Wastewater Collection and Treatment System for the Community of Palo Verde, California

May 15, 2015

U.S. Environmental Protection Agency | Region 9
75 Hawthorne Street
San Francisco, CA 94105

1.0 INTRODUCTION

The United States Environmental Protection Agency (EPA) administers the Border Environment Infrastructure Fund (BEIF), which provides grant funding for water and wastewater infrastructure projects located within 62 miles (mi) (100 kilometers [km]) of the international boundary between the United States (U.S.) and Mexico.

EPA policy for use of BEIF funds requires planning and design and certification of projects by the joint Border Environment Cooperation Commission (BECC)-North American Development Bank (NADB) Board as a condition for receiving a BEIF award for construction. The EPA requires that a proposed project comply with the National Environmental Policy Act (NEPA) before BEIF funds can be authorized.

In accordance with the U.S. Council of Environmental Quality (CEQ) regulations, 40 CFR Parts 1500-1508, and EPA regulations (40 CFR Part 6) as guidance, this Environmental Assessment (EA) documents the environmental consequences in the U.S. of the proposed federal action. The purpose of this document is to comply with NEPA documentation requirements for the proposed federal action under consideration, which consists of the Environmental Information Document for the Palo Verde Wastewater Collection and Treatment System, Palo Verde, California. This EA incorporates by reference the October 2012 *Environmental Information Document for Palo Verde Wastewater Collection and Treatment System Project*.

1.1 STUDY LOCATION

The community of Palo Verde is located in the far northeastern corner of Imperial County, with Riverside County abutting the community to the north (Figure 1-1). Palo Verde is approximately 50 miles north of the US-Mexico international border, 6 miles west of the Colorado River, and 13 miles south of Interstate 10 (I-10). State Highway 78 (Ben Hulse Highway) runs north and south through the community and is the main highway in Palo Verde (Figure 1-2). The Palo Verde Lagoon and Outfall Drain are in the Palo Verde Valley, and the community of Palo Verde is centered on these water features. The valley is bound on the north by the Big Marina Mountains, on the west by Palo Verde Mesa, and on the south and east by the Colorado River.

1.2 PURPOSE AND NEED

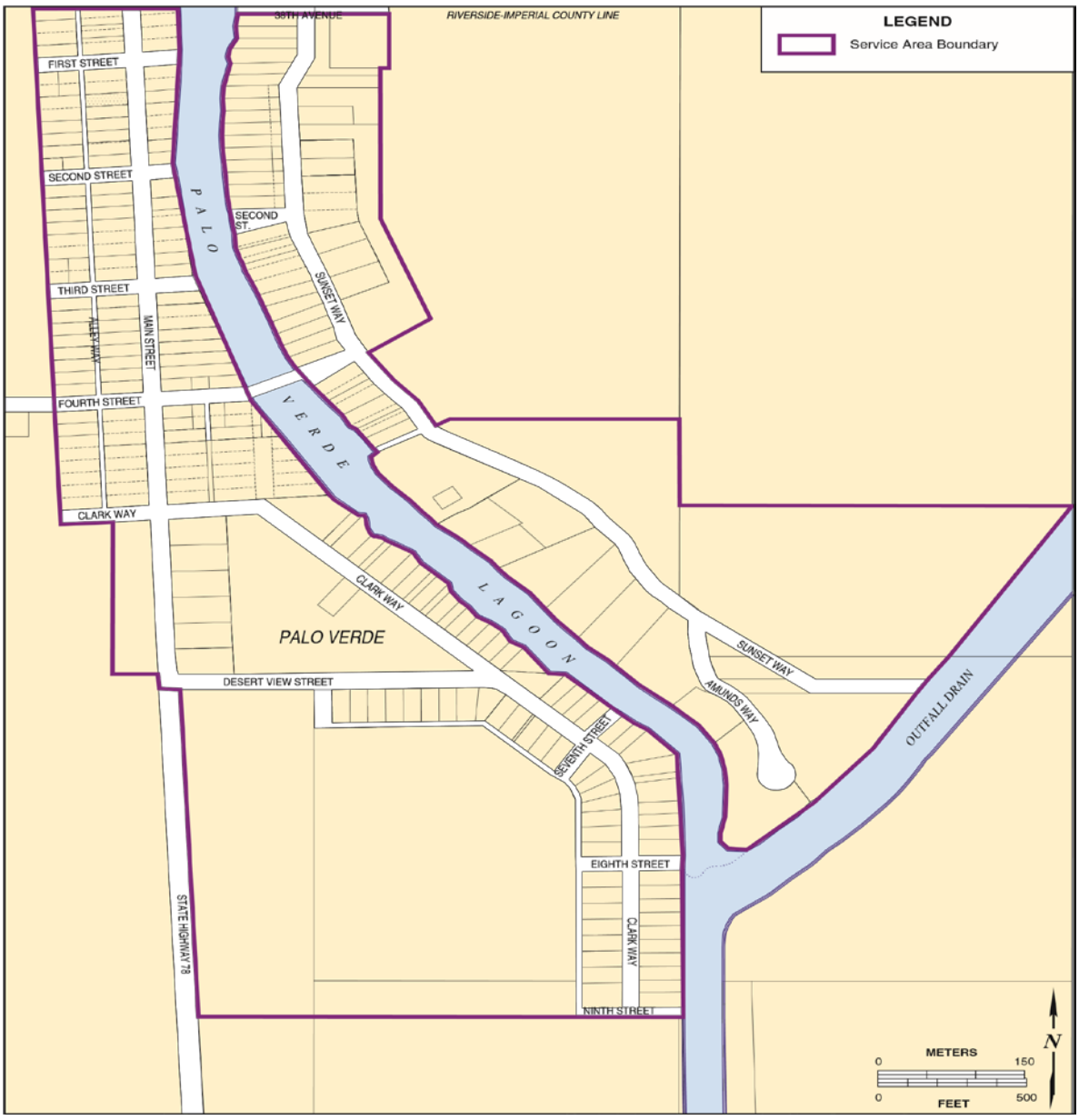
The proposed project would provide increased health, sanitation, and security to residents within Palo Verde. The proposed wastewater collection and treatment system would use an aerated facultative pond with percolation/evaporation basins, and would eliminate wastewater overflows and leaks through the abandonment of existing failed and nonconforming septic systems in the area. The project would also address issues of non-compliance through the elimination of septic systems located within 50 to 100 feet of the Palo Verde Lagoon and Outfall Drain, which is designated as a setback area. The proposed wastewater system would protect groundwater and the Palo Verde Lagoon, thereby improving water quality and providing potential health benefits by reducing the elevated levels of *E.coli* and other fecal coliform bacteria.

