueduct, was being run by Ezra M. Hamilton, an early Californian pioneer who is credited with the first discovery of gold in the Antelope Valley. Hamilton developed the station into a resort by constructing a hotel, cottages, and other facilities (Nilsson et al., 2006).

Agriculture and ranching were the primary economic focus of homesteaders in the Antelope Valley. During the initial wave of settlement in the 1880s and 1890s, dry-farming methods proved fairly successful. However, this was in large part because these were unusually wet years. A severe drought between 1894 and 1904 brought an end to most agricultural enterprises. After the drought, irrigation was used with some success, particularly for the cultivation of alfalfa, grapes (**Figure 3**), and peaches which became the valley's primary crop (COLA Public Library, 2009).

Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: LAPL, Herald Examiner Collection

Figure 3
Growing Grapes in Palmdale, 1955

City of Palmdale

Palmdale has its roots in two small, early communities: Harold (Alpine Station) and Palmenthal. Harold was a natural location for a community because it was at the crossroads of the two major transportation routes on the valley floor: the Southern Pacific Railroad and Fort Tejon Road (now Barrel Springs Road). Palmenthal was established in 1886 when approximately 60 families of

Swiss and German descent moved westward to California primarily from Nebraska and Illinois. They had been told that when they saw palm trees, they would be very close to the Pacific Ocean. The families settled here and called their new town Palmenthal (City of Palmdale, 2010).

By the 1890s, farming families began to migrate to Palmenthal and nearby Harold to grow grain and fruit. However, most of these settlers were unfamiliar with the desert climate, so when drought years came about, many abandoned their farms. Palmenthal's name changed to Palmdale in 1899. The rest of the settlers, including the post office, moved closer to the Southern Pacific Railroad, which had been established through the valley in 1876. Southern Pacific built a railroad station along the tracks which eventually became the center of today's Palmdale (COLA Public Library, 2010). As the population of Palmdale began to increase after relocation, water became increasingly scarce. The area eventually became well-watered beginning in November 1913 when the Los Angeles Aqueduct system was completed by William Mulholland, bringing water from the Owens Valley into Los Angeles County. Because of this new abundance of water, apple, pear and alfalfa crops became plentiful.

Palmdale Lake, or the Palmdale Reservoir, was originally a small sag pond. In 1918 PWD was formed to build up the lake into a permanent reservoir to feed the agricultural fields of early Palmdale (Palmdale Water District, 1998). Between 1918 and 1919, the Palmdale Ditch was dug to bring water from Littlerock Creek to the reservoir. In 1924, the Littlerock Dam and the Harold Reservoir, present day Lake Palmdale, were constructed for the benefit of agriculture and to serve the growing communities (Palmdale Water District, 1998). After the construction of the Littlerock Dam, water flowed on demand through the Palmdale Ditch to Palmdale Lake resulting in a flourishing agricultural industry in the area. Following major flooding in the San Gabriel Mountains and resulting siltation of Littlerock Reservoir, agriculture in Palmdale suffered and went into decline. The Palmdale Ditch is still used today to replenish the water of the Palmdale Reservoir, which provides an important recreational resource to citizens of the Antelope Valley.

Agriculture continued to be the primary industry for Palmdale until the outbreak of World War II. In addition to the establishment of Muroc Air Force Base in Lancaster in 1933, the United States government later bought Palmdale Airport in 1952, formerly an airfield for the US Army Air Corps during World War II, where aerospace development and testing facilities called United States Air Force Plant 42, were located (Militarymuseum.org, 2017). One year later, in 1953, Lockheed established a facility at the airport. From that point on, the aerospace industry surpassed agriculture as the primary source of local employment.

The Lockheed facility was established for high performance aircraft production and as a flight testing base because it was far away from heavy populations that would be bothered by sonic booms caused by aircrafts reaching the speed of sound. The facility's location was also perfect for its consistently dry weather, providing ideal flight conditions all year and its close proximity to Muroc (later Edwards) Air Force Base (Militarymuseum.org, 2017). Some of the most famous projects developed at the Lockheed facility include the Space Shuttle Orbiters, Lockheed L-1011 Tristar Passenger Jet, SR-71 Blackbird and F-117A Nighthawk. The facility is still used for the production and testing of various high-performance aircraft (Militarymuseum.org, 2017). Today,

Palmdale is even referred to as the "Aerospace Capital of America" because of its heritage in being the home of many of the aircraft used in the United States military.

The growth of the aerospace industry inspired the suburban development of Palmdale to meet the needs of its growing population. Between 1940 and 1960, the population of Palmdale grew over 1000 percent from 900 people to over 11,000 (World Population Review, 2018). In 1957, Palmdale established its first high school, and in August 1962, the township of Palmdale officially became the City of Palmdale with the incorporation of two square miles of land around the present-day civic center. The Antelope Valley Freeway (State Highway 14) was completed between Palmdale and Los Angeles in 1964. That same year, the Los Angeles Times reported Palmdale as one of the fastest growing cities in the world, tripling in size in less than two years (Los Angeles Times, 1964). At that time, the City occupied seven square miles, largely due to the aerospace industry at Air Force Plant 42. Many people began abandoning their farms for suburban houses within the city. However, despite the arrival of the aerospace industry and the completion of the new freeway, the growth rate in Palmdale remained modest. It experienced a major growth boon in the 1990s and is currently one of the fastest growing cities in Los Angeles County (The Antelope Valley Times, 2015).

Palmdale Water District

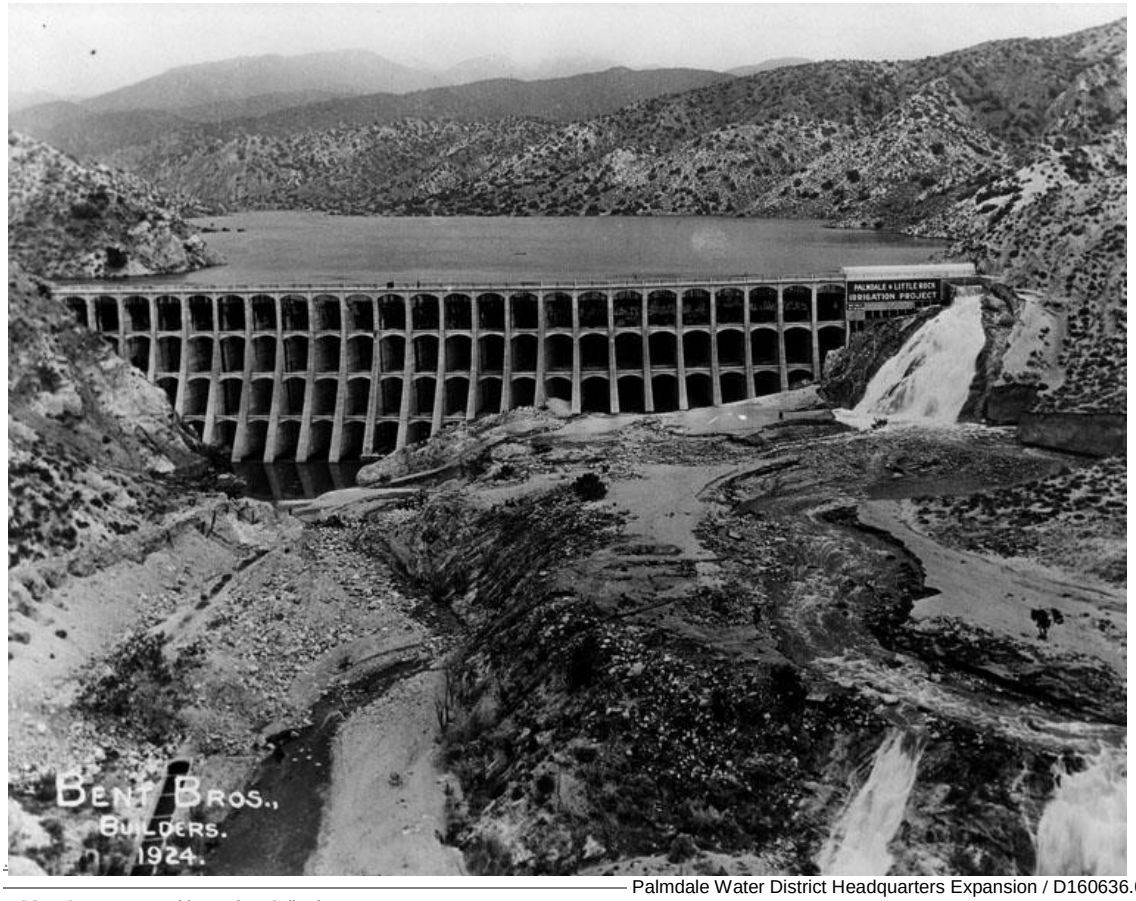
PWD evolved from several private water companies, the first being the Palmdale Water Irrigation Company formed in 1886 (Palmdale Water District, 1998). The company dug its first irrigation ditch(6.5 miles long) and diverted water from Little Rock Creek to serve the burgeoning town. In 1895, the South Antelope Valley Irrigation Company formed and began construction on the Palmdale Dam, which helped impound Palmdale Lake. The Palmdale Ditch, which was an approximate 8.5-mile earthen ditch with a wooden trestle and wooden flume, was constructed in 1919 to bring water to Lake Palmdale (**Figure 4**) (n.d.1998).

Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: Library of Congress, HAER

Figure 4
Wooden Trestle and Flume (Little Rock Creek Dam), 1920s

In the early 1900s a survey of a reservoir site on Little Rock Creek for the Palmdale Water Company was compiled by the engineering offices of J.P. Lippincott. From this survey and other studies, it was decided by a vote in 1918 that a public irrigation district would be the most financially feasible option for Palmdale. Under provisions of Division 11 of the Water Code of the State of California, the Palmdale Irrigation District (PWD) was formed to supply irrigation water to approximately 4,500 acres of agricultural land. Six years after the District was formed, Littlerock Dam, constructed by the Bent Bros. Builders, was completed in 1924 (**Figure 5**) (Palmdale Water District, 1998).



Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: LAPL. Herald-Examiner Collection

Figure 5
View of Little Rock Dam near Palmdale, 1927

Once completed, Littlerock Dam was the highest reinforced concrete, multiple-arch dam in the United States, and had a water storage capacity of 4,200 acre-feet. Within eight years of its completion, the State of California declared the dam unsafe, and repairs and renovations were completed. In 1940, the dam's capacity was reduced due to sediment build up. To add to the area's water storage capacity, standby water wells were developed (Palmdale Water District, 1998).

A change in the water supply needs developed in Palmdale during the late 1940s and 1950s when the predominate industry in Palmdale shifted from agriculture to aerospace. To keep up with the demand for groundwater and water from Littlerock Reservoir, PWD expanded the water supply from the State Water Project. In 1963, the Palmdale Irrigation District signed an agreement with the State Department of Water Resources, securing 15,000 acre-feet of water from the Feather River over the following 30 years, beginning with delivery of 1,000 acre-feet of water in 1972 (Los Angeles Times, 1963). Under this new program, the Palmdale Irrigation District expanded and encompassed a total of 34,000 acres (Palmdale Water District, 1998).

On the same day the District signed the agreement with the State, they dedicated a new headquarters building on the subject property (**Figure 6**). Los Angeles Times author Ed Ainsworth described the upcoming proceedings as illustrating "the day-by-day progress in the ordinary realms of water supply and transportation, and they, too, have their place in any chronicle of the forward march of this incredible region" (Los Angeles Times, 1963). The new building was designed in the Mid-Century Modern architectural style popular at the time (**Figure 7**). In 1973, the name of the irrigation company was changed to "Palmdale Water District" to better reflect the surrounding community's transition from an agricultural to a more industrial based economy since PWD had been serving more municipal patrons than agricultural.

Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: Los Angeles Public Library

Figure 6
Ribbon Cutting Ceremony for the New Palmdale Water District Headquarters, circa 1962

Palmdale Water District Headquarters Expansion / D160636.00

SOURCE : Palmdale Water District

Figure 7
New Palmdale Water District Headquarters, 1962

Mid-Century Modern Architecture

Mid-Century Modern style architecture is a regional derivative of the International Style and was widely constructed in Post-World War II Los Angeles and its environs and was used for both residential and commercial buildings. High or International Style modernism conforms to specific character-defining features as discussed by Henry-Russell Hitchcock and Phillip Johnson in their seminal 1932 publication, *The International Style*, and state that buildings must have a rectilinear form, open floor plan articulated through materials, and lack of ornamentation. In 1945 John Entenza initiated the Case Study program in Los Angeles through his magazine, *Arts & Architecture*, in an effort to bring High Style modernist design to the masses through affordable and functional housing. In addition, modernist architectural design was suitable to the Southern California climate through its use of glass to emulate an ideal of indoor/outdoor living. Local and vernacular interpretations of the International Style allowed for less formality through the use of materials, forms, and spatial arraignments. Mid-Century Modern architecture is more modest than the International Style and emphasis is often placed on stylized architectural focal points and features.

Mid-Century Modern design used sleek, simplified geometry and asymmetrical, intersecting angular planes of masonry volumes and glass curtain walls, locked together by a flat planar roof. Designers embraced the optimistic spirit of the time, experimenting with the newest technologies and materials in building, such as concrete and aluminum, and incorporating futuristic elements. The features of the Mid-Century Modern style are simple geometric forms, post-and-beam construction, flat or low-pitched gabled roofs often with overhanging eaves, flush mounted steel framed windows or large single-paned wood-framed windows, and brick or stone often used as primary accent material.

The character-defining features of the Mid-Century Modern style include:

- Flat or low-pitched gabled roofs
- Flush mounted steel framed windows
- Simple geometric forms
- Post-and-beam construction
- Unornamented wall surfaces
- Horizontal massing

Regulatory Framework

Numerous laws and regulations require federal, state, and local agencies to consider the effects a project may have on historical resources. These laws and regulations stipulate a process for compliance, define the responsibilities of the various agencies proposing the action, and prescribe the relationship among other involved agencies.

Federal

National Register of Historic Places

The National Register of Historic Places (National Register) was established by the National Historic Preservation Act (NHPA) of 1966, as "an authoritative guide to be used by federal, State, and local governments, private groups and citizens to identify the Nation's historic resources and to indicate what properties should be considered for protection from destruction or impairment" (36 CFR 60.2) (U.S. Department of the Interior, 2002). The National Register recognizes a broad range of cultural resources that are significant at the national, state, and local levels and can include districts, buildings, structures, objects, prehistoric archaeological sites, historic-period archaeological sites, traditional cultural properties, and cultural landscapes.

To be eligible for listing in the National Register, a property must be significant in American history, architecture, archaeology, engineering, or culture. Properties of potential significance must meet one or more of the following four established criteria:

A. Are associated with events that have made a significant contribution to the broad patterns of our history;

B. Are associated with the lives of persons significant in our past;

C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the criteria of significance, a property must have integrity. Integrity is defined as "the ability of a property to convey its significance" (U.S. Department of the Interior, 2002). The National Register recognizes seven qualities that, in various combinations, define integrity. The seven factors that define integrity are location, design, setting,

materials, workmanship, feeling, and association. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance.

Ordinarily religious properties, moved properties, birthplaces or graves, cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years are not considered eligible for the National Register unless they meet one of the Criteria Considerations (A-G), in addition to meeting at least one of the four significance criteria and possessing integrity (U.S. Department of the Interior, 2002).

State

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at *Public Resources Code (PRC) Section 21000 et seq.* CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical resources. Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.

The *CEQA Guidelines* (Title 14 California Code of Regulations [CCR] Section 15064.5) recognize that historical resources include: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (California Register); (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

A significant effect under CEQA would occur if a project results in a substantial adverse change in the significance of a historical resource as defined in *CEQA Guidelines* Section 15064.5(a). Substantial adverse change is defined as "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired" (*CEQA Guidelines* Section 15064.5(b)(1)). According to *CEQA Guidelines* Section 15064.5(b)(2), the significance of a historical resource is materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics that:

A. Convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

B. Account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in a historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

C. Convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a Lead Agency for purposes of CEQA.

In general, a project that complies with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (Standards) (Grimer, 2017) is considered to have mitigated its impacts to historical resources to a less-than-significant level (CEQA Guidelines Section 15064.5(b)(3)).

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility for the California Register are based upon National Register criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

To be eligible for the California Register, a prehistoric or historic-period property must be significant at the local, state, and/or federal level under one or more of the following four criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

A resource eligible for the California Register must meet one of the criteria of significance described above, and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally determined eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and,
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and,
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

Local

City of Palmdale General Plan

GOAL ER7: Protect historical and culturally significant resources which contribute to the community's sense of history.

Objective ER7.1: Promote the identification and preservation of historic structures, historic sites, archaeological sites, and paleontological resources in the City.

Policy ER7.1.1: Identify and recognize historic landmarks from Palmdale's past.

Policy ER7.1.2: Promote maintenance, rehabilitation, and appropriate reuse of identified landmarks where feasible.

Policy ER7.1.3: Require that new development protect significant historic, paleontological, or archaeological resources, or provide for other appropriate mitigation.

Policy ER7.1.4: Develop and maintain a cultural sensitivity map. Require special studies/surveys to be prepared for any development proposals in areas reasonably suspected of containing cultural resources, or as indicated on the sensitivity map.

Policy ER7.1.5: When human remains, suspected to be of Native American origin are discovered, cooperate with the Native American Heritage Commission and any local Native American groups to determine the most appropriate disposition of the human remains and any associated grave goods.

Policy ER7.1.6: Cooperate with private and public entities whose goals are to protect and preserve historic landmarks and important cultural resources.

Policy ER7.1.7: Promote recognition, understanding and enjoyment of unique historical resources within the community by identifying resources through the use of landmark designation plaques, directional signage, self-guided tours, school curriculum, programs and events. (General Plan Amendment 04-01, adopted by City Council April 14, 2004.)

Policy ER7.1.8: Discourage historic landmark properties from being altered in such a manner as to significantly reduce their cultural value to the community. (General Plan Amendment 04-01, adopted by City Council April 14, 2004.)