1.3 SCOPE OF ANALYSIS

The scope of this EA includes the evaluation of the impact to the relevant environmental resources within the defined area of concern in the U.S. As defined in the CEQ regulations (§1508.25), the scope consists of the range of actions, alternatives, and impacts to be considered in a NEPA-compliant document.

Figure 1 Location Map

Figure 1-2 Community Map



2.0 PROJECT DESCRIPTION AND ALTERNATIVES

The proposed action would include the installation of a new gravity and pressure wastewater collection system in the project area that would provide service to 222 parcels (164 parcels are currently occupied and 58 are vacant) and a project population equivalence of 328 persons. Additionally, the project would involve the installation of a new wastewater treatment plant (WWTP) to provide centralized treatment for wastewater generated and collected in Palo Verde. The WWTP would serve the same area and population as the newly installed wastewater collection system.

Initially, five alternatives were considered, but three alternatives were eliminated due to cost or environmental constraints. This EA examines two alternatives: Alternative 1 (the Preferred Alternative) - installation of a new wastewater collection system and aerated facultative pond WWTP (WWTP) in the northeast portion of Palo Verde that discharges into percolation/evaporation basins; and the No Action Alternative - under which the Proposed Action would not be implemented.

2.1 PROPOSED ACTION

The proposed action, the Preferred Alternative (Alternative 1), consists of the construction of two components in Palo Verde: a residential wastewater collection system and a WWTP.

Collection System
The collection system would include the installation of 8-inch diameter gravity sewer lines, 4-inch diameter service laterals, manholes, one pump station and an associated force main to convey wastewater to the WWTP site. Construction would be completed by open trench technologies.

A pump station and force main would be constructed to convey wastewater across the Palo Verde Lagoon at Fourth Street. The 4-inch-diameter PVC force main that would span the bridge would be installed inside an 8inch-diameter steel casing pipe. The annular space between the force main and casing pipe would be grouted and a leak detection apparatus would be installed inside the casing pipe to provide notification if a leak does occur in the force main. The force main would be attached to the bridge deck to cross the Palo Verde Lagoon as the preferred engineering method due to operational advantages and financial considerations. Under this option, the casing and force main pipes would be installed on top of the bridge deck, which would increase the weight load on the bridge by approximately 35 pounds per foot, for a total weight of 4,130 pounds. This option would require a structural assessment of the bridge in order to determine if it could support the additional weight added by the casing and force main pipes.

Alternately, if the bridge were determined to not be adequate to support the additional force main weight, the force main could be placed approximately 30 to 40 feet below ground surface and/or approximately 10 feet below the lagoon bottom via directional drilling under the lagoon. This depth is required to provide a safe distance between the top of the force main and the bottom of the lagoon including the scour depth of the lagoon.

Solar power would be installed on pumps, aerators and other mechanical equipment to the extent feasible. Pipeline construction would entail trenching, pipe laying, soil stockpiling, covering pipes

with stockpiled soil, and operation of equipment to construct infrastructure to serve 222 parcels. Additionally, power lines cross the project area, which would require coordination between Southern California Edison (SCE), Imperial County, and the Palo Verde Irrigation District (PVID) prior to pipeline construction including obtaining all necessary permits. The wastewater collection system would route flows to the proposed WWTP located on the northeast (island) side of Palo Verde.

Table 2-1. Pipes Required to Provide Wastewater Collection under Alternative 1 (Pond WWTP and Collection System)

Pipe Type	Pipe Purpose	Pipe Diameter (inches [in], centimeters [cm])	Amount needed for Construction (feet [ft], meters [m])	Depth of Pipe
PVC SDR-35 pipe	Gravity Sewer Pipe	8 in or 20.32 cm	13,396 ft or 4,083 m	5.0-20.0 ft or 1.5-6.1 m
PVC SDR-35 pipe	Sewer Service Line	4 in or 10.16 cm	17,098 ft or 5,212 m	4.0- 8.0 ft or 1.21-2.43 m
PVC C-900 pipe	Sewer Force Main	4 in or 10.16 cm	510 ft or 155 m	0.0-5.0 ft or 0.0-1.5 m

Under the Preferred Alternative, most wastewater pipelines would be installed within or on the sides of roads as other underground utilities permit. Excavation trenches for the 4-inch diameter sewer service lines would range from 4.0 to 8.0 feet (1.21 to 2.43 meters [m]) in depth and 3.0 to 6.0 feet (0.91 to 1.83 m) in width. Trenches for the 8-inch-diameter gravity sewer pipe would range from 5.0 to 12.0 feet (1.5 to 3.66 m) in depth and 6.0 to 13.0 feet (1.83 to 3.96 m) in width. The embedment would be a minimum of 1.0 to 3.0 feet (0.30 to 0.91 m) in depth for all wastewater installations. Asphalt or other paved surfaces would be replaced where cut, as required by Imperial County Public Works Department. Additionally, implementation of this alternative would entail the abandonment of existing septic systems and yard restoration. See Table 2-1 for more information regarding pipes required to provide wastewater collection.