Archival Research

SCCIC Records Search

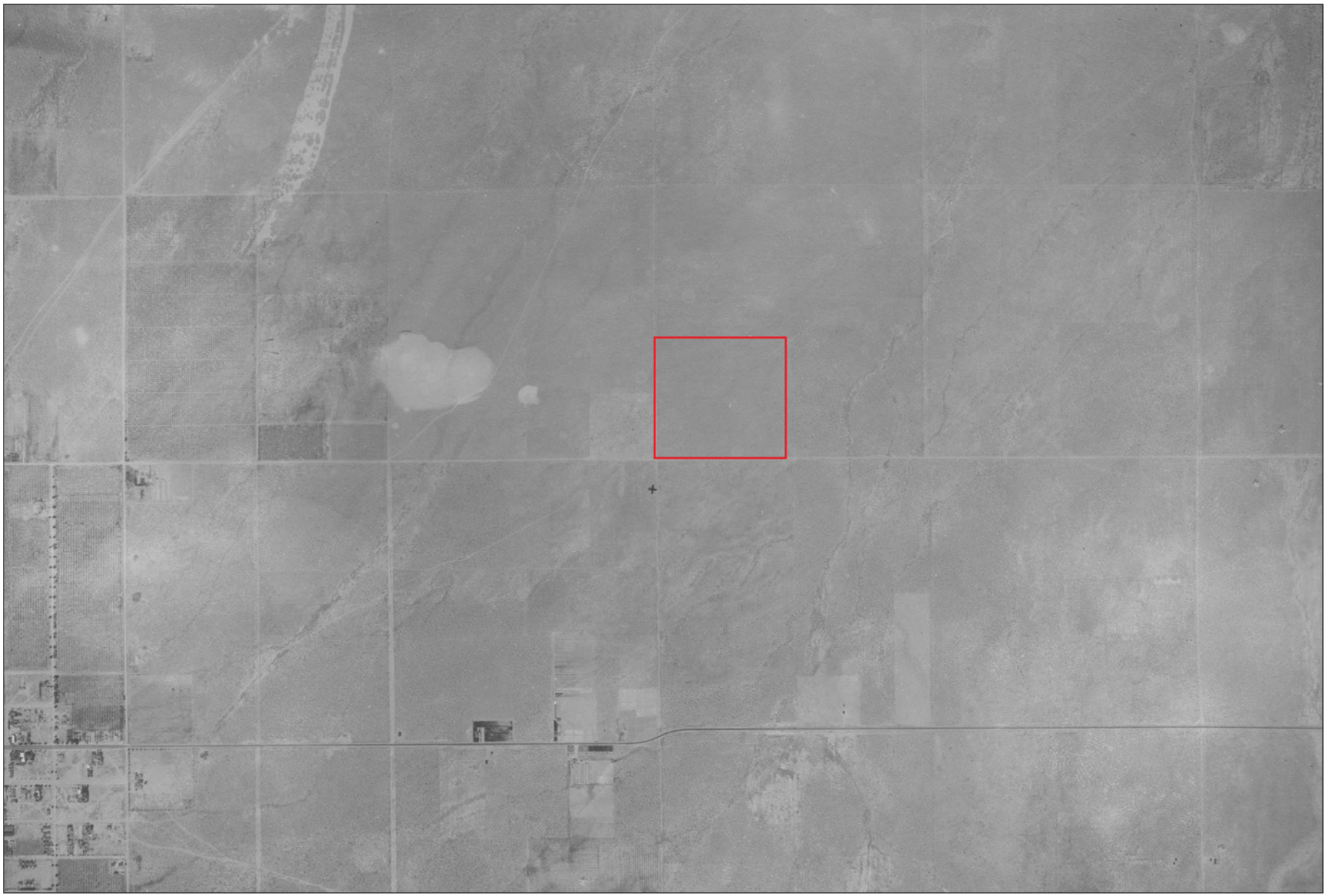
Records searches for the proposed Project were conducted on May 4, 2017 and November 7, 2017 at the California Historical Resources Information System (CHRIS) South Central Coastal Information Center (SCCIC) housed at California State University, Fullerton. The records search included a review of previously documented historic architectural resources within a 0.25-mile radius of the subject property. As a result of the record search, no previously identified historic architectural resources were identified on the subject property or within a 0.25-mile radius.

Historic Maps and Aerial Photographs

Historic maps and aerial photographs were examined to provide historical information about land uses of the subject property. Available USGS topographic maps include the 1915 and 1917 Elizabeth Lake 30-minute quadrangles; the 1932, 1937, 1958, and 1978 Palmdale 7.5-minute quadrangles; and 1958 Ritter Ridge 7.5-minute quadrangle. Sanborn Fire Insurance maps were available for the years 1918, and 1929 but they do not cover the area surrounding the subject property. Historic aerial photographs were available from the University of California, Santa Barbara's collection of aerial photography and satellite imagery, including 1928 (**Figure 8**), 1940, 1959, and 1968 (**Figure 9**). Additional aerial images were found for the years 1948, 1953, 1959, 1965, 1971, 1974 (**Figure 10**), 1994, 2005, 2009, 2010, 2012, and 2014 (HistoricAerials.com).

The available historic maps and aerial photographs indicate that the subject property vicinity was largely rural in the early part of the 20th century. Palmdale and Lancaster to the north were stops along the Southern Pacific Railroad. By 1917, sparse growth occurred along several roads south east of Palmdale. On the 1915 and 1917 Elizabeth Lake topographic maps, Harold Reservoir[1] is depicted to the south of Palmdale which later became known as the Palmdale Reservoir and now Lake Palmdale. The earliest aerial photograph of the Palmdale area dates from 1928 and shows a largely rural and agricultural landscape with very little development. An aerial image from 1948 illustrates that little had changed over the twenty-year period.

[1] Developed from a natural storage reservoir known as Lake Yuna it was known as the Alpine Reservoir after its initial construction in 1897 (Gurba, 2010)



D160836

SOURCE: UCSB

Palmdale Water District

Figure 8
1928 Aerial Image of the Subject Property
(Indicated by red box)

ESA

D160836

SOURCE: UCSB

Palmdale Water District

Figure 8
1968 Aerial Image of the Subject Property
(Indicated by red box)

ESA

SOURCE: Historicaerials.com

Palmdale Water District

Figure 10
1974 Aerial Image of the Subject Property
(Indicated by red box)

ESA

D160836

However, the United States Air Force Plant 42 appears to the northeast of Palmdale. Development in the 1950s led to subdivisions to the north, east, south, and west. Development to the southwest of Palmdale was restricted due to the Angeles National Forest-San Gabriel Mountains, forcing more development to the northeast of Palmdale. Residential development began to migrate towards the northwest near Lancaster area and the Air Force by the mid-1960s. By the 1960s and 1970s much of the agricultural fields surrounding the City of Palmdale were developed and residential development swelled around State Roads 14 and 138. Development on subject property first appears in the 1965 aerial image, supporting the 1962 date of construction for the earliest two building remaining on the site.

Historic Resources Survey

Methods

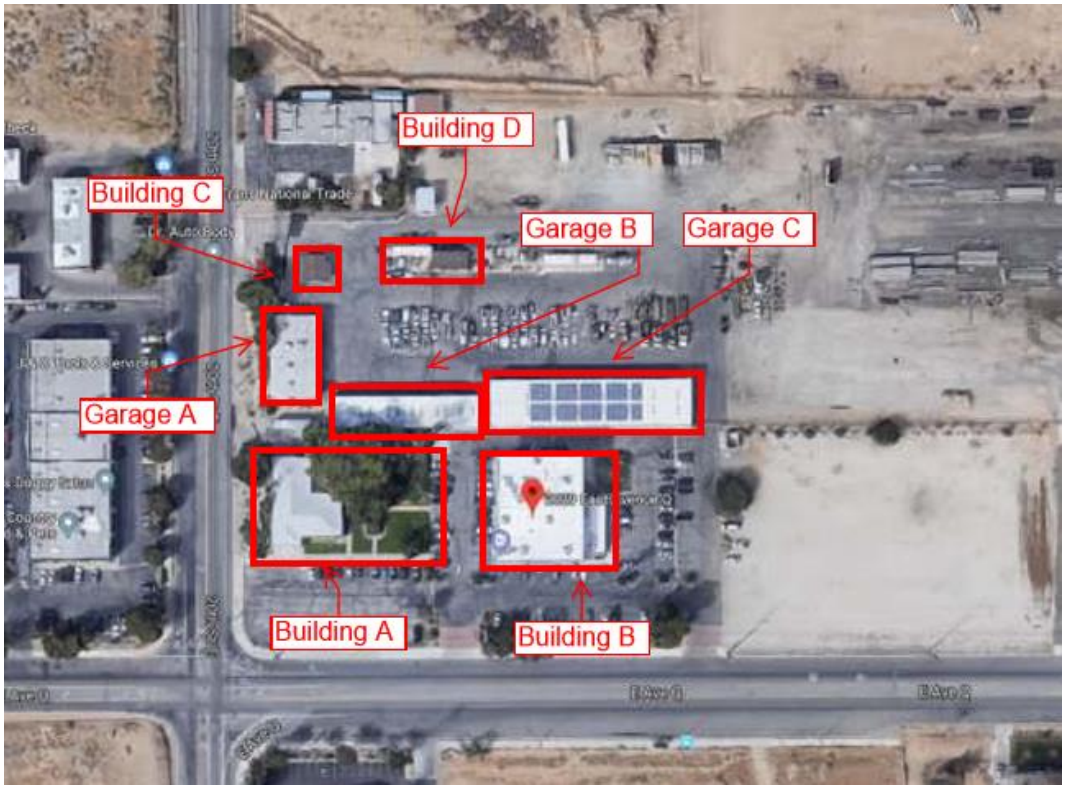
A historic resources survey of the subject property was conducted on April 30, 2018 by ESA staff Christian Taylor, M.H.P. The survey was aimed at identifying historic architectural resources within the subject property. Existing conditions in the survey area, as well as the immediate surroundings, were photographed and resources were documented on California Department of Parks and Recreation (DPR) 523 forms (**Appendix B**).

Results

The subject property is located at 2029 E. Avenue Q, on the southwest corner of E. Avenue Q and 20th Street (APN 3022-012-918). The historic resources survey of the subject property identified a grouping of four buildings (Buildings A, B, C, and D) and three garages (Garages A, B, C) listed below in **Table 1** and illustrated in **Figure 11**. Building A and Garage A were constructed in 1962 and are the oldest buildings on the subject property. The two buildings are over 50 years of age, meeting the age threshold for consideration as historic resources under the National Register and California Register. A description of each of these buildings is provided below. Building B was constructed in 1992 and Buildings C and D and Garages B and C were constructed after 1981 according to historic aerials. These buildings and garages would not be over 50 years of age at the time of project completion and do not meet the age threshold for consideration as historical resources.

TABLE 1
SURVEYED BUILDINGS AND STRUCTURES

Building Name	Date of Construction	Architectural Style
Building A (Original Headquarters Building)	1962	Mid-Century Modern
Building B (Current Headquarters Building)	1992	Contemporary
Building C	Post 1981	Utilitarian
Building D	Post 1981	Utilitarian
Garage A	1962	Utilitarian
Garage B	Post 1981	Utilitarian
Garage C	Post 1981	Utilitarian



Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: Google Earth, 2018

Figure 11
Modern Aerial View of the PWD Headquarters site

Architectural Descriptions

Building A

Building A, located on the southwest corner of the lot, was built in 1962 in the Mid-Century Modern architectural style. The building features an irregular T-shaped plan. The building is a single-story office building with a hipped roof hidden behind a parapet. The building is clad with a combination of concrete, glass block, and stone veneer siding. The south (primary) façade features two aluminum sliding windows. A glass and aluminum entry door with fan lite and side lite is set back under a stone façade portico held up with a stone column. West of the main entry door is a curved glass block wall and then two fixed aluminum windows on a plaster wall (alteration) (**Figure 12**).

Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: ESA, 2018

Figure 12
Building A south (primary) façade

The building's east (side) elevation is clad in concrete embossed with a grid pattern. The only notable features on the east elevation are an aluminum framed sliding window and a secondary entry consisting of a single aluminum framed door (**Figure 13**).

Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: ESA, 2018

Figure 13
Building A south side of the east elevation

The north (rear) elevation is clad with concrete embossed with a grid pattern. There are two aluminum and glass doors and an aluminum sliding window (**Figure 15**). The eastern portion of the building's north elevation is setback and features additional aluminum framed windows as well as ventilation ducting (alteration) (**Figure 14**).

Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: ESA, 2018

Figure 14
Building A north elevation

Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: ESA, 2018

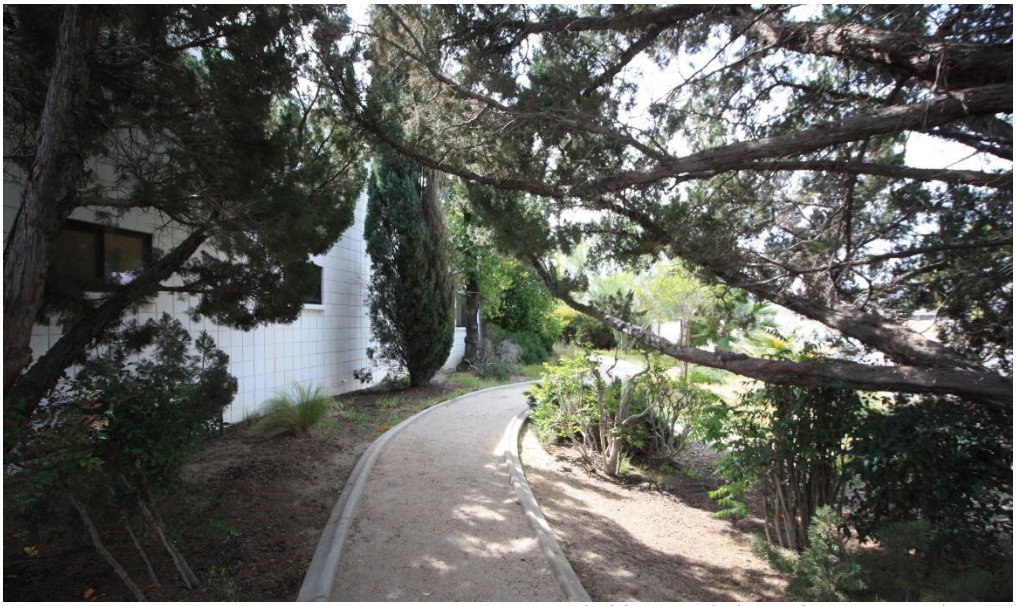
Figure 15
Building A north side of the east elevation

The building's west (side) elevation is partially obscured by heavy vegetation, however it appears to be clad in a combination of stone veneer and concrete featuring an embossed grid pattern (**Figure 16**). The south end of the west elevation does not feature any openings, while there are two aluminum sliding windows and an enclosed window opening at the north end of the west elevation (**Figures 17 and 18**).

Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: ESA, 2018

Figure 16
Building A south portion of the west elevation



Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: ESA, 2018

Figure 17
Building A north side of the west elevation

Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: ESA, 2018

Figure 18
Building A north side of the west elevation

Garage A

Garage A is a one story garage facing east with a flat roof the same concrete siding as Building A. It was also constructed in 1962. It's east (primary) elevation has four rolling garage doors. The north façade has an attached shed with a shed roof and a counterweight door (alteration) **(Figure 19)**. The west (rear) façade has three aluminum sliding windows **(Figure 20)**. The south façade has no openings and the north façade has the attached shed.

Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: ESA, 2018

Figure 19
Garage A east (primary) elevation

Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: ESA, 2018

Figure 20
Garage A west (rear) elevation

Landscape

The landscape features on the subject property include an open parking lot and material staging area north of Garage B and Garage C, east of Garage A, and south of Building D (**Figure 21**). There are additional parking lots east of Building B and south of Buildings A and B. A manicured lawn with mature trees is situated directly east of Building A (**Figure 22**). The remainder of the subject property consists of open fields to the north and south**.**

Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: ESA, 2018

Figure 21
Parking and material storage area on north portion of Subject Property, view east

Palmdale Water District Headquarters Expansion / D160636.00

SOURCE: ESA, 2018

Figure 22
Landscaped area east of Building A

Eligibility Assessment

In order to qualify for eligibility, the buildings must possess significance under one or more of the applicable National Register and California Register criteria and retain sufficient integrity to convey their historical significance. Building A and Garage A identified during the survey have been evaluated against the applicable criteria as historical resources within the themes of the historic context statement.

Significance Evaluation

The subject property is associated with the following historical and architectural themes: Settlement of the Antelope Valley; Development of Palmdale; the History of the Palmdale Water District; and Mid-Century Modern Architecture. The subject property contains multiple buildings, structures, and features. However, only two were determined to meet the 50-year age threshold of the National Register and the 45-year age threshold for the California Register. The buildings identified in this report as Building A and Garage A were constructed in 1962. Building A was constructed as the PWD's new headquarters building at a time when the population of Palmdale was rapidly expanding due to the development of the aerospace industry. The building was designed in the Mid-Century Modern architectural style popular at the time and reflects the PWD's changing responsibility from supplying agricultural lands with irrigation water to providing water to families in suburbia. Building A was evaluated under the applicable national, state, and County criteria. Garage A provided maintenance for the organization's vehicles and machinery. It is utilitarian in nature and its use is tied directly to the history of the PWD conveyed by Building A. Garage A contributes to the setting of Building A but lacks distinction as an

individual resource. Garage A was not further evaluated as an individual resource but considered as a contributing feature related to Building A.

Criterion A/1/1: Events

With regard to significant events in history, the following are the relevant criteria:

> **National Register Criterion A:** It is associated with events that have made a significant contribution to the broad patterns of our history.
>
> **California Register Criterion 1:** It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

Constructed in 1962, Building A and Garage A are associated with the rise of suburbia that shaped Palmdale during the Post-War era. Between 1940 and 1960, Palmdale's population grew over 1,000 percent due to the arrival of the aerospace industry following World War II. In 1952, the United States government bought Palmdale Airport, formerly an airfield for the U.S. Army Air Corps during World War II, where aerospace development and testing facilities called United States Air Force Plant 42, were located. One year later, in 1953, Lockheed established a facility at the airport. From that point on, the aerospace industry surpassed agriculture as the primary source of local employment. With the growing population and suburban development came an increasing need for water. The Palmdale Irrigation District, established in 1918 had built its reputation on supplying water to the agricultural community. However, a change in the water supply needs developed in Palmdale during the late 1940s and 1950s when the predominate industry in Palmdale shifted from agriculture to aerospace. In 1963, the Palmdale Irrigation District signed an agreement with the State Department of Water Resources, securing water rights to support the growing suburban population. On the same day the agreement was signed, a new headquarters building (Building A) was dedicated in a ribbon cutting ceremony. In 1973, the name of the company was changed to the Palmdale Water District to better reflect the surrounding community's transition from an agricultural to a more industrial based economy.

Building A was one of many Mid-Century Modern style institutional facilities constructed throughout Los Angeles County during the Post-War era. It was constructed in the midst of the area's suburbanizing phenomenon and, therefore, its construction does not appear to have stimulated a development trend in the area nor is it representative of a significant pattern of development. Furthermore, several government facilities were constructed throughout the Palmdale area in a response to the growing need for services, including fire and police stations, and new schools. In 1957, Palmdale established its first high school in response to the growing suburban population. Building A and the associated Garage A did not play a more significant role in the growth and development of Palmdale than any of the other institutional facilities and therefore, does not possess a significant association to warrant individual recognition as a historic resource. **Building A and Garage A do not appear to meet National Register Criterion A or California Register Criterion 1.**

Criterion B/2/2: Significant Persons

With regard to associations with important persons, the following are the relevant criteria:

> **National Register Criterion B:** It is associated with the lives of persons significant in our past.
>
> **California Register Criterion 2:** It is associated with the lives of persons important in our past.

The subject property originally served as vacant agricultural land prior to the construction of the PWD's headquarters building (Building A) in 1962. Following the building's construction, the property continued to serve as the headquarters for the PWD. Research on the PWD revealed a history focused on the organization and did not identify individual personages significant to national, state, or local history. **Therefore, Building A and Garage A do not appear to meet National Register Criterion B or California Register Criterion 2.**

Criterion C/3/3: Design/Construction

With regard to architecture, design or construction, the following are the relevant criteria:

> **National Register Criterion C:** Embodies the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.
>
> **California Register Criterion 3:** Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

Building A is an example of a Mid-Century Modern style institutional facility constructed near Palmdale in Los Angeles County in 1962. The building exhibits the character-defining features associated with Mid-Century Modern style architecture, such as its simple rectangular form, horizontal massing, flat roof, and flush mounted metal framed windows. However, it does not appear to be an exceptional, distinctive, outstanding, or singular example of its type or style. Building A is a simplistic expression of Mid-Century style, which was popular at the time of its construction. Alterations to the entrance including an addition made of plaster walls and glass blocks, substantially compromises the integrity of the primary façade. No architect could be identified in the research of the Subject Property. However, the work does not appear to be that of a master. The building may have been designed by one of the District's facility engineers. **Therefore, Building A and Garage A do not appear to meet National Register Criterion C or California Register Criterion 3.**

Criterion D/4/4: Data Potential

> **National Register Criterion D:** It yields, or may be likely to yield, information important in prehistory or history.
>
> **California Register Criterion 4:** It has yielded, or may be likely to yield, information important in prehistory or history.

While most often applied to archaeological districts and sites, Criterion D/4/4 can also apply to buildings, structures, and objects that contain important information related to history or pre-history. In order for a property to be eligible under Criterion D/4/4, it must be, or must have been, the principal source of the important information. Building A and Garage A do not appear to yield significant information that would expand our current knowledge or theories of design, methods of construction, operation, or other information that is not already documented in other primary or secondary source material. **Therefore, Building A and Garage A have not yielded and are not likely to yield information important to prehistory or history and do not satisfy National Register Criterion D or California Register Criterion 4.**

Integrity

The National Register and California Register recognize a property's integrity through seven aspects or qualities: location, design, setting, materials, workmanship, feeling, and association. Eligible properties should retain several, if not most, of these aspects. The National Register and California Register also require that a resource retain sufficient integrity to convey its significance, and the property must retain the essential physical features that enable it to convey its historical identity. Integrity is based on significance and understanding why a property is important. Since Building A and Garage A were not identified as significant under any of the applicable national, state, or County criteria, an integrity analysis was not conducted.

Conclusions and Recommendations

Multiple buildings and structures were surveyed on the subject property as a result of this study. However, only two were determined to meet the 50-year age threshold of the National Register and the 45-year age threshold for the California Register. Building A and Garage A were constructed in 1962 and are associated with the suburban growth of Palmdale. However, upon further review of the history of Palmdale and its suburban growth following World War II, it was determined that Building A did not play a significant role in development of the community or reflect important settlement patterns for the area. Building A is a simplistic expression of Mid-Century style, which was popular at the time of its construction and is not considered an excellent example of its style or property type. Further, the building was not associated with any significant personages and does not appear to contain information important in prehistory or history. Therefore, Building A is recommended not eligible for listing in the National Register or California Register. As stated previously, Garage A is a utilitarian structure that lacks individual distinction and therefore does not appear eligible under any of the applicable criteria.

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Pacific Legacy, *Cultural Resources Inventory of the Southern California Edison Company Tehachapi Renewable Transmission Project, Kern, Los Angeles, and San Bernardino Counties, California*, prepared for Southern California Edison, May, 2007.Palmdale Water District, "History of PWD," accessed June 14, 2017, https://www.palmdalewater.org/about/history-of-pwd, 1998 (updated 2018).

U.S. Department of the Interior, National Park Service, *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*, National Park Service, Washington, DC., 1995.

Appendix A
Personnel

Candace R. Ehringer, RPA

Senior Cultural Resources Specialist

EDUCATION

M.A., Anthropology, California State University, Northridge

B.A., Anthropology, East Carolina University

19 YEARS EXPERIENCE

PROFESSIONAL AFFILIATIONS

Register of Professional Archaeologists, No. 15146

Society for California Archaeology

Society for Historical Archaeology

CONTINUING EDUCATION

AEP Advanced CEQA Workshop, 2011

Candace is a cultural resources project manager with 19 years of experience working across California. She provides technical and compliance oversight for projects involving archaeological survey, evaluation, and treatment; built environment studies, including the documentation and evaluation of buildings, structures, and districts; and paleontological resources survey and sensitivity assessments. She is proficient in the areas of California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and Section 106 compliance and routinely provides planning and strategic guidance to clients within the larger scope of state and federal regulations. Candace manages multi-disciplinary cultural resources projects that include archaeological, historic architectural, and paleontological resources components. She is adept at building teams of specialists from these resource areas that are uniquely qualified for the particular project at hand and has brought hundreds of projects to successful completion for both public agency and private development clients.

Relevant Experience

County of Los Angeles, Department of Public Works, Rancho Los Amigos South Campus EIR, Downey. CA. *Project Manager*. The County of Los Angeles (County) proposes redevelopment of a portion of the Rancho Los Amigos (RLA) South Campus which is located in the City of Downey. The 74-acre RLA South Campus was the home of the "Los Angeles County Poor Farm" that was established in 1880s to provide room and board to indigent citizens in exchange for agricultural labor, then served as an infirmary and later evolved into a hospital facility in 1932. The RLA South Campus functioned as a major hospital complex from 1956 to the 1990s, when it was abandoned. The RLA South Campus is currently unoccupied and has been designated as the RLA Historic District in the National Register of Historic Places. The County is proposing redevelopment of a 21-acre portion of the RLA South Campus with County uses, including a Sheriff's Station Crime Laboratory, Internal Services Department Headquarters, and Probation Department Headquarters. The project will include supporting parking and installation of utilities and other features on a site that has been abandoned for nearly 30 years. Building demolition and/or repurposing or relocation of existing buildings will be required. ESA is leading the CEQA process on behalf of the County, including preparation of all technical studies in support of a full-scope EIR for the RLA South Campus Project. This includes a Historic District Evaluation, archaeological surveys, traffic, water supply, arborist services, and all other CEQA-required topics. ESA is also serving in an Executive Consultant role to the County, to advise on other potential future projects at the RLA Campus.

California Department of Water Resources, Serrano Beach Project, Los Angeles County, CA. *Project Manager*. Candace managed a Phase I cultural resources study, including archival research, survey, and report. DWR proposes to repair culverts along the Serrano Beach access road near the Pyramid Lake Vista

Del Lago Visitors Center, replacement of a fence surrounding an existing water tank, and installation of a new water pipeline near the Warne Powerplant. The project is located within the Angeles National Forest, requiring compliance with Section 106 of the National Historic Preservation Act. The study concluded that the area is sensitive for archaeological resources and monitoring was recommended.

Metropolitan Water District of Southern California (MWD), F.E. Weymouth Treatment Plant Improvement Program, Los Angeles County, CA. *Senior Reviewer.* MWD is proposing to implement the F.E. Weymouth Treatment Plant Improvement Program. The proposed project consists of the following elements: Chlorine Transloading Project, Filter Rehabilitation Project, Solar Power Generation Project, Weymouth Improvement Projects, and Miscellaneous Studies and Investigations. The proposed project would upgrade and/or construct new facilities at the existing Weymouth Plant to accommodate the plant's maximum operating capacity and update the overall facility. Candace provided senior review of the cultural resources section of the EIR.

Cultural Resources Services for 16371 Matilija Drive, Los Gatos, Santa Clara County, California. *Project Manager.* The Loma Prieta Holdings LLC retained ESA to prepare a cultural resources assessment in support of the permitting process for an extensive remodel/addition to the residence at 16371 Matilija Drive. The project included demolition of the existing aboveground building and construction of a new residence, installation of a new driveway on the north side of the property and a pool on the northwest portion of the property, and new landscaping. Candace managed the asessment, which included archival research, historic architectural and archaeological surveys, evaluation of the property for its signfiance, and preparation of a report and in compliance with CEQA and County regulations.

Port of Los Angeles, Marine Oil Terminal Engineering Maintenance Standards Historic Resources Evaluation, Los Angeles County, CA. *Archival Researcher.* Candace conducted historic research in support of the evaluation of approximately 16 timber wharves and co-authored the historical context. The wharves date to circa 1925 and would be subject to alterations, including new piling, decking, and fendering systems, in order to accommodate greater shipping loads, as well as seismic and life/safety improvements. Two sets of timber wharves at Berths 150-151 and 163-164 were identified as eligible for listing in the National Register and California Register as contributors to two marine oil terminal districts.

Los Angeles Unified School District, Florence Nightingale Middle School Historic Architectural Review, Los Angeles, CA. *Surveyor.* Candace conducted the cultural resources survey and photo-documented buildings that would be affected by the project. The project includes HVAC replacement to a 1967 Classroom Buildings, kitchen upgrades within the 1937 Domestic Science/Cafeteria Building, and improvements to the 1965 chiller yard. Florence Nightingale Middle School was previously recommended eligible for listing in the California Register.

Christian Taylor

Senior Architectural Historian

EDUCATION

Master's Degree, Historic Preservation, University of Southern California, Los Angeles

B.A., History, University of Oklahoma, Norman

5 YEARS EXPERIENCE

PROFESSIONAL AFFILIATIONS

California Preservation Foundation

Society of Architectural Historians

Association for Preservation Technology

Christian Taylor is a historic resources specialist with academic and professional experience in assessing historic structures and contributing to California Environmental Quality Act (CEQA)-level documents. Throughout the course of his career, Christian has developed an interest in Los Angeles' industrial, economic, and transportation related history. Christian continues to hone his skills in management of rehabilitation and restoration projects, preparation of historic contexts, the use of non-invasive material investigation methods and advanced methods of documentation, and historic resource assessments.

Christian has completed and co-authored a wide range of architectural investigations including historic resources assessment and impacts analysis reports for compliance with CEQA, character-defining features reports, plan reviews, investment tax credit applications, Section 106 significance evaluations, and HABS/HAER documentations. He has also performed extensive research, survey work, and prepared landmark and preliminary assessment reports as a part of ESA's On-Call Historic Preservation Contract with the City of Santa Monica.

Christian has contributed to the research, site inspections, and report preparation of a number of historic resources assessments in the Los Angeles metropolitan area for compliance with CEQA. He has evaluated a number of different types of potential historical resources, including single-family and multi-family residences, factories and industrial properties, commercial buildings, and schools, in West Hollywood, Venice, Los Angeles, Culver City, and Santa Monica.

Project Experience

Rocketdyne Historic American Engineering Record, Los Angeles, CA. *Architectural Historian.* ESA prepared a Historic American Engineering Record (HAER), documenting the former home of Rocketdyne in Canoga Park, Los Angeles, California. The HAER included a thorough investigation of the site's history, description of the various buildings and their uses, historic images, plans, and HAER level photography of the site. The report has been compiled and is currently being reviewed for submission to the Library of Congress in compliance with mitigation required for the redevelopment of the site. Chris was responsible for preparing the HAER.

344 8th Street, Long Beach, CA. *Architectural Historian.* ESA prepared a historic resources analysis for the 344 8th Street project. This project included a physical inspection of a small corner store constructed in the early twentieth century. The building was recorded and evaluated on Department of Parks and Recreation (DPR) record forms based on relevant historic contexts surrounding its development. Recommendations for restoration treatments of the building were provided as a result of the investigation. Chris was responsible for conducting the site survey, archival research and preparing the DPR forms and restoration treatment recommendations.

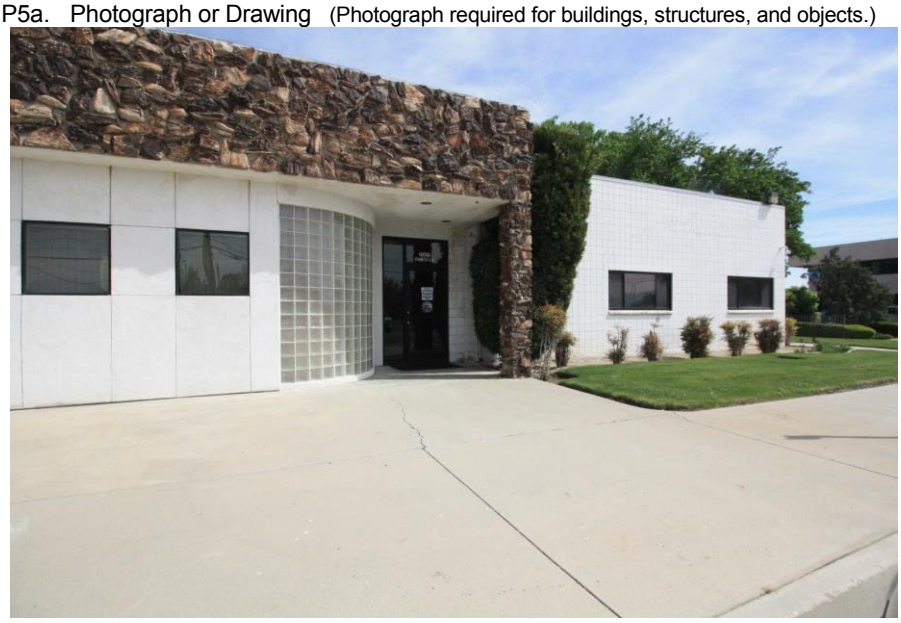
Appendix B
DPR 523 Forms

State of California □ The Resources Agency Primary #____
DEPARTMENT OF PARKS AND RECREATION HRI #
PRIMARY RECORD
Trinomial
NRHP Status Code
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Page 1 **of** 9 ***Resource Name or #:** (Assigned by recorder) Palmdale Water District Headquarters
P1. Other Identifier: PWD Headquarters and Garage
***P2. Location:** □ **Not for Publication** □ **Unrestricted**
***a. County** Los Angeles **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** Palmdale (CA) **Date** _____ **T** 6N; **R** 12W; __ □ **of** __ □ **of Sec** 19; ____**B.M.**
c. Address 2029 E. Avenue Q City Palmdale Zip 93550
d. UTM: (Give more than one for large and/or linear resources) Zone __, _____ mE/ _____ mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The PWD Headquarters and associated garage are located at 2029 E. Avenue Q in Palmdale, California (APN: 3022-012-918), approximately 60 miles northeast of the City of Los Angeles, within the Antelope Valley and encompasses 35 acres of mainly undeveloped land. The two buildings are located on the southwest corner of the lot, and were built in 1962. The garage is utilitarian in design, while the PWD Headquarters building is designed in the Mid-Century Modern architectural style. The PWD Headquarters is a single-story office building arranged in an irregular T-shaped plan, with a hipped roof hidden behind a parapet. It is clad with a combination of concrete, glass block, and stone veneer siding. The south (primary) façade features two aluminum sliding windows. A glass and aluminum entry door with fan lite and side lite is set back under a stone façade portico held up with a stone column. West of the main entry door is a curved glass block wall and then two fixed aluminum windows on a plaster wall (alteration). The building's east (side) elevation is clad in concrete embossed with a grid pattern.
See Continuation Sheet
***P3b. Resource Attributes:** (List attributes and codes) HP4. Ancillary Building, HP14 Government Building

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)



***P4. Resources Present:**
X Building □ Structure □ Object □ Site □ District □ Element of District □ Other (Isolates, etc.)
P5b. Description of Photo: (view, date, accession #) PWD Headquarters, View N, 4/30/2018
***P6. Date Constructed/Age and Source:** ☒ Historic □ Prehistoric □ Both
Constructed in 1962
***P7. Owner and Address:**
Palmdale Water District
2029 E Avenue Q
Palmdale, CA 93550
***P8. Recorded by:** (Name, affiliation, and address) Christian Taylor, M.H.P., Environmental Science Associates
626 Wilshire Blvd. #1100
Los Angeles, CA 90017
***P9. Date Recorded:** 4/30/2018
***P10. Survey Type:** (Describe) Intensive pedestrian
***P11. Report Citation**: (Cite survey report and other sources, or enter "none.")
Candace Ehringer, M.A., RPA, et al., ESA, *Palmdale Water District Headquarters Expansion, County of Los Angeles, City of Palmdale, California: Historical Resources Assessment Report,* Prepared for the Palmdale Water District. 2018.

***Attachments:** □NONE □Location Map ☒Continuation Sheet ☒Building, Structure, and Object Record
□Archaeological Record □District Record □Linear Feature Record □Milling Station Record □Rock Art Record
□Artifact Record □Photograph Record □Other (List): _____

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** (Assigned by recorder) Palmdale Water District Headquarters
***NRHP Status Code** 6Z

B1. Historic Name: Palmdale Water District Headquarters
B2. Common Name: Palmdale Water District Headquarters
B3. Original Use: Office spaces B4. Present Use: Office Spaces
***B5. Architectural Style:** Mid-Century Modern
***B6. Construction History:** (Construction date, alterations, and date of alterations)
The Palmdale Water District's headquarters building and associated garage were constructed in 1962 and began operation in 1963. Alterations have occurred over time. However, no records documenting the alterations or the date they occurred could be found. The PWD Headquarters building appears to have an altered front elevation, that includes a glass block wall and new aluminum framed entryway.

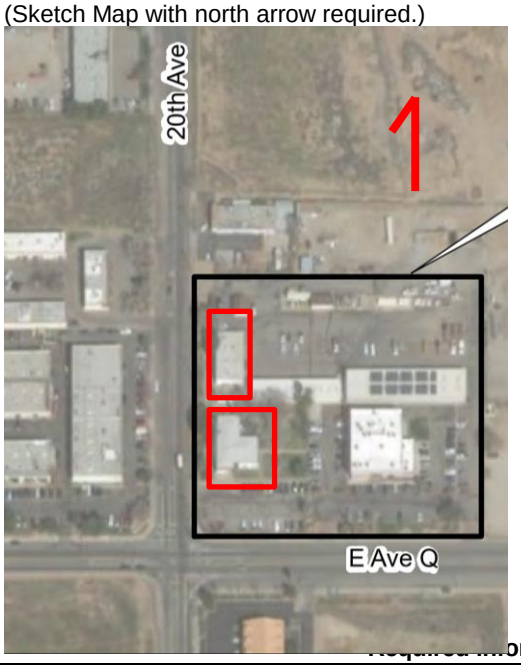
***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** _____ **Original Location:** _____
***B8. Related Features:**
The PWD Headquarters is located in southwest corner of the property. Behind the headquarters building is the associated utilitarian garage, which was constructed around the same time in 1962 and 1963.

B9a. Architect: Unknown **b. Builder**: Palmdale Water District
***B10. Significance: Theme** Settlement of the Antelope Valley; Development of Palmdale; the History of the Palmdale Water District, and Mid-Century Modern Architecture
Area Palmdale, Los Angeles County
Period of Significance 1962 **Property Type** Office Building and Garage **Applicable Criteria** None
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)
Building A and Garage A were constructed in 1962 and are associated with the suburban growth of Palmdale. However, upon further review of the history of Palmdale and its suburban growth following World War II, it was determined that Building A did not play a significant role in development of the community or reflect important settlement patterns for the area. Building A is a simplistic expression of Mid-Century style, which was popular at the time of its construction and is not considered an excellent example of its style or property type. Further, the building was not associated with any significant personages and does not appear to contain information important in prehistory or history. Therefore, Building A is recommended not eligible for listing in the National Register or California Register. As stated previously, Garage A is a utilitarian structure that lacks individual distinction and therefore does not appear eligible under any of the applicable criteria.
See Continuation Sheet

B11. Additional Resource Attributes: (List attributes and codes) None
***B12. References:**
See Continuation Sheets.
B13. Remarks:
See Continuation Sheets
***B14. Evaluator:** Candace Ehringer, et al., ESA
***Date of Evaluation:** 4/30/2018

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



P3. Description (Continued):

The north (rear) elevation is clad with concrete embossed with a grid pattern. There are two aluminum and glass doors and an aluminum sliding window. The eastern portion of the building's north elevation is setback and features additional aluminum framed windows as well as ventilation ducting (alteration). The building's west (side) elevation is partially obscured by heavy vegetation, however it appears to be clad in a combination of stone veneer and concrete featuring an embossed grid pattern. The south end of the west elevation does not feature any openings, while there are two aluminum sliding windows and an enclosed window opening at the north end of the west elevation.

The associated garage is a one story garage facing east with a flat roof the same concrete siding as the PWD Headquarters building. It was also constructed in 1962. It's east (primary) elevation has four rolling garage doors. The north façade has an attached shed with a shed roof and a counterweight door (alteration). The west (rear) façade has three aluminum sliding windows. The south façade has no openings and the north façade has the attached shed.

B12. References:

The Antelope Valley Times, "Palmdale among fastest growing cities in L.A. county," September 21, 2015, http://theavtimes.com/2015/09/21/palmdale-among-fastest-growing-cities-in-l-a-county/.

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Durham, David L. (1998). California's Geographic Names - A Gazetteer of Historic and Modern Names of the State. Quill Driver Books.

Greene, Linda W., Historic Resource Study: A History of Land Use In Joshua Tree National Monument. Performed for Branch of Cultural Resources Alaska/Pacific Northwest/Western Team, U.S. Department of the Interior National Park Service, 1983.