WWTP System

To treat the collected wastewater, a WWTP would be constructed under the Preferred Alternative and would consist of an aerated facultative pond with percolation/evaporation basins, screens, grit removal, flow measurement, influent pump station and an ultraviolet (UV) disinfection system. The WWTP would be designed to accommodate full build out of Palo Verde with an average daily flow (ADF) of 57,300 gallons per day (gpd) and a peak hourly flow of 225,934 gpd. The pond would be a four-cell arrangement with two aerated cells. Each cell would be approximately 190 feet long by 50 feet wide and a total depth of 13 feet. Additionally, two percolation basins, approximately 135 feet long by 100 feet wide by 6 feet deep, would also be needed. Due to the shallow groundwater depth in the project area, 8,000 cubic yards of fill material and berm construction would be required to elevate the WWTP facilities, ponds, and percolation/evaporation ponds. Potable water of adequate quality and capacity would be available and rehabilitation of existing infrastructure would not be required.

The aerators used for the WWTP would include a floating type aerator. The pontoon mounted aerator would include solar panels to help limit dependence on grid power and reduce operation and maintenance costs. Additional electrical supply and controls would include a crossover connection should future potential solar photovoltaic (PV) renewable energy power supplies become available. In addition, the Preferred Alternative would incorporate green building practices, to the extent feasible, to be developed in coordination with BECC, NADB and EPA.

The WWTP is proposed to be located on Assessor Parcel Number (APN) 006-220-056 in the northeastern portion of Palo Verde. The parcel is zoned for residential development (R-1) and has a land use designation for agriculture. In order to comply with the Imperial County General Plan and zoning ordinances, the proposed project would require legislative amendments including a General Plan Amendment and a rezone of the subject parcel to Government/Special Public (G-S). In addition, the project would require either minor subdivision or a Parcel Map Waiver from Imperial County. Resolution of land use and zoning consistency issues would be required prior to construction. Draft applications for land use and zoning modification and supporting documentation have been prepared and can be submitted at such time as the PVCWD is granted the authority to provide wastewater service. Project implementation would take place over approximately 12 months.

2.2 NO ACTION ALTERNATIVE

This alternative includes leaving the community of Palo Verde on existing septic systems, although community outreach on proper use and maintenance of septic systems would be provided. No wastewater collection system or WWTP would be installed under this option. The community would continue to use failing septic systems and experience related water quality degradation in the Palo Verde Lagoon. The community would continue to face a moratorium on making repairs or improvements to homes due to the nonconforming septic systems and no County permits would be issued for building or septic system repairs. In the absence of a wastewater collection and treatment system, individual residences would need above ground septic systems or the land might be condemned. No commercial property development would be allowed. The population of Palo Verde would likely decline.

3.0 AFFECTED ENVIRONMENT

The purpose of this section is to describe the environmental resources that could potentially be impacted by the project alternatives described in Section 2.0. The descriptions of the affected environment focus on environmental resources located within the proposed project area and adjacent areas.

The climate in the region is continental desert, of extreme aridity, and is characterized by hot summers and moderate winters. The annual average maximum temperature is 88 degrees Fahrenheit (°F) (31°C) and the average minimum temperature is 55°F (13°C). Annual precipitation in the area is approximately 4 inches, with the majority of rainfall events occurring during fall and winter months. Precipitation is generally severely limited, though rainfall can be highly variable with precipitation from a single heavy storm one year exceeding the entire annual total during a following drought year. Most natural vegetation in the Palo Verde Valley has been replaced by agricultural production and limited areas of light mixed development. However, large areas of undeveloped Sonora Desert surrounding the Palo Verde Valley and the nearby Cibola National Wildlife Refuge (NWR) provide valuable habitat to a variety of wildlife species.

According to the US Geological Survey, the elevation in the project area is generally between 232 and 233 feet above sea level. The project area drops significantly (10 to 20 feet) at the banks of the lagoon. The decline across the project area is approximately 0.02 percent.

3.1 LAND USE

The Community of Palo Verde – which has a current population of approximately 171– is located in the US-Mexico border region, approximately 50 miles north of the international boundary. Land use in the Palo Verde Valley is characterized as agricultural and residential uses (Figure 3-1). The population of the Community of Palo Verde has generally declined and has undergone little development during the past 20 years.

The Community of Palo Verde consists of mostly residential housing and includes two recreational vehicle (RV) parks. Palo Verde also contains a small commercial center, fire station, post office, community hall, church, and sheriff's substation. Palo Verde County Water District (PVCWD) owns and operates an existing water filtration plant and potable water supply system. Households in the community currently rely on septic systems for their wastewater disposal needs and many of these systems are failing. Additionally, many of the septic systems are nonconforming and do not meet the Palo Verde and Imperial County required setback distances of 50 to 100 feet from the adjacent Palo Verde Lagoon.

There are seven different zoning classifications in Palo Verde: *low-density residential* (R1), *medium-density residential* (R3), *high-density residential* (R4), *commercial* (C2), *agricultural* (A2), *government/special public* (GS) and *recreation* (S1). Table 3-1 illustrates the Palo Verde land classifications.