Grimer, E. Anne. The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings. Washington, D.C.: U.S. Department of the Interior National Park Services. Technical Preservation Services, 2017.

Gudde, Erwin G., California Place Names: The Origin and Etymology of Current Geographical Names, University of California Press, Berkeley, Second Edition, 1960.

Gurba, Norma H., Images of America: Palmdale, Arcadia Publishing, Charleston, SC, 2010.

Jones & Stokes, Archaeological Evaluation Report for the Antelope Valley Water Bank Project, Kern and Los Angeles Counties, California. Prepared for WDS, Los Angeles, CA, 2005.

The Los Angeles Times,

"State Water Pact Signed," February 3, 1963, G5.

"Palmdale Meeting All Water Needs," March 29, 1963, 15.

Militarymuseum.org, "Historic California Posts: Air Force Plant 42, Palmdale (Palmdale Army Air Field)," 2017, accessed May 4, 2018, http://www.militarymuseum.org/AFPlant42.html.

Nilsson, Elena, Russell Bevill, and Michael S. Kelly, Archaeological Inventory of the First and Second Los Angeles Aqueducts and Selected Access Roads, Kern, Inyo, and Los Angeles Counties, California, prepared by URS Corporation for the Los Angeles Department of Water and Power and the BLM.

Pacific Legacy, Cultural Resources Inventory of the Southern California Edison Company Tehachapi Renewable Transmission Project, Kern, Los Angeles, and San Bernardino Counties, California, prepared for Southern California Edison, May, 2007.Palmdale Water District, "History of PWD," accessed June 14, 2017, https://www.palmdalewater.org/about/history-of-pwd, 1998 (updated 2018).

U.S. Department of the Interior, National Park Service, National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation, National Park Service, Washington, DC., 1995.

B10. Significance (continued)

Constructed in 1962, the PWD Headquarters and Garage are associated with the rise of suburbia that shaped Palmdale during the Post-War era. Between 1940 and 1960, Palmdale's population grew over 1,000 percent due to the arrival of the aerospace industry following World War II. In 1952, the United States government bought Palmdale Airport, formerly an airfield for the U.S. Army Air Corps during World War II, where aerospace development and testing facilities called United States Air Force Plant 42, were located. One year later, in 1953, Lockheed established a facility at the airport. From that point on, the aerospace industry surpassed agriculture as the primary source of local employment. With the growing population and suburban development came an increasing need for water. The Palmdale Irrigation District, established in 1918 had built its reputation on supplying water to the agricultural community. However, a change in the water supply needs developed in Palmdale during the late 1940s and 1950s when the predominate industry in Palmdale shifted from agriculture to aerospace. In 1963, the Palmdale Irrigation District signed an agreement with the State Department of Water Resources, securing water rights to support the growing suburban population. On the same day the agreement was signed, the PWD Headquarters was dedicated in a ribbon cutting ceremony. In 1973, the name of the company was changed to the Palmdale Water District to better reflect the surrounding community's transition from an agricultural to a more industrial based economy.

Building A was one of many Mid-Century Modern style institutional facilities constructed throughout Los Angeles County during the Post-War era. It was constructed in the midst of the area's suburbanizing phenomenon and, therefore, its construction does not appear to have stimulated a development trend in the area nor is it representative of a significant pattern of development. Furthermore, several government facilities were constructed throughout the Palmdale area in a response to the growing need for services, including fire and police stations, and new schools. In 1957, Palmdale established its first high school in response to the

growing suburban population. PWD Headquarters and Garage did not play more significant role in the growth and development of Palmdale than any of the other institutional facilities and therefore, does not possess a significant association to warrant individual recognition as a historic resource. PWD Headquarters and Garage do not appear to meet National Register Criterion A or California Register Criterion 1.

The property originally served as vacant agricultural land prior to the construction of the PWD's headquarters building in 1962. Following the building's construction, the property continued to serve as the headquarters for the PWD. Research on the PWD revealed a history focused on the organization and did not identify individual personages significant to national, state, or local history. Therefore, PWD Headquarters and Garage do not appear to meet National Register Criterion B or California Register Criterion 2.

PWD Headquarters is an example of a Mid-Century Modern style institutional facility constructed near Palmdale in Los Angeles County in 1962. The building exhibits the character-defining features associated with Mid-Century Modern style architecture, such as its simple rectangular form, horizontal massing, flat roof, and flush mounted metal framed windows. However, it does not appear to be an exceptional, distinctive, outstanding, or singular example of its type or style. Building A is a simplistic expression of Mid-Century style, which was popular at the time of its construction. Alterations to the entrance including an addition made of plaster walls and glass blocks, substantially compromises the integrity of the primary façade. No architect could be identified in the research of the Subject Property. However, the work does not appear to be that of a master. The building may have been designed by one of the District's facility engineers. Therefore, PWD Headquarters and associated garage do not appear to meet National Register Criterion C or California Register Criterion 3.

While most often applied to archaeological districts and sites, Criterion D/4/4 can also apply to buildings, structures, and objects that contain important information related to history or pre-history. In order for a property to be eligible under Criterion D/4/4, it must be, or must have been, the principal source of the important information. PWD Headquarters and associated garage do not appear to yield significant information that would expand our current knowledge or theories of design, methods of construction, operation, or other information that is not already documented in other primary or secondary source material. Therefore, PWD Headquarters and associated garage have not yielded and are not likely to yield information important to prehistory or history and do not satisfy National Register Criterion D or California Register Criterion 4.

Additional Photographs

PWD Headquarters

PWD Headquarters, south (primary) elevation and portion of the west elevation, view to northwest (ESA April 30, 2018)

PWD Headquarters, north (rear) elevation, view to south (ESA April 30, 2018)

PWD Headquarters, south (primary) façade, view to northwest (ESA April 30, 2018)

PWD Headquarters, south portion of the west elevation, view to northeast (ESA April 30, 2018)

PWD Headquarters, north end of the west elevation, view to south (ESA April 30, 2018)

Garage, east (primary) elevation, view to northwest (ESA April 30, 2018)

Garage, east (primary) and north elevations, view to southwest (ESA April 30, 2018)

Garage, west (rear) elevation, view to northeast (ESA April 30, 2018)

Appendix NOP

Notice of Preparation, Scoping Meeting Materials, and Comments on the NOP

ESA

Notice of Preparation

Date February 13, 2017

To: California Office of Planning and Research, Responsible and Trustee Agencies and Interested Parties

Subject: Notice of Preparation of a Program Environmental Impact Report

Project: 2016 Water System Master Plan

Lead Agency: Palmdale Water District

This Notice of Preparation (NOP) has been prepared to notify agencies and interested parties that the Palmdale Water District (PWD) is preparing a Program Environmental Impact Report (PEIR) as the lead agency pursuant to the California Environmental Quality Act (CEQA) for its 2016 Water System Master Plan (WSMP or proposed project).

PWD has prepared the WSMP to determine the facilities required to meet rising water demands within the PWD service area over the next 25 years. The proposed project would construct water system improvements throughout the 47-square mile PWD service area in order to meet PWD's potable water system current and future needs. The PWD service area is located within the Antelope Valley area of Los Angeles County. **Figure 1** provides a map of the service area, and **Figure 2** provides the locations of the project components. The WSMP identifies existing system deficiencies that need to be corrected as well as future facilities to be implemented in the near term (by 2020) or longer term (by 2030 and beyond). The PEIR will evaluate the WSMP's near term improvements on a project-level basis (per CEQA Guidelines Section 15161) and the longer term improvements on a program-level basis (per CEQA Guidelines Section 15168). The components analyzed at the project level include three booster pump stations, three storage tanks and transmission pipelines. The program-level components include additional pump stations, storage tanks and transmission pipelines, as well as production wells that will be built in accordance with growth projections in the PWD service area.

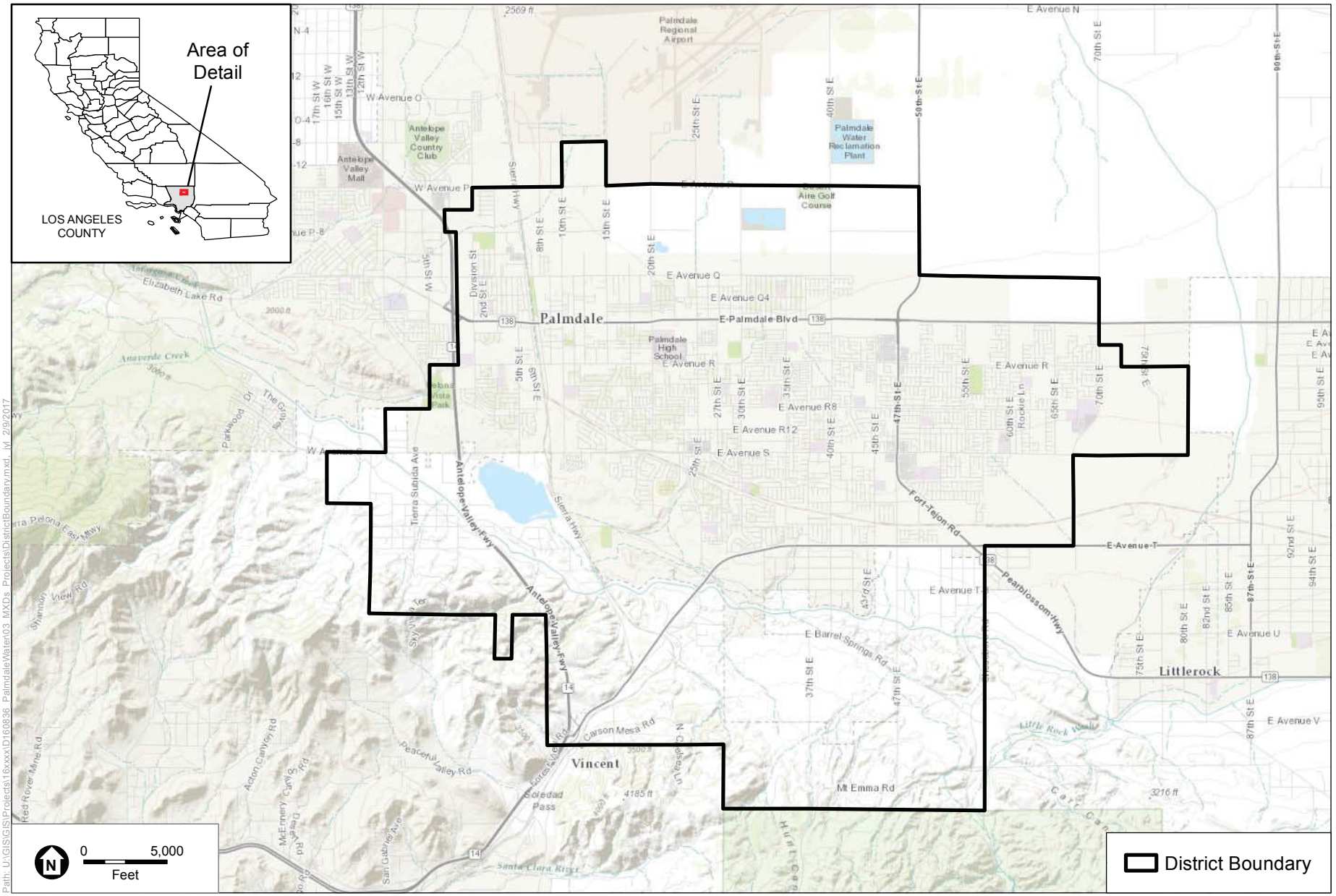
PWD is soliciting the views of interested persons and agencies as to the scope and content of the environmental information to be evaluated in the PEIR. In accordance with CEQA, agencies are requested to review the project description provided in this NOP and provide comments on environmental issues related to the statutory responsibilities of the agency. The PEIR will be used by PWD when considering approval of the WSMP.

Comment Period: In accordance with the time limits mandated by CEQA, comments on the NOP must be received by PWD no later than 30 days after publication of this notice. Please send your comments to the contact person shown below, by 5:00 p.m. on **March 15, 2017**.

CONTACT: Matthew Knudson
Palmdale Water District
2029 East Avenue Q, Palmdale, CA 93550
PHONE: (661) 947-4111
EMAIL: mknudson@palmdalewater.org

Scoping Meeting: One public scoping meeting will be held to receive public comments regarding the scope and content of the PEIR. The public scoping meeting will be open to the public as follows:

DATE: March 13, 2017
TIME: 6:00 p.m.
LOCATION: Palmdale Water District – Board Room
2029 East Avenue Q, Palmdale, CA 93550

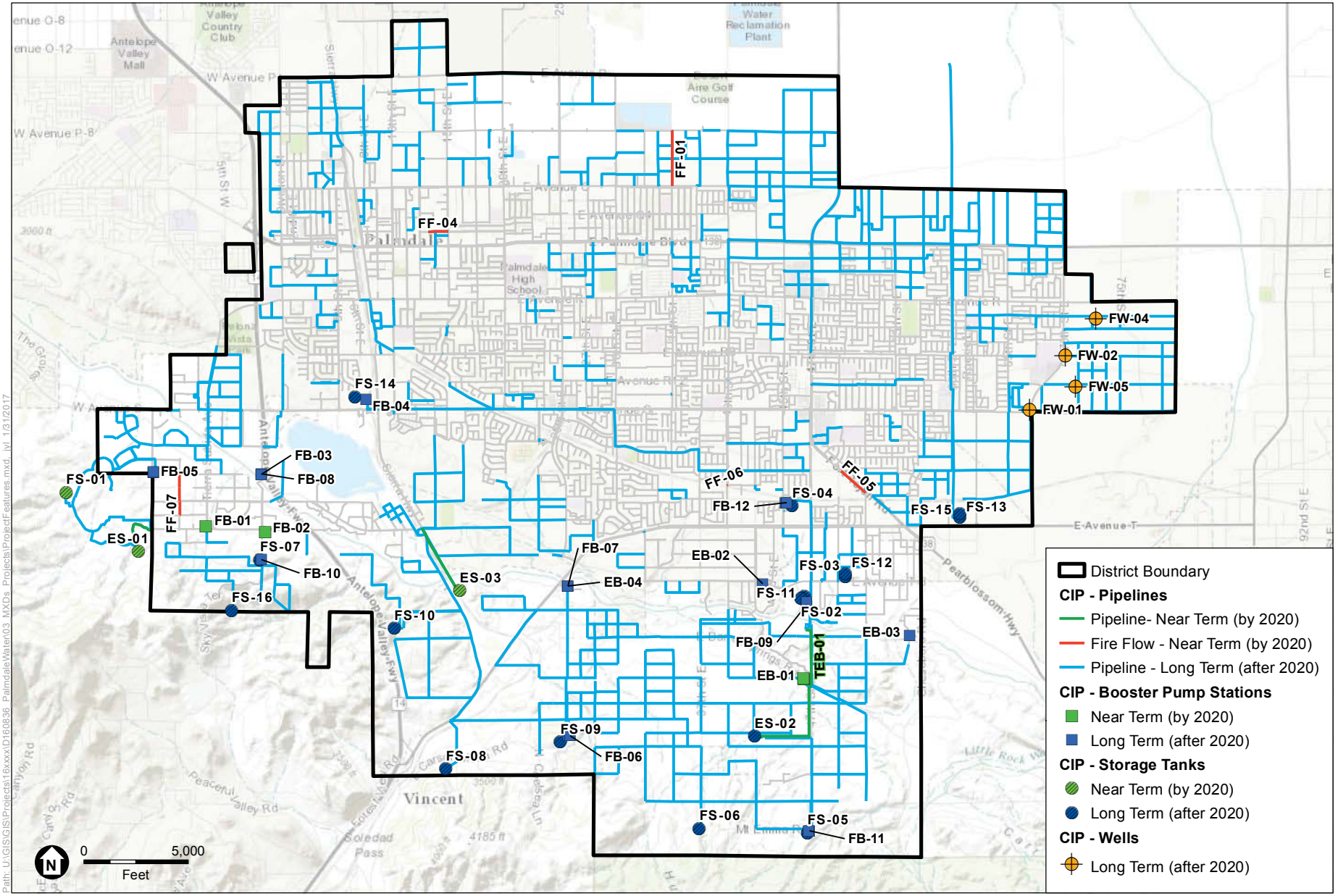


SOURCE: ESRI

Palmdale Water District

Figure 1
District Boundary

ESA



SOURCE: Palmdale Water 2017

Palmdale Water District

Figure 2
2016 Water System Master Plan
Proposed Components

ESA

1. Introduction

Palmdale Water District (PWD), as the lead agency pursuant to the California Environmental Quality Act (CEQA), is proposing to implement the 2016 Water System Master Plan (WSMP or proposed project) that outlines a programmatic plan for developing PWD's potable water system over the next 25 years. The proposed project would involve construction of water system improvements throughout the PWD service area in order to meet potable water system needs. The WSMP identifies existing system deficiencies that need to be corrected as well as future facilities to be implemented in the near term (by 2020) or longer term (by 2030 and beyond).

2. Project Background

PWD was founded in 1918 as an irrigation district that supplied water mainly to farms for agricultural use. As a result of the City of Palmdale's rapid population growth during the early 1950s, PWD shifted to providing predominantly municipal and industrial services. PWD currently provides potable water to municipal, industrial and agricultural customers within a 47-square mile service area in the Antelope Valley of Los Angeles County (Figure 1). PWD currently serves a population of approximately 120,000 people and over 27,000 active customer accounts through three sources of water supply: imported water from the State Water Project (SWP), local groundwater, and local surface runoff collected at the Littlerock Reservoir and conveyed to Lake Palmdale through Palmdale Ditch.

The 2016 WSMP was prepared as an update to PWD's previous Draft Water System Master Plan completed in 2007. Following the recession in the late 2000's, building development activity slowly started resuming in 2012 and California entered into a five-year drought with strict water conservation goals established by the State. In 2015, PWD served the least amount of water over the last 30 years. PWD's service area population is expected to more than double over the next 25 years, which will cause water demands to more than double. A Strategic Water Resources Plan was developed in 2010 by PWD to address these demands and identifies a number of water resource options available to meet these needs (PWD 2016).

PWD prepared the 2016 WSMP in order to provide cost-effective and fiscally responsible water services that meet the water quantity, water quality, system pressure, and reliability requirements of its customers. The WSMP evaluates the existing water system deficiencies and future facility requirements and serves as a guideline for the planning of the build-out of PWD's potable water system to 2040 and beyond. The WSMP provides details for its proposed Capital Improvement Plan (CIP) consisting of recommended projects that will allow PWD to address existing system deficiencies, replace aging infrastructure, and provide the facilities necessary to meet future growth. The improvements described in the CIP are the project components that will be analyzed in the PEIR.

3. Project Objectives

The primary objectives of the proposed WSMP are to:

- Provide cost-effective and fiscally responsible water services that meet the water quantity, water quality, system pressure, and reliability requirements of PWD customers;
- Improve or replace existing PWD water system infrastructure;
- Provide future water system infrastructure necessary to meet projected growth of PWD service area;
- Ensure a potable water supply capable of meeting overall annual water demand that is projected to double over the next 25 years.

4. Project Location

The proposed project would be constructed within PWD's 47-square mile water district service area, which is located in the Antelope Valley area of Los Angeles County, California. The service area is composed of the City of Palmdale and portions of unincorporated areas in Los Angeles County. Figure 1 provides a map of the PWD service area; Figure 2 provides the locations of the system improvements associated with the proposed project.

5. Project Description

The proposed project would implement the Capital Improvement Program (CIP) included in the WSMP. The recommended projects in the CIP allow PWD to address existing hydraulic system deficiencies, replace aging infrastructure, and provide the facilities necessary to meet future growth. The major categories of facilities in the proposed project consist of distribution pipelines, storage tanks, and pump stations. Projects are categorized into five-year planning stages starting in 2015 through 2030, as follows: 2015-2020, 2021-2025, and 2026-2030. Projects addressed in the 2015-2020 planning stage are considered near-term project components and will be evaluated at a project level in the PEIR, while projects addressed in the later planning stages are considered long-term project components and will be evaluated at a programmatic level in the PEIR.

Near-Term Project Components

Improvements to address existing water system deficiencies that critically affect the ability of PWD to provide a reliable water supply to its customers are assigned highest priority and are scheduled to be constructed prior to 2020. These near-term projects involve either the construction of new facilities to compensate for future growth or the improvement of existing facilities that require replacement or upgrades due to system deficiencies. These project components include three storage tanks, three booster pump stations, and segments of transmission pipelines.

Storage Tanks

The proposed project would construct three storage tanks to meet existing storage deficiencies within each tank's respective pressure zone. Two storage tanks, ES-01 and FS-01, would be constructed approximately 300 feet and 500 feet, respectively, west of PWD's western service boundary. The storage

tanks would be constructed with the new Quail Valley development, located approximately 1 mile southwest of Lake Palmdale in an unincorporated portion of Los Angeles County. Storage tank ES-01 would have a 1.0 million gallon (MG) capacity and serve the 3600W pressure zone, and storage tank FS-01 would have a 0.75 MG capacity and serve the 3400W pressure zone. The third storage tank, ES-03, would be constructed near the intersection of Sierra Highway and Rae Street and within the PWD's service area. The storage tank would have a capacity of 4.2 MG and serve the 2950 pressure zone.

Pump Stations

The proposed project would also install three new pumps at existing pump stations to meet fire flow requirements and improve upon hydraulic deficiencies. New pumps would be installed at the existing V-5 Booster Station (EB-01), near the northwest corner of 47th Street East and Barrel Springs Road, to meet fire flow requirements for the 3400E pressure zone. The improvements would expand total capacity to 3,500 gpm. New pumps also would be installed at the existing 3600 Ft Booster Pump Station (FB-01), near the intersection of Tierra Subida Avenue and Lakeview Drive, and the existing El Camino Underground Pump Station (FB-02), near the intersection of El Camino Drive and Lakeview Drive, to serve the 3400W pressure zone and the new Quail Valley development. Total capacity would be 300 gpm and 650 gpm, respectively.

Pipelines

The proposed project would construct multiple segments of transmission pipelines throughout the PWD service area as part of its 2015-2020 planning horizon for CIP implementation. The pipelines category includes fire flow projects, age-based pipeline improvements, and pipeline expansion projects. Segments of pipeline construction include the following estimates:

Fire Flow Projects

- Approximately 2,675 feet of pipeline replacement along 35th Street East, connecting between East Avenue Q and the Palmdale Water Reclamation Plant (FF-01);
- Approximately 965 feet of pipeline along Avenue Q-6 between 12th Street East and 15th Street East (FF-04);
- Approximately 1,570 feet of pipeline along Fort Tejon Road and 52nd Street East (FF-05);
- Approximately 48 feet of pipeline on Avenue S-10 between 40th Street East and 42nd Street East (FF-06);
- Approximately 1,400 feet of pipeline north of Barrel Springs Drive and Camares Drive, within the Quail Valley development area (FF-07).

Pipeline Improvements and Expansion

- Pipeline connecting Avenue P-14 and East Avenue P-12 along 4th Street East;
- Pipeline along 47th Street East, connecting the proposed improvements at pump station EB-01south and then extending the pipeline west through undeveloped land to an existing deficiency recommended tank;
- Pipeline along Sierra Highway, connecting an existing storage tank and pump station southeast to an existing deficiency recommended tank;

- Pipeline west of Lakeview Drive through undeveloped land connecting to the proposed storage tank ES-01.

Long-Term Project Components

Improvements that address existing system deficiencies that are not considered immediately critical or high priority to PWD are proposed as long-term project components. The construction of these projects would start in 2021 and continue through buildout which is anticipated to be in 2040. The phasing of the long-term project improvements are based upon many factors, such as the actual rate of growth and the timing of developments expected in the PWD service area. The long-term project components would include the construction of new facilities or improvements to existing facilities, and would consist of 16 storage tanks, 7 new pumps at five existing pump stations, 6 new pump stations, 5 production wells, and over 700,000 feet of transmission pipelines ranging from 6-to 24-inches in diameter. Since the long-term buildout of these project components is based on the projected demands for each pressure zone and is subject to the availability of funds, the phasing of the long-term projects is presented as a planning guideline for their future implementation. Precise locations for all proposed facilities are not established and facilities will be constructed or improved on an as needed basis.

6. Discussion of Potential Environmental Impacts

In accordance with Section 15126 of the CEQA Guidelines, the PEIR will assess the physical changes to the environment that would likely result from construction and operation of the proposed project, including direct, indirect and cumulative impacts and growth-inducing impacts. The PEIR will provide an assessment of impacts at the project level for facilities proposed to be implemented by 2020 (CEQA Guidelines Section 15161) and at the program level for facilities proposed to be implemented after 2020 (CEQA Guidelines Section 15168). A subsequent assessment of impacts may be required in accordance with CEQA prior to implementation of project facilities to be built after 2020.

Potential impacts of the proposed project are summarized below. The PEIR will identify mitigation measures if necessary to reduce potentially significant impacts of the proposed project. The PEIR also will discuss alternatives to the proposed project, based on the determination of impacts, including the no-project alternative.

Aesthetics

Views in the project area consist mainly of residential and agricultural land uses, public facilities, open space and distant mountains vistas. Although there are no officially designated or eligible California State Scenic Highways within PWD's service area, some roadways may be considered scenic. Implementation of the proposed project would require construction of aboveground facilities such as pump stations, storage tanks, and wells. The PEIR will evaluate the potential for construction and operation of the proposed project to affect aesthetic resources, including potential impacts to scenic vistas and views, impacts to the visual character of sites that would support aboveground facilities, and the potential for new light or glare.

Agriculture and Forestry Resources

The proposed project area includes lands that are classified by the Farmland Mapping and Monitoring Program as Urban and Built-up Land and as Prime Farmland. Much of the PWD service area is urbanized; however, there are agricultural lands along the service area perimeter. Implementation of the WSMP would not be expected to result in the conversion of agricultural land to non-agricultural use; although small localized changes could result. The PEIR will evaluate whether the proposed project would impact Prime Farmland or whether any agricultural or forestry land would be converted to non-agricultural or non-forestry uses.

Air Quality and Greenhouse Gas Emissions

Construction and operation of the proposed project could cause air emissions. Air emissions could result from construction equipment exhaust, ground disturbance during construction, material hauling, construction employee-commute travel, vehicle operational maintenance trips, and vehicle trips associated with any increases in employment. Operation of the facilities may potentially generate emissions associated with energy use and from mobile sources that may include deliveries and maintenance, and operation of the pump stations and wells. The PEIR will estimate pollutant emissions from construction and operational activities and will develop mitigation measures if necessary to reduce potentially significant impacts.

Implementation of the proposed project would result in the generation of greenhouse gas (GHG) emissions associated with construction and operations. The PEIR will estimate construction-related emissions and long-term operational emissions, including total CO2-equivalent emissions for evaluating the effects of GHGs. The PEIR will examine the project's effects on global climate change and evaluate consistency of the project with the State's GHG emissions reduction goals. The PEIR will identify feasible mitigation measures if necessary to reduce potentially significant impacts.

Biological Resources

The proposed project could result in changes to wildlife habitat and disturbance of sensitive species during construction or operation. Site grading and introduction of new aboveground storage facilities, especially in currently undeveloped areas on the perimeter of PWD's service area, could impact existing floral and faunal species or their habitats. The PEIR will evaluate the potential for construction and operation of the proposed project to affect biological resources, and will also discuss local ordinances and state and federal regulations governing biological resources. The PEIR will develop mitigation measures as necessary to avoid, minimize, and offset potentially significant impacts.

Cultural Resources

The proposed project would require construction of facilities and pipelines that could disturb known or unknown archeological sites, paleontological resources, and/or human remains where groundbreaking activities occur. The PEIR will assess the potential effects of the proposed project on cultural resources, including archaeological, historic, paleontological, and Native American resources, including Tribal cultural resources identified during the consultation process required by Assembly Bill 52. Mitigation measures will be identified if necessary to reduce potentially significant impacts.

Geology, Soils, and Seismicity

PWD is located in the Antelope Valley, which is a seismically active region in California. The construction of new facilities could be subject to potential seismic hazards including ground shaking. In addition, construction activities could expose soils to storm water erosion. The PEIR will evaluate geologic hazards in the region and in PWD's service area, such as the potential for ground shaking, liquefaction, expansive soils and landslides, and will identify mitigation measures if necessary to reduce potentially adverse effects to proposed facilities.

Hazards and Hazardous Materials

Excavation activities during construction of new pipelines, pump stations, and wells could uncover contaminated soils or hazardous substances that pose a substantial hazard to human health or the environment. The PEIR will assess the potential for encountering such hazards and identify mitigation measures, if necessary, to ensure that any hazards encountered during construction would be handled in accordance with applicable regulations. Operation of some project components may require transport, use, and disposal of regulated materials. The PEIR will assess the potential for the public or the environment to be affected by accidental release of hazardous materials due to project operation and will develop mitigation measures if necessary to minimize potentially significant effects.

Hydrology and Water Quality

Construction and operation of the proposed project could affect water quality and drainage patterns. Excavation and construction activities could affect water quality if sediment or spills run off the project construction sites. The PEIR will identify water quality protection measures required during construction activities such as sediment fencing and spill prevention and containment. The proposed project could also involve the construction of up to 5 production wells on the eastern portion of PWD's service area to increase water supply reliability. The PEIR will analyze, on a programmatic level, potential impacts of construction and operation of the production wells. The PEIR will evaluate the project's potential impacts on hydrology and water quality, and, for potentially significant impacts will identify feasible mitigation measures to reduce potentially significant environmental impacts.

Land Use and Recreation

The proposed project would construct facilities primarily within residential, developed areas. There are several proposed facilities in the southeastern portion of PWD's service area that would be installed in undeveloped areas. In addition, a new storage tank would be installed over the western boundary of PWD's service area on undeveloped land. The PEIR will evaluate the compatibility of the proposed project components with surrounding land use and recreational facilities and will identify feasible mitigation measures to reduce potentially significant environmental impacts.

Mineral Resources

The proposed project would involve ground-disturbing activities that could impact the availability of known mineral resources. Littlerock Wash is identified as mineral resource zone within the PWD service area and is mined for sand and gravel for aggregate use in construction activities. The PEIR will identify if impacts to mineral resources would result from implementation of the proposed project.

Noise

Implementation of the proposed project would require construction and operation of project elements that would potentially generate noise and vibration. Construction activities that could be a significant source of noise and vibrations include trucking operations, use of heavy construction equipment (e.g., graders, cranes, and frontend loaders), pile driving activities, and well drilling. During project operations, fixed sources of noise could be established. The PEIR will describe the City of Palmdale and Los Angeles County noise policies and ordinances. The PEIR will identify potential noise impacts associated with construction and operation and develop mitigation strategies if necessary to reduce potentially significant impacts.

Population and Housing/Growth Inducement

Implementation of the proposed project would improve the potable water system within PWD's service area and for projected population growth in the service area. The proposed project would not build new housing or otherwise have a direct impact on population growth in the project area, nor would it require displacement of existing residents. The PEIR will evaluate the potential for the proposed project to indirectly induce growth and result in secondary environmental effects associated with growth.

Public Services, Utilities, and Energy

Implementation of the proposed project is unlikely to affect demand for public services, or, by themselves, to require new or expanded facilities for public service providers. The PEIR will, however, assess the potential for the proposed project to affect police and fire protection services, schools, parks and recreational facilities, such that new or expanded buildings or structures may be required that would, in turn, potentially affect the environment.

The proposed project could result in the temporary disruption of services to adjacent land uses. The PEIR will describe the existing water, electricity, telecommunications, and gas utilities serving the local communities. Existing and projected regional utility supplies, demands, and facilities will be described along with any constraints or service deficiencies in the region. The PEIR will evaluate the project's potential to affect utilities and will identify necessary mitigation measures to reduce any potentially significant impacts.

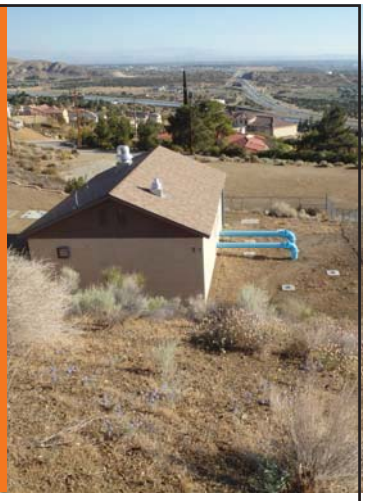
Traffic and Transportation

Construction of the proposed project could affect traffic on local roadways as a result of vehicle trips associated with hauling of material and equipment, road closures and detours, and increase in traffic hazards caused by construction activities. Additionally, the construction of pipelines would occur primarily in established roadways, which would impact circulation patterns in the City of Palmdale. The PEIR will evaluate the potential for construction vehicles, lane closures, or road closures to impact traffic and circulation and will identify mitigation strategies to reduce any potentially significant impacts.

Palmdale Water District
2016 Water System Master Plan
Program Environmental Impact Report

CEQA Scoping Meeting

March 13, 2017
6:00 PM



ESA

Meeting Agenda

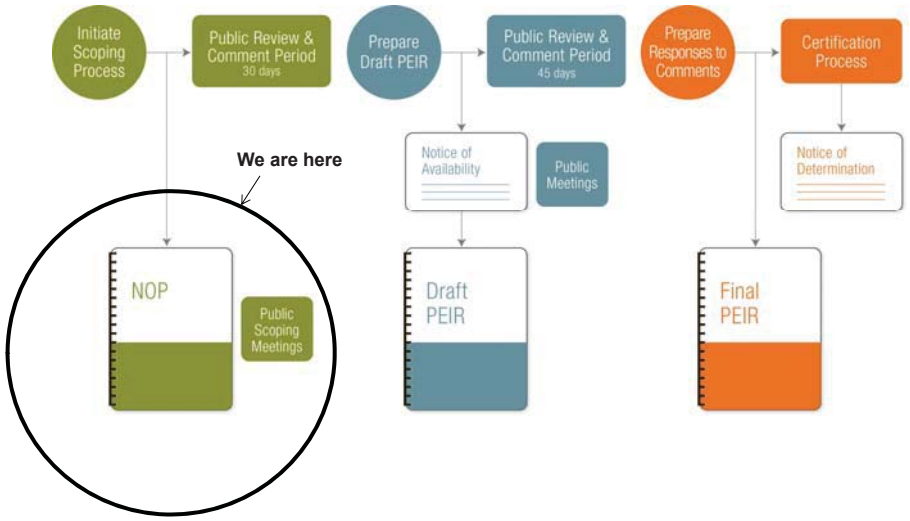
- Purpose of Meeting
- California Environmental Quality Act (CEQA) Overview
- Project Description
- Program EIR Components
- CEQA Process Schedule
- Public Comments

Purpose of Meeting

- **Public Scoping**
  - This Scoping Meeting is compliant with the California Environmental Quality Act (CEQA).
- **Initiate CEQA Process**
  - Notify the public that Palmdale Water District (PWD) is preparing a Program Environmental Impact Report (PEIR) for the 2016 Water System Master Plan (WSMP)
- **Describe Project**
  - 2016 WSMP identifies existing system deficiencies to be corrected and future water facilities to be implemented

California Environmental Quality Act (CEQA)

CEQA Process for a PEIR



Notice of Preparation (NOP)

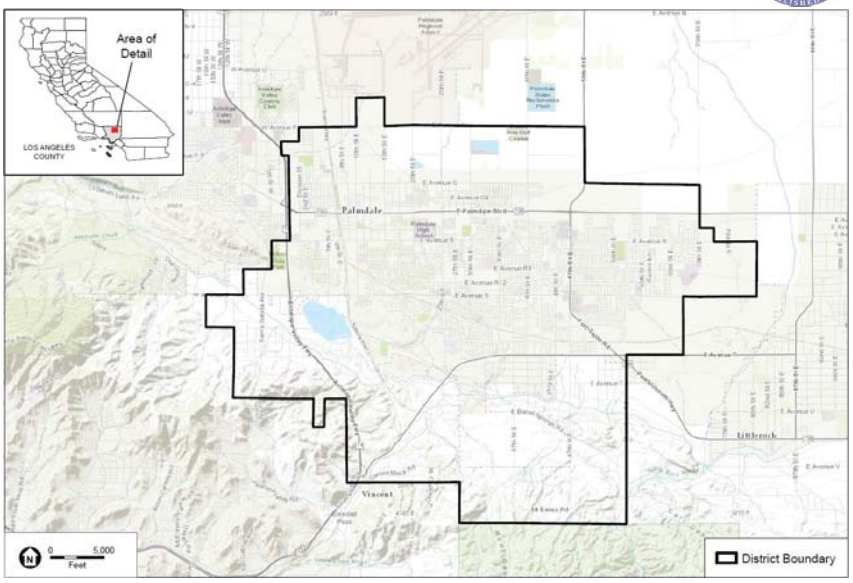
(CEQA Guidelines 15082)

- An NOP is required by CEQA to announce that a lead agency is preparing an **PEIR** for a project.
- The NOP facilitates a **scoping process** to gather **stakeholder input** on what potential impacts the PEIR should consider.
- Comments from stakeholders help to focus the PEIR analysis on **stakeholder concerns**.

Palmdale Water District Overview

- Palmdale Water District (PWD)
  - Provides potable water to municipal, industrial and agricultural customers (~27,000 active customers)
- Service Area:
  - 47-square mile service area in the Antelope Valley of Los Angeles County, California, including City of Palmdale
- Water Supply:
  - 50% groundwater and local surface water
  - 50% imported water from State Water Project

Regional Location Map



Water System Master Plan

Objectives

- Provide cost-effective and fiscally responsible water **services** that meet the water quantity, water quality, system pressure, and reliability requirements of PWD customers;
- Improve or replace existing PWD water system **infrastructure**;
- Provide future water system infrastructure necessary to **meet projected growth** of PWD service area;
- Ensure a potable water supply capable of **meeting overall annual water demand** that is projected to double over the next 25 years.