Figure 3-1 Land Use Density

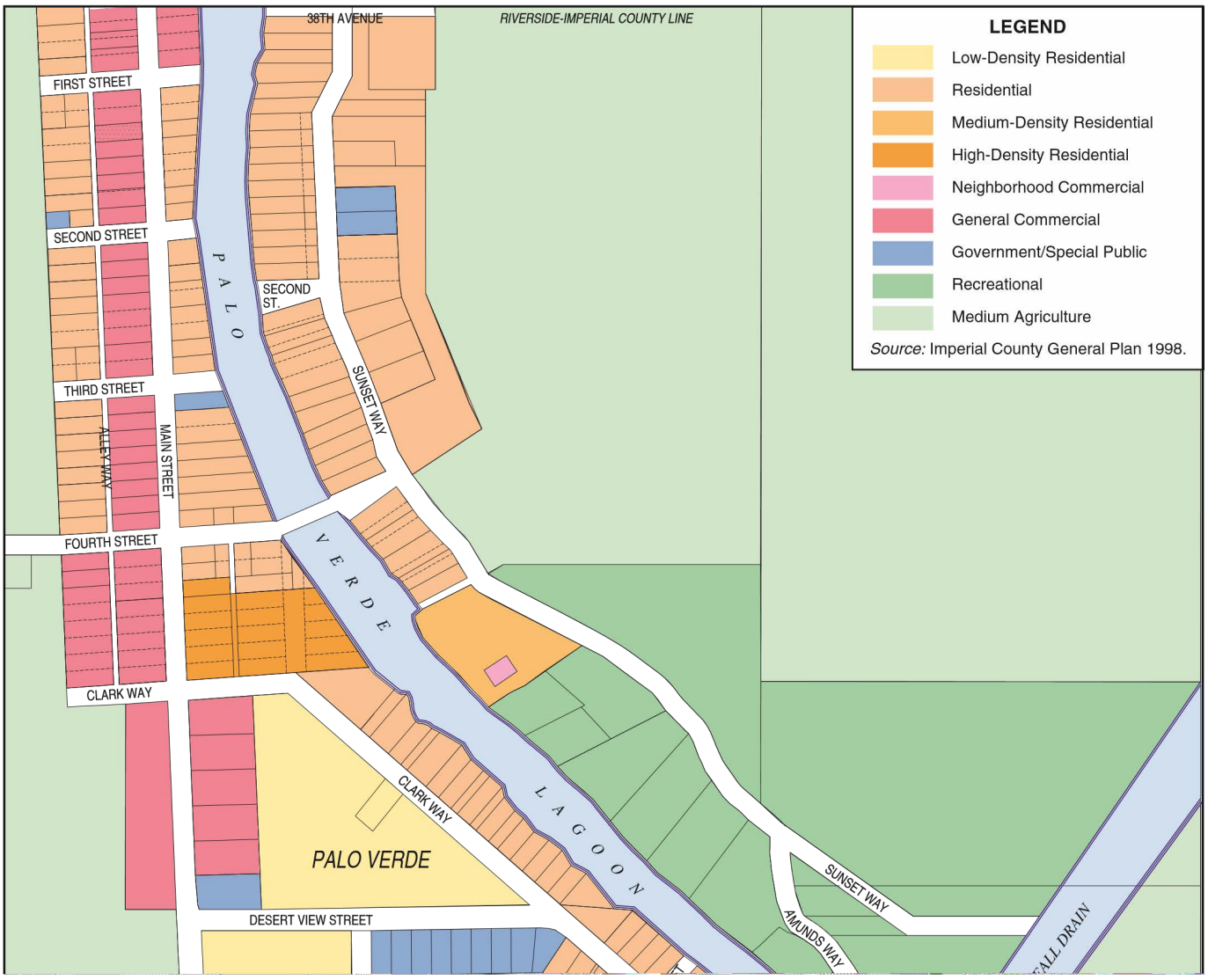


Table 3-1. Palo Verde Land Classification Information

Zoning Classification	Identifier	No. of Lots	No. Vacant	Land Area (Acres)
Low-Density Residential	R1	158	27	147
Medium-Density Residential	R3	1	0	3
High-Density Residential	R4	3	1	3
Commercial	C2	34	16	12
Agricultural	A2	7	5	570
Government/Special Public	GS	10	6	2
Recreation	S1	9	3	9
Total		**222**	**58**	**747**

Source: Imperial County 2004

Currently, approximately 30 percent of the lots in Palo Verde are vacant. A tornado struck the community in 2007 — a rare occurrence — and destroyed numerous homes in the area, contributing to the current vacancy rate as many homes cannot be rebuilt due to the current septic design requirements and absent a wastewater collection and treatment facility.

Outside the community, land uses are almost entirely agricultural. Crop production in the area is primarily melons, cotton, alfalfa, and produce vegetables. Farmland surrounding the community is generally classified as Prime or Farmland of Statewide Importance.

3.2 GEOLOGY AND SOILS

3.2.1 Geology

The project area is located in the Palo Verde Valley on the northern border of Imperial County, just south of Riverside County. The Palo Verde Valley is 29 miles long and 15 miles across at its widest point. The geology of the area is dominated by a north-trending depression known as the Colorado River Trough. This trough was formed by historical floods of the Colorado River and by millions of years of regional faulting, down warping, and sediment infilling. Prior to the construction of Hoover Dam, the floodplain of the Colorado was considerably wider than the current meandering course of the river. There are several indications that the Colorado River has changed course in the area, but normally, it has been contained by terraces along its floodplain. This floodplain is about 9 miles wide in the Palo Verde Valley.