Water System Master Plan

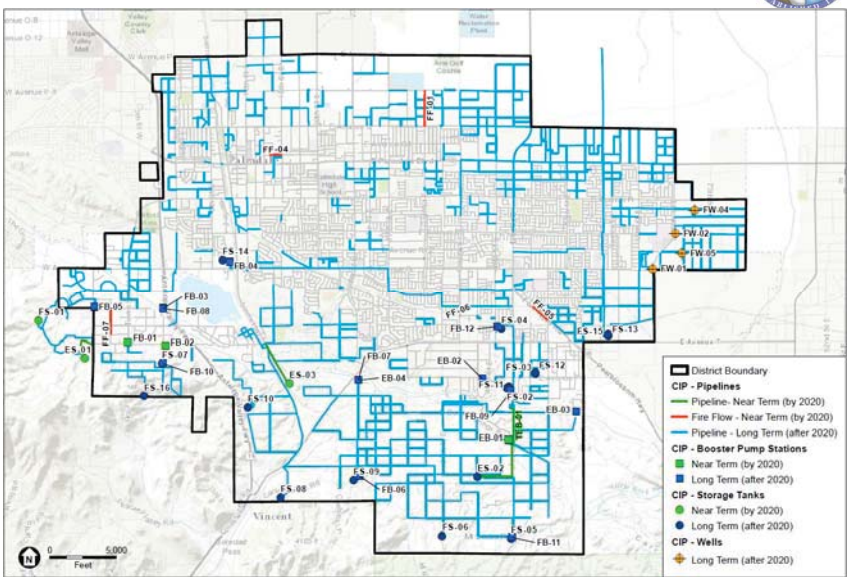
- **Capital Improvement Plan (CIP)**
  - Address existing system deficiencies
  - Replace aging infrastructure
  - Provide facilities to meet future growth
- Improvements described in the CIP are the project components that will be analyzed in the PEIR

Water System Master Plan

- **Near-Term CIP Components** include either:
  - The improvement of existing facilities that require replacement or upgrades due to system deficiencies
  - The construction of new facilities to compensate for future growth

- **Long-Term CIP Components:**
  - Existing system deficiencies that are not considered immediately critical or high priority to PWD
  - Phasing of long-term projects depends on growth within service area and timing of developments

Master Plan CIP Components



Near-Term Project Components

- Scheduled to be constructed prior to 2020
- 3 storage tanks
- 3 booster pump stations
- Segments of transmission pipelines

Long-Term Project Components

- Construction scheduled to start in 2021, and continue through buildout in 2040
- 16 storage tanks
- 7 new pumps at five existing pump stations
- 6 new pump stations
- 5 production wells
- Over 700,000 feet of transmission pipelines

Topics to be Analyzed in the PEIR

Direct, Indirect and Cumulative impacts to:

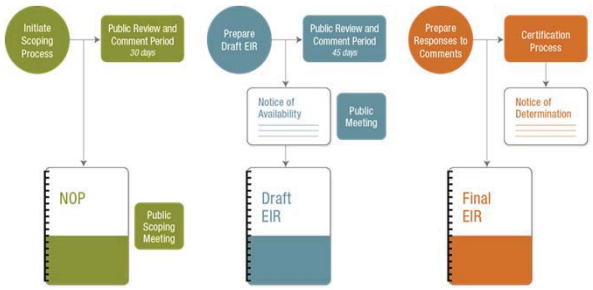
- Aesthetics
- Agriculture & Forestry
- Air Quality
- Biological Resources
- Cultural & Tribal Resources
- Geology, Soils & Seismicity
- Greenhouse Gas Emissions
- Hazards & Hazardous Materials
- Hydrology & Water Quality
- Land Use & Recreation
- Mineral Resources
- Noise
- Population & Housing
- Public Services
- Traffic & Transportation
- Utilities & Energy

Topics to be Analyzed in the PEIR

- Growth Inducement
- Alternatives
  - Alternatives that lessen significant impacts while still meeting Project Objectives
  - No Project Alternative

CEQA Schedule – Next Steps

Scoping Period Ends	Draft PEIR Publication	Final PEIR Publication
March 15, 2017	**Summer 2017**	**Fall 2017**



NOP Public Comments

- NOP Availability:
  - Palmdale City Library, 700 E. Palmdale Blvd
- Comment period ends **March 15, 2017**
- Submit comments tonight
- Email/mail comments to:

Matthew Knudson
Palmdale Water District
2029 East Avenue Q,
Palmdale, CA 93550
Phone: (661) 947-4111
Email: mknudson@palmdalewater.org

Sign-in Sheet

Palmdale Water District
2029 East Avenue Q, Palmdale CA
Monday, March 13, 2017 | 6:00pm

The signing, registering, or completion of this document is voluntary. All persons may attend this meeting regardless of whether they sign, register, or complete this document.

Name: ROBERT E. ALVARADO
Company/Affiliation: PWD. BOARD PRESIDENT
Address: 2029 E. AVE. Q
PALMDALE, CA. 93550
Email: RALVARADO@PALMDALEWATER.ORG
Do you want future notices regarding this project? ☐ yes ☐ no

Name:
Company/Affiliation:
Address:
Email:
Do you want future notices regarding this project? ☐ yes ☐ no

Name: VINCENT DINO
Company/Affiliation: P.W.D.
Address: 2029 E. AVE Q
PALMDALE, CA. 93550
Email: VDINO@PALMDALEWATER.ORG
Do you want future notices regarding this project? ☐ yes ☐ no

Name:
Company/Affiliation:
Address:
Email:
Do you want future notices regarding this project? ☐ yes ☐ no

Name:
Company/Affiliation:
Address:
Email:
Do you want future notices regarding this project? ☐ yes ☐ no

Name:
Company/Affiliation:
Address:
Email:
Do you want future notices regarding this project? ☐ yes ☐ no

Name:
Company/Affiliation:
Address:
Email:
Do you want future notices regarding this project? ☐ yes ☐ no

Name:
Company/Affiliation:
Address:
Email:
Do you want future notices regarding this project? ☐ yes ☐ no

Comment Card

Palmdale Water District
2029 East Avenue Q, Palmdale CA
Monday, March 13, 2017 | 6:00pm

Palmdale Water District
2016 Water System Master Plan

Written comments may be submitted today during the meeting or mailed/emailed to the Palmdale Water District, as shown below. Comments must be received no later than Wednesday, March 15, 2017 at 5:00pm.

Matthew Knudson, Assistant General Manager

Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550
mknudson@palmdalewater.org

Your info (required):

Name:

Address:

Phone:

Comments:

continued on back

Comment Card

Palmdale Water District
2029 East Avenue Q, Palmdale CA
Monday, March 13, 2017 | 6:00pm

Palmdale Water District
2016 Water System Master Plan

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Matthew Knudson, Assistant General Manager

Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550
mknudson@palmdalewater.org

Your info (required):

Name:

Address:

Phone:

Comments:

continued on back

Comments (continued):

Comments (continued):

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

Notice of Preparation

February 13, 2017

To: Reviewing Agencies

Re: Water System Master Plan
SCH# 2017021042

Attached for your review and comment is the Notice of Preparation (NOP) for the Water System Master Plan draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Matthew Knudson
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2017021042
Project Title Water System Master Plan
Lead Agency Palmdale Water District

Type NOP Notice of Preparation

Description The proposed project would construct water system improvements throughout the 47-sf PWD service area in order to meet PWD's potable water system current and future needs. The WSMP identifies existing system deficiencies that need to be corrected as well as future facilities to be implemented in the near term (by 2020) or longer term (by 2030 and beyond). The PEIR will evaluate the WSMP's near term improvements on a project level basis and the longer term improvements on a program-level basis. The components analyzed at the project level include three booster pump stations, three storage tanks and transmission pipelines. The program-level components include additional pump stations, storage tanks and transmission pipelines, as well as production wells that will be built in accordance with growth projections in the PWD service area.

Lead Agency Contact

Name Matthew Knudson
Agency Palmdale Water District
Phone 661-947-4111 **Fax**
email
Address 2029 East Avenue Q
City Palmdale **State** CA **Zip** 93550

Project Location

County Los Angeles
City Palmdale
Region
Cross Streets East Avenue Q and 20th St East
Lat / Long 34° 35' 15" N / 118° 5' 38" W
Parcel No. various
Township 6N **Range** 11W **Section** 19 **Base** SB

Proximity to:

Highways SR 14, 138
Airports Palmdale Regional
Railways
Waterways CA Aqueduct, Anaverde Creek, Lake Palmdale
Schools Temecula Christian
Land Use LDR/SFR-3

Project Issues Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Cumulative Effects; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Growth Inducing; Landuse; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Sewer Capacity; Social; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian

Reviewing Agencies Resources Agency; Department of Boating and Waterways; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Wildlife, Region 5; Native American Heritage Commission; State Lands Commission; Caltrans, Division of Aeronautics; California Highway Patrol; Caltrans, District 7; State Water Resources Control Board, Division of Drinking Water; State Water Resources Control Board, Division of Drinking Water, District 15; State Water Resources Control Board, Division of Water Rights; Department of Toxic Substances Control; Regional Water Quality Control Bd., Region 6 (Victorville)

Note: Blanks in data fields result from insufficient information provided by lead agency.

Document Details Report
State Clearinghouse Data Base

Date Received 02/13/2017 *Start of Review* 02/13/2017 *End of Review* 03/14/2017

Note: Blanks in data fields result from insufficient information provided by lead agency.

Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

2017021042

SCH #

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

Project Title: Water System Master Plan

Lead Agency: Palmdale Water District | Contact Person: Matthew Knudson
Mailing Address: 2029 East Avenue Q | Phone: (661) 947-4111
City: Palmdale | Zip: 93550 | County: Los Angeles

Project Location: County: Los Angeles | City/Nearest Community: Palmdale
Cross Streets: East Avenue Q and 20th Street East | Zip Code: 93550
Longitude/Latitude (degrees, minutes and seconds): 34 ° 35 ′ 15 ″ N / 118 ° 5 ′ 38 ″ W | Total Acres: PWD Service Area
Assessor's Parcel No.: Various APNs throughout area | Section: 19 | Twp.: 6N | Range: 11W | Base: San Bernardino
Within 2 Miles: State Hwy #: SR-14, SR-138 | Waterways: CA Aqueduct, Anaverde Creek, Lake Palmdale
Airports: Palmdale Regional Airport | Railways: | Schools: Temecula Christian

Document Type:

CEQA: ☒ NOP ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ☐ Early Cons ☐ Neg Dec ☐ Mit Neg Dec Other:
NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI
Other: ☐ Joint Document ☐ Final Document ☐ Other:

Local Action Type:

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☒ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☐ Other:

Development Type:

☐ Residential: Units _____ Acres _____
☐ Office: Sq.ft. _____ Acres _____ Employees _____
☐ Commercial: Sq.ft. _____ Acres _____ Employees _____
☐ Industrial: Sq.ft. _____ Acres _____ Employees _____
☐ Educational:
☐ Recreational:
☒ Water Facilities: Type Pump stations, storage tanks, pipelines MGD >5MG capacity
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type MW
☐ Waste Treatment: Type MGD
☐ Hazardous Waste: Type
☐ Other:

Project Issues Discussed in Document:

☒ Aesthetic/Visual ☒ Agricultural Land ☒ Air Quality ☒ Archeological/Historical ☒ Biological Resources ☐ Coastal Zone ☒ Drainage/Absorption ☐ Economic/Jobs
☐ Fiscal ☒ Flood Plain/Flooding ☒ Forest Land/Fire Hazard ☒ Geologic/Seismic ☒ Minerals ☒ Noise ☒ Population/Housing Balance ☒ Public Services/Facilities
☒ Recreation/Parks ☒ Schools/Universities ☐ Septic Systems ☒ Sewer Capacity ☒ Soil Erosion/Compaction/Grading ☒ Solid Waste ☒ Toxic/Hazardous ☒ Traffic/Circulation
☒ Vegetation ☒ Water Quality ☒ Water Supply/Groundwater ☒ Wetland/Riparian ☒ Growth Inducement ☒ Land Use ☒ Cumulative Effects ☐ Other:

Present Land Use/Zoning/General Plan Designation:

Low Density Residential (LDR) / Single Family Residential (SFR-3)

Project Description: *(please use a separate page if necessary)*

The proposed project would construct water system improvements throughout the 47-square mile PWD service area in order to meet PWD's potable water system current and future needs. The WSMP identifies existing system deficiencies that need to be corrected as well as future facilities to be implemented in the near term (by 2020) or longer term (by 2030 and beyond). The PEIR will evaluate the WSMP's near term improvements on a project-level basis and the longer term improvements on a program-level basis. The components analyzed at the project level include three booster pump stations, three storage tanks and transmission pipelines. The program-level components include additional pump stations, storage tanks and transmission pipelines, as well as production wells that will be built in accordance with growth projections in the PWD service area.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

NOP Distribution List

MK

County: LOS Angeles

SCH# 2017021042

esources Agency

- [■] **Resources Agency**
  Nadell Gayou
- [■] **Dept. of Boating & Waterways**
  Denise Peterson
- [ ] **California Coastal Commission**
  Elizabeth A. Fuchs
- [ ] **Colorado River Board**
  Lisa Johansen
- [ ] **Dept. of Conservation**
  Crina Chan
- [ ] **California Energy Commission**
  Eric Knight
- [ ] **Cal Fire**
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- [ ] **Central Valley Flood Protection Board**
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- [ ] **Office of Historic Preservation**
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- [■] **Dept of Parks & Recreation**
  Environmental Stewardship Section
- [ ] **California Department of Resources, Recycling & Recovery**
  Sue O'Leary
- [ ] **S.F. Bay Conservation & Dev't. Comm.**
  Steve Goldbeck
- [■] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou

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  Environmental Services Division
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  Curt Babcock
- [ ] **Fish & Wildlife Region 1E**
  Laurie Harnsberger
- [ ] **Fish & Wildlife Region 2**
  Jeff Drongesen
- [ ] **Fish & Wildlife Region 3**
  Craig Weightman
- [ ] **Fish & Wildlife Region 4**
  Julie Vance
- [■] **Fish & Wildlife Region 5**
  Leslie Newton-Reed
  Habitat Conservation Program
- [ ] **Fish & Wildlife Region 6**
  Tiffany Ellis
  Habitat Conservation Program
- [ ] **Fish & Wildlife Region 6 I/M**
  Heidi Calvert
  Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Wildlife M**
  William Paznokas
  Marine Region

Other Departments

- [ ] **Food & Agriculture**
  Sandra Schubert
  Dept. of Food and Agriculture
- [ ] **Dept. of General Services**
  Cathy Buck
  Environmental Services Section
- [ ] **Delta Stewardship Council**
  Kevan Samsam
- [ ] **Housing & Comm. Dev.**
  CEQA Coordinator
  Housing Policy Division

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- [ ] **OES (Office of Emergency Services)**
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- [■] **Native American Heritage Comm.**
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- [ ] **Public Utilities Commission**
  Supervisor
- [ ] **Santa Monica Bay Restoration**
  Guangyu Wang
- [■] **State Lands Commission**
  Jennifer Deleong
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Cal State Transportation Agency CalSTA

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  Philip Crimmins
- [ ] **Caltrans – Planning HQ LD-IGR**
  Christian Bushong
- [■] **California Highway Patrol**
  Suzann Ikeuchi
  Office of Special Projects

Dept. of Transportation

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- [ ] **Caltrans, District 2**
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- [ ] **Caltrans, District 3**
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- [ ] **Caltrans, District 8**
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- [ ] **Caltrans, District 10**
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Cal EPA

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  Jack Wursten
  - [ ] Transportation Projects
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  Division of Financial Assistance
- [■] **State Water Resources Control Board**
  Cindy Forbes – Asst Deputy
  Division of Drinking Water
- [■] **State Water Resources Control Board**
  Div. Drinking Water # 15
- [ ] **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [■] **State Water Resouces Control Board**
  Phil Crader
  Division of Water Rights
- [■] **Dept. of Toxic Substances Control**
  CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
  - [ ] **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
  - [■] **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [ ] **RWQCB 9**
  San Diego Region (9)

- [ ] **Other** _____
- [ ] _____
  Conservancy

Last Updated 2/3/17

Sarah Spano

From: Matthew Knudson <mknudson@palmdalewater.org>
Sent: Tuesday, February 14, 2017 7:41 AM
To: Sarah Spano; Jennifer Jacobus
Cc: James Riley
Subject: FW: NOP for the 2016 Water System Master Plan

From: Ray Bransfield [mailto:ray_bransfield@fws.gov]
Sent: Monday, February 13, 2017 6:18 PM
To: Matthew Knudson <mknudson@palmdalewater.org>
Subject: NOP for the 2016 Water System Master Plan

Matthew,
The U.S. Fish and Wildlife Service shifted office boundaries in 2014. The Ventura Fish and Wildlife Office no longer has any responsibilities in the California desert. Please address all future correspondence for activities in the California desert to:
Assistant Field Supervisor
Palm Springs Fish and Wildlife Office
U.S. Fish and Wildlife Service
777 East Tahquitz Canyon Way, Suite 208
Palm Springs, California 92262
760 322-2070
Thanks much. If you have any questions, please contact me at (805) 644-1766, extension 317 or by email.
Ray

P.S. I have forwarded the referenced NOP to the Palm Springs office.

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DEPARTMENT OF TRANSPORTATION
District 7 – Office of Regional Planning
100 S. MAIN STREET, MS 16
LOS ANGELES, CA 90012
PHONE (213) 897-0673
FAX (213) 897-1337
www.dot.ca.gov

Serious drought.
Help save water!

March 01, 2017

Mr. Matthew Knudson
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550

RE: Water System Master Plan (WSMP)
Notice of Preparation of a Draft EIR
SCH#2017021042
GTS#07-LA-2017-00667-FL
Vic.: LA-14, LA-138/ various locations

Dear Mr. Knudson:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project.

The proposed project would implement the Capital Improvement Program (CIP) included in the WSMP. The major categories of facilities in the proposed project consist of distribution of pipelines, storage tanks, and pump stations. Projects are categorized into five-year planning stages starting in 2015 through 2030. Projects addressed in the 2015-2020 planning stage are considered near-term project components and will be evaluated at a project level in the PEIR, while projects addressed in the later planning stage are considered long-term project components and will be evaluated at a programmatic level in the PEIR.

Caltrans acknowledges on pg. 10 of Notice of Preparation dated February 2017 that "The PEIR will evaluate the potential for construction vehicles, lane closures, or road closures to impact traffic and circulation and will identify mitigation strategies to reduce any potentially significant impacts."

A truck/traffic construction management plan should be prepared for this project to evaluate any potential traffic impacts on the State highway facilities. If one has been prepared, please submit for Caltrans' review.

As with any construction project, the Water System Master Plan will have impact and cause delay for the motoring public at various times during the duration of hauling and upgrading activities even with mitigation measures in place. However, it is also understood that the temporary nature of this project will return LOS to same levels as without project at the project locations. Caltrans recommends:

- Haul trucks, construction vehicles, oversized vehicles and/or large size trucks trips be limited to off peak traffic periods to lessen traffic impacts at significant impact locations

- Construction/hauling vehicles transporting materials (dirt, debris, trash) on freeway/highway need to be secured from littering.

- Consider scheduling works on the weekends and after hours to help relieve traffic congestions during work day peak hours and have workers/employees carpooling to reduce trips during peak commuting hours

Senate Bill 743 (2013) mandated that CEQA review of transportation impacts of proposed development be modified by using Vehicle Miles Traveled (VMT) as the primary metric in identifying transportation impacts for all future development projects. However, the City may use Level of Service (LOS) methodology until the Governor's Office of Planning and Research (OPR) complete its CEQA Guideline to implement SB743 (https://www.opr.ca.gov/s_sb743.php).

Caltrans continues to strive to improve its standards and processes to provide flexibility while maintaining the safety and integrity of the State's transportation system. It is our goal to implement strategies that are in keeping with our mission statement, which is to "*provide a safe, sustainable, integrated, and efficient transportation system to enhance California's economy and livability.*"

As a reminder, the lead agency is to adhere to Caltrans standards for roadway closures and detours (no closure between 5 AM and 10 PM). In addition, Storm water run-off is a sensitive issue for Los Angeles and Ventura counties. Please be mindful of your need to discharge clean run-off water and it is not permitted to discharge onto State highway facilities.

Any work to be performed within the State Right-of-way will need an Encroachment Permit and any transportation of heavy construction equipment and/or materials, which requires the use of oversized-transport vehicles on State highways, will require a Caltrans transportation permit. For information on the Permit process, please contact Caltrans District 7 Office of Permit at (213) 897-3631.

If you have any questions or concerns regarding these comments, please feel free to contact the project coordinator, Frances Lee at (213) 897-0673 or electronically at frances.lee@dot.ca.gov.

Sincerely,

DIANNA WATSON
Branch Chief, Community Planning & LD IGR Review

cc: Scott Morgan, State Clearinghouse

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

March 9, 2017

Mr. Matt Knudson
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550
mknudson@palmdalewater.org

Subject: Comments on the Notice of Preparation (NOP) for the Palmdale Water District Draft Environmental Impact Report (DEIR) for the Water System Management Plan Project, Los Angeles County, and (SCH # 2017021042).

Dear Mr. Knudson:

The California Department of Fish and Wildlife (Department) has reviewed the above-referenced NOP for the Water System Management Plan Project (project) DEIR. The project is being proposed to construct water system improvements including pumping stations, water tanks and transmission pipelines in order to meet Palmdale Water District's (PWD's) potable water system current and future needs within PWD's service area located in the Antelope Valley of Los Angeles County.

The following comments and recommendations have been prepared pursuant to the Department's authority as a Responsible Agency under CEQA Guidelines section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (Fish and Game Code § 2050 *et seq.*), the California Native Plant Protection Act (Fish and Game Code §1900 et seq.), Fish and Game Code section 1600 *et seq*., and pursuant to our authority as Trustee Agency with jurisdiction over natural resources affected by the project (California Environmental Quality Act, [CEQA] Guidelines § 15386) to assist the Lead Agency in avoiding or minimizing potential project impacts on biological resources.

Specific Comments

1) California Endangered Species Act (CESA). The Department recommends that the Lead Agency describe in the DEIR analysis how the project will include avoidance, minimization, and mitigation measures to avoid or reduce direct and indirect impacts to the State-listed Mohave ground squirrel (*Xerospermophilus mohavensis)* and Swainson's hawk (*Buteo swainsoni*), State- and federally-listed desert tortoise (*Gopherus agassizii)* and the proposed for State listing as threatened and federally-listed as endangered tricolored blackbird (*Agelaius tricolor)* since the project is within the range of these species and may have adverse impacts.

   The Department considers adverse impacts to special status species protected by CESA and the Federal Endangered Species Act (ESA), for the purposes of CEQA, to be significant without mitigation. As to CESA, take of any state endangered, threatened, candidate species, or state listed rare plant species pursuant to the Native Plant Protection Act that results from the project is prohibited, except as authorized by state law (Fish and Game Code, §§ 2080, 2085; Cal. Code Regs., tit. 14, §786.9). Take is defined in Section 86 of the

Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill". Consequently, if the project, project construction, or any Project-related activity during the life of the project will result in take of a species designated as rare, endangered or threatened, or a candidate for listing under CESA, the Department recommends that the project proponent seek appropriate take authorization under CESA prior to implementing the Project. Appropriate authorization from the Department may include an Incidental Take Permit (ITP) or a consistency determination in certain circumstances, among other options (Fish and Game Code §§ 2080.1, 2081, subds. (b), (c)). Early consultation is encouraged, as significant modification to a project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, may require that the Department issue a separate CEQA document for the issuance of an ITP unless the project CEQA document addresses all project impacts to CESA-listed species and specifies a mitigation monitoring and reporting program that will meet the fully mitigated requirements of an ITP. For these reasons, biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA ITP.

2) Other Special Status Species. CEQA provides protection not only for CESA listed and candidate species, but for any species including: species of special concern (SSC) which can be shown to meet the criteria for State-listing; and plants designated as 1A, 1B and 2 of the California Native Plant Society Inventory of Rare and Endangered Vascular Plants of California, which consist of plants that, in a majority of cases, would qualify for listing (CEQA Guidelines §§ 15380 (d) and 15065 (a)).

   The Department recommends the Lead Agency include in the analysis how appropriate project avoidance, minimization and mitigation measures will avoid, or reduce direct and indirect impacts to special status species including but not limited to: western burrowing owl (*Athene cunicularia*) a California species of special concern and alkali mariposa lily (*Calochortus striatus*) a 1B listed plant species.

General Comments

3) Project Description and Alternatives. To enable the Department to adequately review and comment on the proposed project from the standpoint of the protection of plants, fish, and wildlife, we recommend the following information be included in the DEIR:

   a) A complete discussion of the purpose and need for, and description of, the proposed project, including all staging areas and access routes to the construction and staging areas; and,

   b) A range of feasible alternatives to project component location and design features to ensure that alternatives to the proposed project are fully considered and evaluated. The alternatives should avoid or otherwise minimize direct and indirect impacts to sensitive biological resources and wildlife movement areas.

4) Lake and Streambed Alteration Agreements (LSA). As a Responsible Agency under CEQA Guidelines section 15381, the Department has authority over activities in streams and/or lakes that will divert or obstruct the natural flow, or change the bed, channel, or bank (including vegetation associated with the stream or lake) of a river or stream, or use material

from a streambed. For any such activities, the project applicant (or "entity") must provide written notification to the Department pursuant to section 1600 et seq. of the Fish and Game Code. Based on this notification and other information, the Department determines whether a Lake and Streambed Alteration Agreement (LSA) with the applicant is required prior to conducting the proposed activities. The Department's issuance of a LSA for a project that is subject to CEQA will require CEQA compliance actions by the Department as a Responsible Agency. As a Responsible Agency, the Department may consider the Negative Declaration or Environmental Impact Report of the local jurisdiction (Lead Agency) for the project. To minimize additional requirements by the Department pursuant to section 1600 *et seq.* and/or under CEQA, the document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the LSA.[1]

a) The project area may support aquatic, riparian, and wetland habitats; therefore, a preliminary jurisdictional delineation of the streams and their associated riparian habitats should be included in the DEIR. The delineation should be conducted pursuant to the U. S. Fish and Wildlife Service wetland definition adopted by the Department.[2] Some wetland and riparian habitats subject to the Department's authority may extend beyond the jurisdictional limits of the U.S. Army Corps of Engineers' Section 404 permit and Regional Water Quality Control Board Section 401 Certification.

b) In project areas which may support ephemeral streams, herbaceous vegetation, woody vegetation, and woodlands also serve to protect the integrity of ephemeral channels and help maintain natural sedimentation processes; therefore, the Department recommends effective setbacks be established to maintain appropriately-sized vegetated buffer areas adjoining ephemeral drainages.

c) Project-related changes in drainage patterns, runoff, and sedimentation should be included and evaluated in the environmental document.

5) Wetlands Resources. The Department, as described in Fish & Game Code § 703(a) is guided by the Fish and Game Commission's policies. The Wetlands Resources policy (http://www.fgc.ca.gov/policy/) of the Fish and Game Commission "…seek[s] to provide for the protection, preservation, restoration, enhancement and expansion of wetland habitat in California. Further, it is the policy of the Fish and Game Commission to strongly discourage development in or conversion of wetlands. It opposes, consistent with its legal authority, any development or conversion which would result in a reduction of wetland acreage or wetland habitat values. To that end, the Commission opposes wetland development proposals unless, at a minimum, project mitigation assures there will be "no net loss" of either wetland habitat values or acreage. The Commission strongly prefers mitigation which would achieve expansion of wetland acreage and enhancement of wetland habitat values".

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[1] A notification package for a LSA may be obtained by accessing the Department's web site at www.wildlife.ca.gov/habcon/1600.

[2] Cowardin, Lewis M., et al. 1970. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service.

a) The Wetlands Resources policy provides a framework for maintaining wetland resources and establishes mitigation guidance. The Department encourages avoidance of wetland resources as a primary mitigation measure and discourages the development or type conversion of wetlands to uplands. The Department encourages activities that would avoid the reduction of wetland acreage, function, or habitat values. Once avoidance and minimization measures have been exhausted, the project must include mitigation measures to assure a "no net loss" of either wetland habitat values, or acreage, for unavoidable impacts to wetland resources. Conversions include, but are not limited to, conversion to subsurface drains, placement of fill or building of structures within the wetland, and channelization or removal of materials from the streambed. All wetlands and watercourses, whether ephemeral, intermittent, or perennial, should be retained and provided with substantial setbacks, which preserve the riparian and aquatic values and functions for the benefit to on-site and off-site wildlife populations. The Department recommends mitigation measures to compensate for unavoidable impacts be included in the DEIR and these measures should compensate for the loss of function and value.

b) The Fish and Game Commission's Water policy guides the Department to [insure] the quantity and quality of the waters of this state should be apportioned and maintained respectively so as to produce and sustain maximum numbers of fish and wildlife; to provide maximum protection and enhancement of fish and wildlife and their habitat; encourage and support programs to maintain or restore a high quality of the waters of this state, and prevent the degradation thereof caused by pollution and contamination; and endeavor to keep as much water as possible open and accessible to the public for the use and enjoyment of fish and wildlife. The Department recommends avoidance of water practices and structures that use excessive amounts of water, and minimization of impacts that negatively affect water quality, to the extent feasible.

6) Biological Baseline Assessment. To provide a complete assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, sensitive, regionally and locally unique species, and sensitive habitats, the DEIR should include the following information:

a) Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region (CEQA Guidelines § 15125[c]);

b) a thorough, recent, floristic-based assessment of special status plants and natural communities, following the Department's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (see http://www.dfg.ca.gov/habcon/plant/);

c) floristic, alliance- and/or association-based mapping and vegetation impact assessments conducted at the project site and within the neighboring vicinity. *The Manual of California Vegetation*, second edition, should also be used to inform this mapping and

assessment (Sawyer et al. 2008[3]). Adjoining habitat areas should be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions;

d) a complete, recent, assessment of the biological resources associated with each habitat type on site and within adjacent areas that could also be affected by the project. The Department's California Natural Diversity Data Base (CNDDB) in Sacramento should be contacted to obtain current information on any previously reported sensitive species and habitat. The Department recommends that CNDDB Field Survey Forms be completed and submitted to CNDDB to document survey results. Online forms can be obtained and submitted at http://www.dfg.ca.gov/biogeodata/cnddb/submitting_data_to_cnddb.asp ;

e) a complete, recent assessment of rare, threatened, and endangered, and other sensitive species on site and within the area of potential effect, including California Species of Special Concern (CSSC) and California Fully Protected Species (Fish and Game Code § 3511). Species to be addressed should include all those which meet the CEQA definition (see CEQA Guidelines § 15380). Seasonal variations in use of the project area should also be addressed. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service; and,

f) a recent, wildlife and rare plant survey. The Department generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years. Some aspects of the proposed project may warrant periodic updated surveys for certain sensitive taxa, particularly if build out could occur over a protracted time frame, or in phases.

5. Biological Direct, Indirect, and Cumulative Impacts. To provide a thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts, the following should be addressed in the DEIR:

a) A discussion of potential adverse impacts from lighting, noise, human activity, exotic species, and drainage. The latter subject should address project-related changes on drainage patterns and downstream of the project site; the volume, velocity, and frequency of existing and post-project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-project fate of runoff from the project site. The discussion should also address the proximity of the extraction activities

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[3]Sawyer, J. O., Keeler-Wolf, T., and Evens J.M. 2008. A manual of California Vegetation, 2nd ed.

ISBN 978-0-943460-49-9.

to the water table, whether dewatering would be necessary and the potential resulting impacts on the habitat, if any, supported by the groundwater. Mitigation measures proposed to alleviate such impacts should be included;

b) a discussion regarding indirect project impacts on biological resources, including resources in nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any designated and/or proposed or existing reserve lands (e.g., preserve lands associated with a NCCP). Impacts on, and maintenance of, wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas, should be fully evaluated in the DEIR;

c) the impacts of zoning of areas for development projects or other uses nearby or adjacent to natural areas, which may inadvertently contribute to wildlife-human interactions. A discussion of possible conflicts and mitigation measures to reduce these conflicts should be included in the environmental document; and,

d) a cumulative effects analysis, as described under CEQA Guidelines section 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

8) Avoidance, Minimization, and Mitigation for Sensitive Plants. The DEIR should include measures to fully avoid and otherwise protect sensitive plant communities from project-related direct and indirect impacts. The Department considers these communities to be imperiled habitats having both local and regional significance. Plant communities, alliances, and associations with a statewide ranking of S-1, S-2, S-3 and S-4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by querying the CNDDB and are included in *The Manual of California Vegetation* (Sawyer et al. 2008).

9) Compensatory Mitigation. The DEIR should include mitigation measures for adverse project-related impacts to sensitive plants, animals, and habitats. Mitigation measures should emphasize avoidance and reduction of project impacts. For unavoidable impacts, on-site habitat restoration or enhancement should be discussed in detail. If on-site mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, off-site mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.

10) Long-Term Management of Mitigation Lands. For proposed preservation and/or restoration, the DEIR should include measures to protect the targeted habitat values from direct and indirect negative impacts in perpetuity. The objective should be to offset the project-induced qualitative and quantitative losses of wildlife habitat values. Issues that should be addressed include, but are not limited to, restrictions on access, proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, and increased human intrusion. An appropriate non-wasting endowment should be set aside to provide for long-term management of mitigation lands.

11) Nesting Birds. In order to avoid impacts to nesting birds, the DSEIR should require that clearing of vegetation and construction occur outside of the peak avian breeding season, which generally runs from February 1st through September 1st (as early as January 1 for some raptors). If project construction is necessary during the bird breeding season, a qualified biologist with experience in conducting bird breeding surveys should conduct weekly bird surveys for nesting birds within three days prior to the work in the area, and ensure that no nesting birds in the project area would be impacted by the Project. If an active nest is identified, a buffer shall be established between the construction activities and the nest so that nesting activities are not interrupted. The buffer should be a minimum width of 300 feet (500 feet for raptors), be delineated by temporary fencing, and remain in effect as long as construction is occurring or until the nest is no longer active. No Project construction shall occur within the fenced nest zone until the young have fledged, are no longer being fed by the parents, have left the nest, and will no longer be impacted by the Project. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient levels of human activity, screening vegetation, or possibly other factors.

12) Translocation/Salvage of Plants and Animal Species. Translocation and transplantation is the process of moving an individual from the project site and permanently moving it to a new location. The Department generally does not support the use of, translocation or transplantation as the primary mitigation strategy for unavoidable impacts to rare, threatened, or endangered plant or animal species. Studies have shown that these efforts are experimental and the outcome unreliable. The Department has found that permanent preservation and management of habitat capable of supporting these species is often a more effective long-term strategy for conserving sensitive plants and animals, and their habitats.

13) Moving out of Harm's Way. The proposed project is anticipated to result in clearing of natural habitats that support many species of indigenous wildlife. To avoid direct mortality, the Department recommends a qualified biological monitor approved by the Department be on site prior to and during ground and habitat disturbing activities to move out of harm's way special status species or other wildlife of low mobility that would be injured or killed by grubbing or project-related construction activities. It should be noted that the temporary relocation of on-site wildlife does not constitute effective mitigation for the purposes of offsetting project impacts associated with habitat loss.

14) Wildlife Movement and Connectivity. The project area supports significant biological resources and is located adjacent to a regional wildlife movement corridor. The project area contains habitat connections and supports movement across the broader landscape, sustaining both transitory and permanent wildlife populations. Onsite features, which contribute to habitat connectivity, should be evaluated and maintained. Aspects of the project could create physical barriers to wildlife movement from direct or indirect project-related activities. Indirect impacts from lighting, noise, dust, and increased human activity may displace wildlife in the general area.

15) Revegetation/Restoration Plan. Plans for restoration and re-vegetation should be prepared by persons with expertise in southern California ecosystems and native plant restoration techniques. Plans should identify the assumptions used to develop the proposed restoration strategy. Each plan should include, at a minimum: (a) the location of restoration sites and

assessment of appropriate reference sites; (b) the plant species to be used, sources of local propagules, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) a local seed and cuttings and planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity. Monitoring of restoration areas should extend across a sufficient time frame to ensure that the new habitat is established, self-sustaining, and capable of surviving drought.

a) The Department recommends that local onsite propagules from the project area and nearby vicinity be collected and used for restoration purposes. Onsite seed collection should be initiated in the near future in order to accumulate sufficient propagule material for subsequent use in future years. Onsite vegetation mapping at the alliance and/or association level should be used to develop appropriate restoration goals and local plant palettes. Reference areas should be identified to help guide restoration efforts. Specific restoration plans should be developed for various project components as appropriate.

b) Restoration objectives should include providing special habitat elements where feasible to benefit key wildlife species. These physical and biological features can include, for example, retention of woody material, logs, snags, rocks and brush piles (see Mayer and Laudenslayer, 1988[1], for a more detailed discussion of special habitat elements).

We appreciate the opportunity to comment on the referenced NOP. Questions regarding this letter and further coordination on these issues should be directed to Scott Harris, Environmental Scientist, at (805) 644-6305 or email at scott.p.harris@wildlife.ca.gov

Sincerely,

Betty J. Courtney
Environmental Program Manager I

ec: Ms. Erinn Wilson, CDFW, Los Alamitos
Mr. Scott Harris, CDFW, Pasadena
Ms. Victoria Chau, CDFW, Los Alamitos
Mr. Scott Morgan State Clearinghouse, Sacramento

[4]Mayer, K. E. and W. F. Laudenslayer, Jr. 1988. Editors: A guide to wildlife habitats of California. State of California, The Resources Agency, Department of Forestry and Fire Protection, Sacramento, CA.

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY
EDMUND G. BROWN JR., *Governor*

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

March 10, 2017

Matthew Knudson
Assistant General Manager
Palmdale Water District
2029 East Avenue Q
Palmdale, California 93550

Notice of Preparation of a Program Environmental Impact Report, Water System Master Plan of Palmdale Water District, Los Angeles County, Southern Field Division, SCH2017021042

Dear Mr. Knudson:

Thank you for the opportunity to review and comment on the Notice of Preparation of a Program Environmental Impact Report (NOP) for the Water System Master Plan (Plan) of the Palmdale Water District. The Plan involves construction of water system improvements throughout the Palmdale Water District service area to meet current and future customer needs. These improvements include construction of three storage tanks, three new pump stations, and multiple transmission pipeline segments. Figure 2 of the NOP shows four locations where proposed pipeline segments may cross the California Aqueduct.

Any construction work proposed within DWR right-of-way will require adhering to California Water Code section 12899 and Regulations, Title 23, Division 2, sections 600-635; and obtaining an Encroachment Permit issued by DWR.

Information on obtaining an encroachment permit from DWR can be viewed at:

http://www.water.ca.gov/engineering/Services/Real_Estate/Encroach_Rel/

Please provide DWR with a copy of any subsequent environmental documentation when it becomes available for public review. Any future correspondence relating to this proposed project shall be sent to:

Leroy Ellinghouse, Chief
SWP Right-of-Way Management Section
Division of Operations and Maintenance
Department of Water Resources
1416 Ninth Street, Room 641-1
Sacramento, California 95814

If you have any questions, please contact Leroy Ellinghouse, Chief of the SWP Encroachments Section, at (916) 659-7168 or Jonathan Canuela at (916) 653-5095.

Sincerely,

David M. Samson, Chief
Civil Engineering Services
Department of Water Resources

cc: State Clearinghouse
Office of Planning and Research
1400 Tenth Street, Room 121
Sacramento, California 95814

Antelope Valley Air Quality Management District
43301 Division St., Suite 206
Lancaster, CA 93535-4649
661.723.8070

In reply, please refer to AV0217/024

February 13, 2017

Matthew Knudson
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550

Project: Notice of Preparation of a Program Environmental Impact Report
2016 Water System Master Plan

Dear Mr. Knudson,

The Antelope Valley Air Quality Management District (District) has received the request for comment on Notice of Preparation of a Program Environmental Impact Report for the 2016 Water System Master Plan.

During the construction phase, all disturbed areas should be stabilized so that no visible fugitive dust leaves the property line and does not impact traffic or neighboring residents as outlined in District Rule 403, Fugitive Dust.

Prior to construction and installation of the three new pumps, the project proponent must review the equipment being installed with District staff to determine if the pumps will require a District Authority to Construct permit and if this operation is regulated by District rules.

All construction equipment utilized on this project must comply with Air Resources Board In-Use Off-Road Diesel Vehicle Regulation.

Thank you for the opportunity to review this planning document. If you have any questions regarding the information presented in this letter please contact me at (661) 723-8070 ext. 2 or bbanks@avaqmd.ca.gov .