The Palo Verde Valley is bound on the north by the Big Maria Mountains, on the west by Palo Verde Mesa, and on the south and east by the Colorado River. According to existing U.S. Geological Survey elevation data, the elevation in the Palo Verde project area is generally between 232 and 233 feet above sea level. The project area drops significantly at the banks of the Palo Verde lagoon (10- to 20-foot drops). The decline across the project is approximately 0.02 percent.
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The nearest active fault is the San Andreas Fault, located near the Salton Sea, approximately 60 miles southwest of the Blythe area. Several faults are also located about 100 miles to the northwest in the Mojave Desert. In October 1999, two earthquakes of 4.4 and 4.7 magnitude occurred along a couple of these Mojave Desert faults. Major local tectonic activities associated with earthquakes in the Palo Verde area, however, are believed to have ended more than one million years ago.

3.2.2 *Soils*

The Palo Verde Valley floor is comprised of alluvium. Soils are generally level, moderately to well-drained sandy loams and loamy sands. Soil associations in the Palo Verde Valley include Rositas-Gilman, Cibola-Ripley-Indio, and Imperial-Holtville Meloland. Soil types in the vicinity of the project area are primarily Indio very fine sandy loam. Other soils in Palo Verde include Holtville silty clay, Gilman silty clay loam, Imperial silty clay, and Holtville silty clay. Soil erosion is not a serious concern in this area, although limited areas next to river bluffs and canyons are subject to erosion hazards.

Salinity control is the major soils management concern. Average annual precipitation in the valley is usually less than 4 inches while evapotranspiration totals about 48 inches per year. More than 1 ton of salt is left in the land with every acre-foot of irrigation water, and the accumulation of salt in the root zone can cause soils to become too saline for crop growth.

3.3 WATER RESOURCES

3.3.1 Groundwater

The primary source of groundwater recharge is percolation from crop irrigation and irrigation canals sourced from the Colorado River. Recharge by underflow from tributary areas is small by comparison and direct recharge from rainfall is very minor. The Palo Verde Valley has very shallow groundwater depths, and historically was found throughout the valley at a depth of approximately 5 feet. Water works projects occurring primarily in the 1960s, including the dredging of the Palo Verde Lagoon, provided a drain mechanism for groundwater and lowered groundwater levels to approximately 10 feet, where they exist currently. The height of water in the Palo Verde Lagoon generally is equal to or slightly lower than groundwater levels in the surrounding area. Groundwater is generally unconfined in the Palo Verde region; however, some confined zones exist in the more than 7,000 feet of alluvial sediments that form the aquifers in area.

The Palo Verde County Water District (PVCWD) is responsible for supplying water to residents of the Community of Palo Verde for domestic purposes. The PVCWD operates two deep-water wells (the North and South wells), which extract groundwater from the basin. These wells extract approximately 45,000 gallons per day (gpd) of fairly good quality water, which is then treated and distributed to the Community. The water is stored in two 120,000-gallon tanks located 2 miles south of Palo Verde, elevated to 20-feet above ground level, which provide water via gravity flow to the Community. Water pressure is suitable for all general purposes, including fire flow at all hydrants.

3.3.2 Surface Water

The Community of Palo Verde is localized around the Palo Verde Lagoon, a slow-flowing fresh water channel. The Colorado River, located approximately 6 miles east and 2.5 miles southeast of the Community of Palo Verde, is the main source of surface water in the region and much of Southern California.

Water is diverted from the Colorado River at the Palo Verde Diversion Dam, located approximately 25 miles north of the Community of Palo Verde, and flows through a 150-mile

system of open drains/canals that include the Palo Verde Lagoon. Water from these drains is discharged into the Palo Verde Outfall Drain, which flows south to the Cibola National Wildlife Refuge (NWR), where it rejoins the Colorado River. The Palo Verde Irrigation District (PVID) is responsible for maintaining this system of drains/canals, which supplies water to approximately 9,000 acres of agricultural land in Palo Verde Valley. Currently, the PVID has an unlimited allocation for water as long as it is used to benefit agriculture.

The community of Palo Verde is drained by the Palo Verde Lagoon. Informal drainages channel water towards the Lagoon; however, limited paved surfaces and scant rainfall reduce the need for formal stormwater drainage channels.

3.3.3 Wetlands

The US Army Corps of Engineers (USACE) and EPA define wetlands 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. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR 328.3 [b] 1984). Wetland hydrology is determined by the frequency and duration of inundation and soil saturation; permanent or periodic water inundation and soil saturation are considered significant forces in wetland establishment and proliferation. Jurisdictional wetlands are those subject to regulatory authority under Section 404 of the Clean Water Act (CWA). EO 11990, *Protection of Wetlands*, requires analysis of potential impacts to wetlands related to proposed federal actions.

In Imperial County, wetlands are extremely limited due to the desert climate and lack of natural surface water resources. Due to their limited area and diminishing acreages, the occurrence of sensitive plants, and the ability to support a diversity of wildlife species, desert riparian and freshwater marsh habitats are considered sensitive in Imperial County.

According to National Wetland Inventory maps for the area, riverine, freshwater forested/shrub and freshwater emergent wetlands occur along the Colorado River. No designated wetlands have been mapped within the project area associated with the Palo Verde Lagoon; however, wetland vegetation exists along undeveloped portions of the Lagoon.

3.3.4 Floodplains

Floodplains are belts of low, level ground present on one or both sides of a stream channel that are subject to either periodic or infrequent inundation by floodwater. For the purposes of this EA, 100- and 500-year floodplains that have been mapped by the Federal Emergency Management Agency (FEMA) as occurring along the Palo Verde Lagoon within the project area were examined. Inundation dangers associated with floodplains have prompted legislation that largely limits development in these areas. For example, EO 11988, *Floodplains Management*, requires actions to minimize flood risks and impacts. Under this order, development alternatives must be considered, and building requirements must be in accordance with specific federal, state, and local floodplain regulations.

Flooding is a hazard within Palo Verde and surrounding areas. Flooding hazards are greatest on either side of the Palo Verde Lagoon and in the southern portion of the community. The area

adjacent to the Palo Verde Lagoon and farmlands to the south of the community are considered to be a natural floodplain; this area is mapped as *Zone A* on FEMA Flood Insurance Rate Map (FIRM) panels' 06025C-0300C (FEMA 2008). *Zone A* represents areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies (because detailed hydraulic analyses have not been performed, no Base Flood Elevations or flood depths are known). Most of the potential flood areas around the Palo Verde Lagoon are developed with single-family homes. Additionally, the PVID canals and laterals are open channels; however, flow levels are controlled and hazards from significant flooding from these sources are minimal.

3.3.5 Water Quality

Irrigation water from the Palo Verde Irrigation District (PVID) sustains agriculture in the area, and large parcels of valley land are used to grow crops such as melons, cotton, alfalfa, and various vegetables. The Palo Verde Lagoon was historically used for contact water recreation such as boating, swimming, and water-skiing. However, swimming and other recreational activities are now prohibited in the lagoon given the high level of contamination.

The State Water Resources Control Board's (SWRCB's) 303(d) list of impaired water bodies identifies Palo Verde Outfall Drain as "water quality limited" because bacteria concentrations violate water quality objectives that protect the following beneficial uses: contact and noncontact water recreation (REC I and REC II); warm freshwater habitat; wildlife habitat; and preservation of rare, threatened, or endangered species. *E.coli* and other fecal coliform bacteria are associated with human and animal fecal waste, and indicate the likelihood of the presence of infectious pathogens. The main sources of pathogens as indicated by *E.coli* and other fecal coliform bacteria in the Palo Verde Agricultural Drain are natural background sources and failed and nonconforming septic systems. Natural sources of pathogens appear to play a significant role, but their actual contribution, and contributions from other non-point sources of pollution in general have not been fully characterized. Studies indicate the probable main sources of pathogens are waterfowl (96.9 percent), mammals (2.3 percent), septic systems (0.4 percent) and songbirds (0.4 percent).

3.4 BIOLOGICAL RESOURCES

Most of the natural vegetation in the Palo Verde Valley has been replaced by cropland and low levels of urban and rural development. Native vegetation and sensitive biological resources exist along the Colorado River, the Palo Verde Lagoon, and the Palo Verde Agricultural Drain that support riparian vegetation; however, the Palo Verde Lagoon and the Palo Verde Agricultural Drain have been degraded by nutrients and heavy metals from sewage; nutrients, silt, selenium, and pesticides from agricultural drainage; and invasive nonnative species. Agricultural activities and other human disturbance have encouraged the spread of opportunistic plant species. Weedy vegetation tends to dominate ruderal areas, such as roadsides, borders of cultivated fields, and canal riparian/levee areas, and includes plant species such as cheeseweed, shepherds purse, white horse-nettle, saltbush, saltcedar, Russian thistle, and Bermuda grass. Riparian habitats are dominated by non-native species such as saltcedar, common reed, and cattail).

The project area consists of medium-density residential bordered by cultivated/ruderal areas in all directions. An approximately 30-acre area of disturbed shrub habitat occurs along the eastern border of the community; however, this is bordered to the north, east, and south by agricultural development.

The Palo Verde Valley and surrounding region host a variety of wildlife species. Due to the cultivated/ruderal nature within the valley, common species are those that have adapted to high levels of human disturbance and water quality degradation; however, due to the low population densities and large areas of undeveloped Sonoran Desert surrounding the Palo Verde Valley, other wildlife sightings are not uncommon. Freshwater fish are found in rivers and canals, and are dominated by introduced species including the threadfin shad, mosquito fish, red shiner, California killifish, largemouth bass, and white and channel catfish).

Imperial County is located in one of the most important flyway corridors in the western hemisphere for migrant waterfowl, shorebirds, and songbirds. Generally, the greatest numbers and diversity of birds are found during the spring and fall months. Approximately 378 species of birds have been identified in Imperial County. The Cibola NWR, located approximately 7 miles south of the community of Palo Verde and downstream from the Palo Verde Lagoon, provides habitat to over 288 species of birds. The Cibola NWR also provides habitat to various reptiles, fish, and large mammal species such as desert mule deer, bobcat and coyotes. Additionally, a variety of resident and migrant bat species are found in the area, particularly near agricultural canals and other waterways.

Due to its proximity to the Palo Verde Lagoon riparian and open water habitat and forage opportunities provided by the Lagoon and agricultural properties, the area could provide habitat to a variety of bird species, including the burrowing owl; however, no burrowing owls have been observed in this area. One mile west of Palo Verde, cultivated land ends and gives-way to the Palo Verde Mountains Wilderness Area. Due to the proximity of the project area to the Palo Verde Mountains Wilderness Area and the Cibola NWR, it is likely that a variety of species utilize habitats and forage opportunities provided by the Palo Verde Lagoon, irrigation channels, and agricultural fields within and adjacent to the community of Palo Verde.

Endangered or Threatened Species

Several plant and animal species have been found in the Palo Verde Valley, Imperial County, and throughout California that are federal- or state-listed as threatened, endangered, candidate for protection, or species of concern. All animal species listed under the ESA or by the CDFG that occur in Imperial County are presented in Table 3-2. Table 3-3 includes the threatened, endangered, and rare plant species occurring in Imperial County.