Sincerely,

Bret Banks
Operations Manager

BSB/bjl

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Lahontan Regional Water Quality Control Board

March 9, 2017

File: Environmental Doc Review
Los Angeles County

Matthew Knudson
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550
mknudson@palmdalewater.org

Comments - Notice of Preparation for the Water System Master Plan Draft Environmental Impact Report, Palmdale Water District, Los Angeles County, State Clearinghouse No. 2017021042

The California Regional Water Quality Control Board, Lahontan Region (Water Board) staff appreciates the notification by Palmdale Water District concerning the Notice of Preparation of a Program Environmental Impact Report for the Water System Master Plan Draft in accordance with the California Environmental Quality Act. The Program Environmental Impact Report covers the scope of three booster pump stations, three storage tanks and transmission pipelines.

1. Project components that result in dredging or filling stream channels may be subject to Water Board permit actions under Orders R6T-2003-004 or WQO No. 2004-0004.

2. Project components involving discharge may require regulation under WQO No. 2003-0003 DWQ Statewide General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality, if there is a clear discharge during construction.

3. The Environmental Impact Report should identify the standards set forth in the *Water Quality Control Plan for the Lahontan Region* (Basin Plan) Chapter 4.3 for:

   - Storm Water Low Impact Development, and
   - Best Management Practices that will be used during construction.

Thank you for the opportunity to provide input prior to the Draft Environmental Impact Study / Environmental Impact Report. If you have any questions regarding this letter, please contact me at (760) 241-2434 Jehiel.Cass@waterboards.ca.gov or Cephas Hurr at (780) 241-3408 Cephas.Hurr@waterboards.ca.gov.

Cephas Hurr
Water Resources Control Engineer

ChurrPalmdaleWaterDistrictWaterSystemMasterDraftPlan

WATER RECLAMATION
SOLID WASTE MANAGEMENT

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

GRACE ROBINSON HYDE
Chief Engineer and General Manager

March 15, 2017

Ref. Doc. No.: 4045008

Mr. Matthew Knudson
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550

Dear Mr. Knudson:

Response to NOP for the 2016 Water System Master Plan

The Sanitation Districts of Los Angeles County (Districts) received a Notice of Preparation of a Draft Environmental Impact Report (NOP) for the subject project on February 13, 2017. The project site is located within the jurisdictional boundaries of Districts Nos. 14 and 20. We offer the following comment:

- The proposed project may impact existing and/or proposed Districts' facilities (e.g. trunk sewers, recycled waterlines, etc.) over which it will be constructed. Districts' facilities are located directly under and/or cross directly beneath the proposed project alignment. The Districts cannot issue a detailed response to or permit construction of the proposed project until project plans and specifications that incorporate Districts' facilities are submitted for our review. To obtain copies of as-built drawings of the Districts' facilities within the project limits, please contact the Districts' Engineering Counter at engineeringcounter@lacsd.org or (562) 908-4288, extension 1205. When project plans that incorporate our facilities have been prepared, please submit copies of the same to the Engineering Counter for our review and comment.

  If you have any questions, please contact the undersigned at (562) 908-4288, extension 2717.

Very truly yours,

Adriana Raza
Customer Service Specialist
Facilities Planning Department

AR:ar

cc: M. Tatalovich
Engineering Counter

DOC: #4078599.D1420

SCAG
INNOVATING FOR A BETTER TOMORROW

SOUTHERN CALIFORNIA
ASSOCIATION OF GOVERNMENTS
818 West 7th Street, 12th Floor
Los Angeles, CA 90017
(213) 236-1800
(213) 236-1825
www.scag.ca.gov

March 15, 2017

Mr. Matthew Knudson
Palmdale Water District
2029 East Avenue q
Palmdale, California 93550
Phone: (661) 947-4111
E-mail: mknudson@palmdalewater.org

RE: SCAG Comments on the Notice of Preparation of a Draft Environmental Impact Report for the 2016 Water System Master Plan [SCAG NO. IGR9167]

Dear Mr. Knudson,

Thank you for submitting the Notice of Preparation of a Draft Environmental Impact Report for the 2016 Water System Master Plan ("proposed project") to the Southern California Association of Governments (SCAG) for review and comment. SCAG is the authorized regional agency for Inter-Governmental Review (IGR) of programs proposed for Federal financial assistance and direct Federal development activities, pursuant to Presidential Executive Order 12372. Additionally, SCAG reviews the Environmental Impact Reports of projects of regional significance for consistency with regional plans pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.

SCAG is also the designated Regional Transportation Planning Agency under state law, and is responsible for preparation of the Regional Transportation Plan (RTP) including the Sustainable Communities Strategy (SCS) pursuant to Senate Bill (SB) 375. As the clearinghouse for regionally significant projects per Executive Order 12372, SCAG reviews the consistency of local plans, projects, and programs with regional plans.[1] Guidance provided by these reviews is intended to assist local agencies such as local jurisdictions and project proponents to take actions that help contribute to the attainment of the regional goals and policies in the RTP/SCS.

SCAG staff has reviewed the Notice of Preparation of a Draft Environmental Impact Report for the 2016 Water System Master Plan (WSMP) in the North Los Angeles County area. WSMP determines the facilities required to meet rising water demands with the Palmdale Water District (PWD) service area over the next 25 years and would construct water system improvements through the 47 square mile (30,080 acres) area in order to meet PWD's potable water system and current and future needs.

When available, please send environmental documentation to *SCAG's office in Los Angeles or by email to au@scag.ca.gov* providing, at a minimum, the full public comment period for review. If you have any questions regarding the attached comments, please contact the Inter-Governmental Review (IGR) Program, attn.: Anita Au, Assistant Regional Planner, at (213) 236-1874 or au@scag.ca.gov. Thank you.

Sincerely,

Ping Chang

Ping Chang
Acting Manager, Compliance and Performance Monitoring

[1] Lead agencies such as local jurisdictions have the sole discretion in determining a local project's consistency with the 2016 RTP/SCS for the purpose of determining consistency for CEQA. Any "consistency" finding by SCAG pursuant to the IGR process should not be construed as a determination of consistency with the 2016 RTP/SCS for CEQA.

COMMENTS ON THE NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE 2016 WATER SYSTEM MASTER PLAN [SCAG NO. IGR9167]

CONSISTENCY WITH RTP/SCS

SCAG reviews environmental documents for regionally significant projects for their consistency with the adopted RTP/SCS. For the purpose of determining consistency with CEQA, lead agencies such as local jurisdictions have the sole discretion in determining a local project's consistency with the RTP/SCS.

2016 RTP/SCS GOALS

The SCAG Regional Council adopted the 2016 RTP/SCS in April 2016. The 2016 RTP/SCS seeks to improve mobility, promote sustainability, facilitate economic development and preserve the quality of life for the residents in the region. The long-range visioning plan balances future mobility and housing needs with goals for the environment, the regional economy, social equity and environmental justice, and public health (see http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx). The goals included in the 2016 RTP/SCS may be pertinent to the proposed project. These goals are meant to provide guidance for considering the proposed project within the context of regional goals and policies. Among the relevant goals of the 2016 RTP/SCS are the following:

SCAG 2016 RTP/SCS GOALS	
RTP/SCS G1:	*Align the plan investments and policies with improving regional economic development and competitiveness*
RTP/SCS G2:	*Maximize mobility and accessibility for all people and goods in the region*
RTP/SCS G3:	*Ensure travel safety and reliability for all people and goods in the region*
RTP/SCS G4:	*Preserve and ensure a sustainable regional transportation system*
RTP/SCS G5:	*Maximize the productivity of our transportation system*
RTP/SCS G6:	*Protect the environment and health for our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking)*
RTP/SCS G7:	*Actively encourage and create incentives for energy efficiency, where possible*
RTP/SCS G8:	*Encourage land use and growth patterns that facilitate transit and active transportation*
RTP/SCS G9:	*Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies**
	**SCAG does not yet have an agreed-upon security performance measure.*

For ease of review, we encourage the use of a side-by-side comparison of SCAG goals with discussions of the consistency, non-consistency or non-applicability of the goals and supportive analysis in a table format. Suggested format is as follows:

SCAG 2016 RTP/SCS GOALS		
	Goal	Analysis
RTP/SCS G1:	*Align the plan investments and policies with improving regional economic development and competitiveness*	*Consistent: Statement as to why;* *Not-Consistent: Statement as to why;* *Or* *Not Applicable: Statement as to why;* *DEIR page number reference*
RTP/SCS G2:	*Maximize mobility and accessibility for all people and goods in the region*	*Consistent: Statement as to why;* *Not-Consistent: Statement as to why;* *Or* *Not Applicable: Statement as to why;* *DEIR page number reference*
etc.		etc.

2016 RTP/SCS STRATEGIES

To achieve the goals of the 2016 RTP/SCS, a wide range of land use and transportation strategies are included in the 2016 RTP/SCS. Technical appendances of the 2016 RTP/SCS provide additional supporting information in detail. To view the 2016 RTP/SCS, please visit: http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx. The 2016 RTP/SCS builds upon the progress from the 2012 RTP/SCS and continues to focus on integrated, coordinated, and balanced planning for land use and transportation that the SCAG region strives toward a more sustainable region, while the region meets and exceeds in meeting all of applicable statutory requirements pertinent to the 2016 RTP/SCS. These strategies within the regional context are provided as guidance for lead agencies such as local jurisdictions when the proposed project is under consideration.

DEMOGRAPHICS AND GROWTH FORECASTS

Local input plays an important role in developing a reasonable growth forecast for the 2016 RTP/SCS. SCAG used a bottom-up local review and input process and engaged local jurisdictions in establishing the base geographic and socioeconomic projections including population, household and employment. At the time of this letter, the most recently adopted SCAG jurisdictional-level growth forecasts that were developed in accordance with the bottom-up local review and input process consist of the 2020, 2035, and 2040 population, households and employment forecasts. To view them, please visit http://www.scag.ca.gov/Documents/2016GrowthForecastByJurisdiction.pdf. The growth forecasts for the region and applicable jurisdictions are below.

	Adopted SCAG Region Wide Forecasts			Adopted City of Palmdale Forecasts		
	Year 2020	Year 2035	Year 2040	Year 2020	Year 2035	Year 2040
Population	19,663,000	22,091,000	22,138,800	166,500	183,100	201,500
Households	6,458,000	7,325,000	7,412,300	47,600	56,000	59,300
Employment	8,414,000	9,441,000	9,871,500	32,200	38,100	40,300

MITIGATION MEASURES

SCAG staff recommends that you review the Final Program Environmental Impact Report (Final PEIR) for the 2016 RTP/SCS for guidance, as appropriate. SCAG's Regional Council certified the Final PEIR and adopted the associated Findings of Fact and a Statement of Overriding Considerations (FOF/SOC) and Mitigation Monitoring and Reporting Program (MMRP) on April 7, 2016 (please see: http://scagrtpscs.net/Pages/FINAL2016PEIR.aspx). The Final PEIR includes a list of project-level performance standards-based mitigation measures that may be considered for adoption and implementation by lead, responsible, or trustee agencies in the region, as applicable and feasible. Project-level mitigation measures are within responsibility, authority, and/or jurisdiction of project-implementing agency or other public agency serving as lead agency under CEQA in subsequent project- and site- specific design, CEQA review, and decision-making processes, to meet the performance standards for each of the CEQA resource categories.

NOTICE OF AVAILABILITY

Program Environmental Impact Report

Date: July 30, 2018

To: Responsible Agencies, Trustee Agencies, Interested Parties

Lead Agency: Palmdale Water District

Project Title: Water System Master Plan Draft Program Environmental Impact Report

Review Period: July 30, 2018 through September 13, 2018

State Clearinghouse No: 2017021042

Project Description: This Notice of Availability (NOA) has been prepared to notify agencies and interested parties that the Palmdale Water District (PWD) as the Lead Agency has prepared a Draft Program Environmental Impact Report (Draft PEIR) to provide the public and trustee agencies with information about the potential effects on the local and regional environment associated with implementation of the Water System Master Plan (WSMP). The WSMP outlines a programmatic plan to meet water needs for PWD customers into 2040 and beyond by addressing existing system deficiencies and establishing new water infrastructure to meet future population growth. The WSMP projects the population in the PWD service area will double over the next 25 years (or by 2035). The goals of the WSMP are to provide cost-cost effective water services that meet water quality, quantity, system pressure and reliability requirements of PWD customers, improve existing PWD infrastructures, create future infrastructure to accommodate projected population growth, and ensure potable water supply can meet annual water demand over the next 25 years. The proposed project would implement the Capital Improvement Plan included in the WSMP. Implementation of actions under this WSMP would require the construction of various aboveground facilities and support infrastructure including storage tanks, pump stations, pipelines and wells. Projects to be implemented by 2020 are considered near-term project components and are analyzed at site-specific level. Projects addressed after 2020 are considered long-term projects. Additionally, PWD is proposing a headquarters building expansion at its current headquarters located at the corner of E. Avenue Q and 20th Street to serve the water system in the long-term (after 2020).

Project Location: The PWD service area is located in southern California, approximately 60 miles northeast of the City of Los Angeles, within the Antelope Valley. The District's primary service area includes the majority of the City of Palmdale and portions of unincorporated Los Angeles County. The District encompasses 47 square miles of mainly developed areas of the City and surrounding sphere of influence. The District is bordered to the south and west by the San Gabriel Mountain Range, the north by the City of Lancaster, and the east by the

unincorporated community of Littlerock. PWD's service areas as well as the near-term and long-term proposed project components are shown on **Figure 1**.

The proposed project area encompasses PWD's entire 47 square mile service area. As a result, there are open active cases for hazardous materials sites within the project area. However, based on the analysis contained within the Draft PEIR, none of the near-term or long-term project components would be located on an active hazardous materials site. Per Section 65962.5 of the Government Code, there are open active cases for hazardous materials sites within the proposed project area and within 0.25-mile of certain proposed project components.

Potential Environmental Effects: This Draft PEIR describes the environmental impacts of the proposed project and suggests mitigation measures where necessary to reduce impacts to a less than significant level. This Draft PEIR identifies potentially significant impacts associated with temporary construction-related noise for the proposed project. All other potentially significant impacts are determined to be mitigated to less than significant levels with incorporation of mitigation measures.

Public Review and Comments: The PWD is soliciting comments from agencies, stakeholders, and members of the public about the Draft PEIR prepared for the proposed project. The Draft PEIR will be used by PWD when considering approval of the proposed project. Pursuant to Section 21091 of the Public Resources Code, the District has established a 45-day review period that begins **July 30, 2018** and ends **September 13, 2018**. Comments on the Draft PEIR should be sent to James Riley at the address shown below.

James Riley
Palmdale Water District
2029 East Avenue Q, Palmdale, CA 93550
Phone:
(661) 456-1020
jriley@palmdalewater.org

Document Availability: Copies of the Draft PEIR are available as follows:

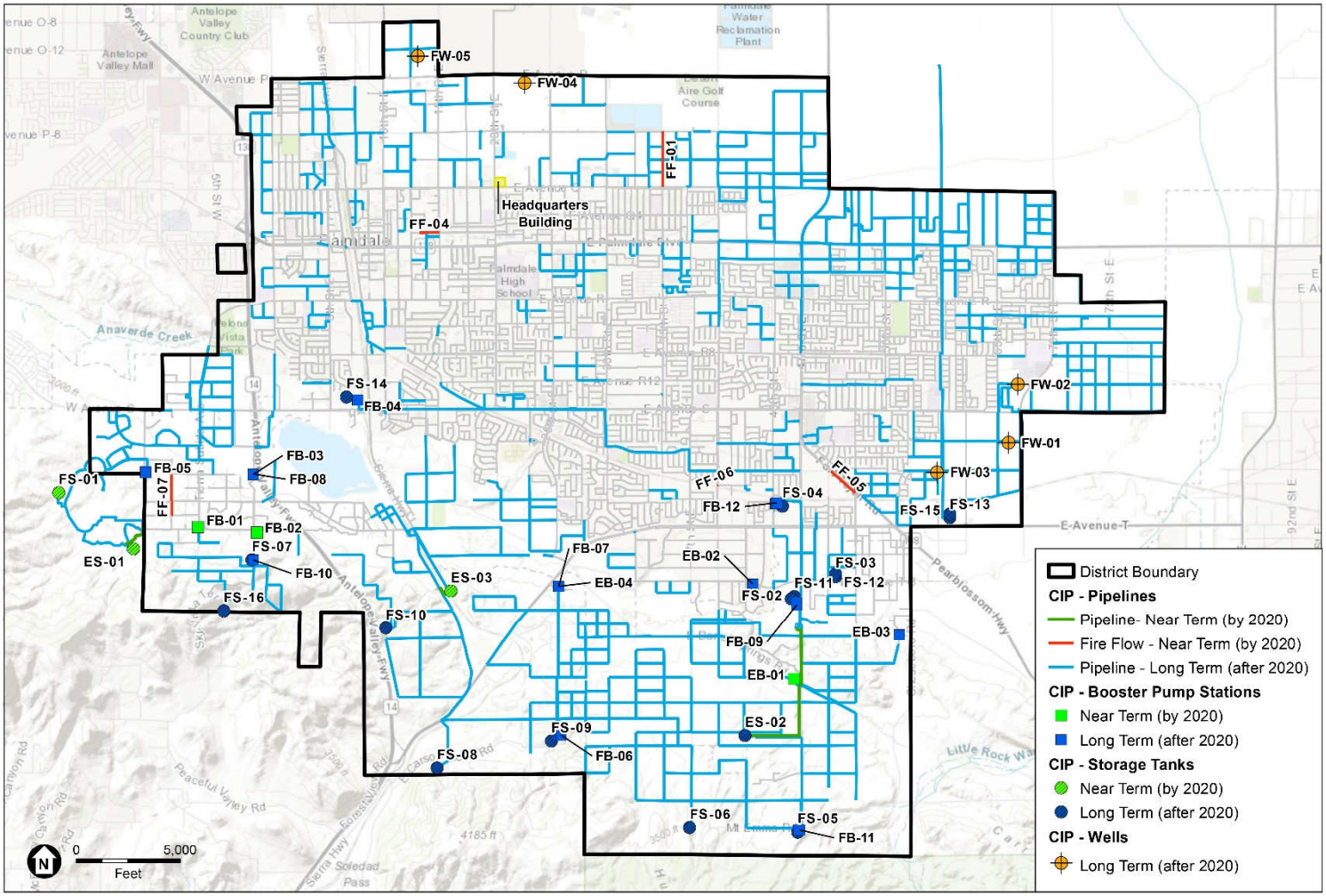
- Palmdale Water District office, 2029 East Avenue Q, Palmdale CA 93550
- Palmdale Water District web site (http://www.palmdalewater.org)
- Palmdale City Library, 700 E. Palmdale Blvd., Palmdale, CA 93550

Public Meetings: A public meeting will be held to receive public comments regarding the content and analysis provided in the Draft PEIR. The meeting will include a brief presentation providing an overview of the proposed project and conclusions of the Draft PEIR. After the presentation, oral comments will be accepted. Written comment forms will be supplied for those who wish to submit comments in writing at the public meeting; written comments may also be submitted anytime during the 45-day Draft PEIR review period. The Draft PEIR will be available for public review through **September 13, 2018**. The public meeting will be held as follows:

DATE:	August 29, 2018
TIME:	6:00 p.m.
LOCATION:	Palmdale Water District- Board Room 2029 East Avenue Q Palmdale, CA 93550

Deadline: All comments on the Draft PEIR must be submitted in writing (email or mail) to James Riley at the address shown above by **5:00 p.m.** on **September 13, 2018**.

Figure 1



SOURCE: Palmdale Water 2017

Palmdale Water District