Table 3-2. Special Status Animal Species Occurring in Imperial County

Common Name	Scientific Name	State Status	Federal Status
Amphibians			
Colorado river toad	*Bufo alvarius*	Species of Concern	None
Couch's spadefoot	*Scaphiopus couchii*	Species of Concern	None
Lowland leopard frog	*Rana yavapaiensis*	Species of Concern	None
Birds			
White-faced ibis	*Plegadis chihi*	Species of Concern	None
Cooper's hawk	*Accipiter cooperii*	Species of Concern	None
Ferruginous hawk	*Buteo regalis*	Species of Concern	None
Merlin	*Falco columbarius*	Species of Concern	None
Prairie falcon	*Falco mexicanus*	Species of Concern	None
California black rail	*Laterallus jamaicensis coturniculus*	Threatened	None
Yuma clapper rail	*Rallus longirostis yumanensis*	Threatened	Endangered
Mountain plover	*Charadrius montanus*	Species of Concern	None
Gull-billed tern	*Sterna nilotica*	Species of Concern	None
Black skimmer	*Rynchops niger*	Species of Concern	None
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Endangered	Candidate
Elf owl	*Micrathene whitneyi*	Endangered	None
Burrowing owl	*Athene cunicularia*	Species of Concern	None
Short-eared owl	*Asio flammeus*	Species of Concern	None
Gila woodpecker	*Melanerpes uropygialis*	Endangered	None
Gilded flicker	*Colaptes chrysoides*	Endangered	None
Vermilion flycatcher	*Pyrocephalus rubinus*	Species of Concern	None
Brown-crested flycatcher	*Myiarchus tyrannulus*	Species of Concern	None
Crissal thrasher	*Toxostoma crissale*	Species of Concern	None
Le Conte's thrasher	*Toxostoma lecontei*	Species of Concern	None
Arizona Bell's vireo	*Vireo bellii arizonae*	Endangered	None
Least Bell's vireo	*Vireo bellii pusillus*	Endangered	Endangered
Sonoran yellow warbler	*Dendroica petechia sonorana*	Species of Concern	None
Yellow warbler	*Dendroica petechia brewsteri*	Species of Concern	None
Yellow-breasted chat	*Icteria virens*	Species of Concern	None
Summer tanager	*Piranga rubra*	Species of Concern	None
Gray-headed junco	*Junco hyemalis caniceps*	Species of Concern	None
Fish			
Colorado squawfish	*Ptychocheilus lucius*	Endangered	Endangered
Razorback sucker	*Xyrauchen texanus*	Endangered	Endangered
Desert pupfish	*Cyprinodon macularius*	Endangered	Endangered

Mammals			
California leaf-nosed bat	*Macrotus californicus*	Species of Concern	None
Arizona myotis	*Myotis occultus*	Species of Concern	None
Townsend's big-eared bat	*Corynorhinus townsendii*	Species of Concern	None
Pallid bat	*Antrozous pallidus*	Species of Concern	None
Western mastiff bat	*Eumops perotis californicus*	Species of Concern	None
Big free-tailed bat	*Nyctinomops macrotis*	Species of Concern	None
Pallid San Diego pocket mouse	*Chaetodipus fallax pallidus*	Species of Concern	None
Southern grasshopper mouse	*Onychomys torridus ramona*	Species of Concern	None
Yuma hispid cotton rat	*Sigmodon hispidus eremicus*	Species of Concern	None
Colorado River cotton rat	*Sigmodon arizonae plenus*	Species of Concern	None
American badger	*Taxidea taxus*	Species of Concern	None
Yuma mountain lion	*Puma concolor browni*	Species of Concern	None
Peninsular bighorn sheep	*Ovis canadensis nelsoni dps*	Threatened	Endangered
Reptiles			
Desert tortoise	*Gopherus agassizii*	Threatened	Threatened
Barefoot banded gecko	*Coleonyx switaki*	Threatened	None
Flat-tailed horned lizard	*Phyrnosoma mcallii*	None	Proposed Threatened

Source: CDFG 2009; 2010c.

Table 3-3. Threatened, Endangered, and Rare Plant Species Occurring in Imperial County

Common Name	Scientific Name	State Status	Federal Status
San Diego button-celery	*Eryngium aristulatum* var. *parishii*	Endangered	Endangered
Peirson's pincushion	*Chaenactic carphoclinia* var. *peirsonii*	None	None
Algodones Dunes sunflower	*Helianthus niveus* ssp. *tephrodes*	Endangered	None
Mexican hulsea	*Hulsea mexicana*	None	None
Brown turbans	*Malperia tenuis*	None	None
Giant spanish-needle	*Palafoxia arida* var. *gigantean*	None	None
Mecca-aster	*Xylorhiza cognata*	None	None
Orcutt's woody-aster	*Xylorhiza orcuttii*	None	None
Elephant tree	*Bursera microphylla*	None	None
Munz's cholla	*Opuntia munzii*	None	None
Bitter rubberweed	*Hymenoxys odorata*	None	None
Wiggins's cholla	*Opuntia wigginsii*	None	None
Saguaro	*Carnegiea gigantea*	None	None
Crown-of-thorns	*Koeberlinia spinosa* ssp. *tenuispina*	None	None
Glandular ditaxis	*Ditaxis claryana*	None	None
Abrams's spurge	*Chamaesyce abramsiana*	None	None

Flat-seeded spurge	*Chamaesyce platysperma*	None	None
Wiggin's croton	*Croton wigginsii*	Rare	None
Harwood's milk-vetch	*Astragalus insularis* var. *harwoodii*	None	None
Peirson's milk-vetch	*Astragalus magdalenae* var. *peirsonii*	Endangered	Threatened
Fairyduster	*Calliandra eriophylla*	None	None
Pygmy lotus	*Lotus haydonii*	None	None
Mountain Springs bush lupine	*Lupinus excubitus* var. *medius*	None	None
Coves's cassia	*Senna covesii*	None	None
Mud nama	*Nama stenocarpum*	None	None
Sand food	*Pholisma sonorae*	None	None
Rock nettle	*Eucnide rupestris*	None	None
Hairy stickleaf	*Mentzelia hirsutissima*	None	None
Creamy blazing star	*Mentzelia tridentata*	None	None
Curly herissantia	*Herissantia crispa*	None	None
Chaparral sand-verbena	*Abronia villosa* var. *aurita*	None	None
Slender woolly-heads	*Nemacaulis denudata* var. *gracilis*	None	None
Slender-leaved ipomopsis	*Ipomopsis tenuifolia*	None	None
Baja California ipomopsis	*Ipomopsis effusa*	None	None
Las Animas colubrina	*Colubrina californica*	None	None
Crucifixion thorn	*Castela emoryi*	None	None
Parish's desert-thorn	*Lycium parishii*	None	None
Desert spike-moss	*Selaginella eremophila*	None	None

Notes– Plants rare, threatened, or endangered in California and elsewhere. Plants rare, threatened, or endangered in California but more common elsewhere Plants about which more information are needed by CNPS.Source: CDFG 2010b.

3.5 CULTURAL RESOURCES

The proposed project is subject to the provisions of Section 106 of the National Historic Preservation Act (NHPA) of 1966 and its implementing regulations found in 36 CFR 800. A Cultural Resource Survey was conducted in order to determine impacts of the proposed project on cultural resources. The cultural resource inventory included a record search for the proposed project's Area of Potential Effect (APE) through the South Coastal Information Center (SCIC) within the California Historic Resource Information System (CHRIS). The APE includes the area identified for the proposed project which includes 11-acres of undeveloped land proposed for the WWTP and the 222 parcels that will be connecting to the proposed wastewater collection system. Fifty-nine historic buildings built prior to 1964 were identified within the APE. However, these buildings were not eligible for listing in the NRHP.

A field investigation was also conducted which included both a pedestrian archaeological survey and historic building inventory of the APE. No archaeological resources were discovered during the fieldwork conducted in May 28 and 29, 2013.

3.6 AIR QUALITY

The community of Palo Verde is located within the Salton Sea Air Basin, which covers all of Imperial County and parts of western Riverside County. In Imperial County, the Salton Sea Air Basin is under the jurisdiction of the Imperial County Air Pollution Control District (APCD). Although the Imperial County APCD has jurisdiction over the air basin, it does not have jurisdiction over all activities contributing to the health of the air basin (e.g., activities outside the US). Industrial and mobile sources of emissions in the Palo Verde Valley are few, thus limiting exceedances of federal and state air quality standards. Due to the low average population density in the Palo Verde area, air pollution from vehicular activity is relatively low. Particulate matter (PM) is a major air pollutant that is generated by wind blowing dry soils, particularly during the late fall, and during dust storms of winter and early spring. Agricultural burning and cultivation practices contribute most of the airborne dust in the Palo Verde area. Some agricultural practices that generate dust are regulated, including leaving cultivated fields vacant and open to blowing winds, burning of crop residues to clear fields for new cultivation, and crop dusting for fertilization and pest control. Additionally, with the exception of State Highway 78, Sunset Way, and portions of Fourth Street, Clark Way, and Desert View Street, roads in Palo Verde are not paved. However, due to low traffic volumes these unpaved roads do not generate substantial amounts of dust and thus are not likely to contribute substantially to local air quality degradation.

The Imperial County APCD has adopted rules specifying pollutant emission levels and ambient air quality standards and operates and maintains air quality monitoring stations in Brawley, Calexico, El Centro, Niland, and Westmoreland. Imperial County is designated as a federal non-attainment area for PM_{10}, $PM_{2.5}$ and 8-hour O_3, and a State Ambient Air Quality Standards non-attainment area for 8-hour O_3 and PM_{10}, and is unlisted for $PM_{2.5}$.

3.7 NOISE AND ODOR

The noise environment in the community of Palo Verde is generally low due to the low population density and is characteristic of a low-density rural environment. Local vehicular traffic is the primary generator of noise in the project area. Regional traffic noise is associated with State Highway 78, which runs east-west across Imperial County from Blythe to Oceanside.

The community of Palo Verde consists of residential housing, a small commercial center, a fire station, post office, community hall, church, sheriff's substation, gas station, and a water filtration plant. There are no major odor sources in the project area.

Noise is generally described as unwanted sound, which can be based either on objective effects such as hearing loss or damage to structures or subjective judgments such as community annoyance. Sound usually represented on logarithmic scale with a unit called the decibel (dB). Sound on a decibel scale is referred to as sound level. The threshold of human hearing is approximately 3 dB, and the threshold of discomfort or pain is around 120 dB.

Noise levels occurring at night generally produce a greater annoyance than do the same levels occurring during the day. It is generally agreed that people perceive intrusive noise at night as being 10 dBA.

3.8 ENERGY AND NATURAL RESOURCES

Electricity is provided to the community of Palo Verde and the project area by Southern California Edison (SCE). Current electrical infrastructure in the Community maintains capacity to allow for full build out of the community.

There is no natural gas delivery to Palo Verde. A number of residents have propane tanks supplied by AmeriGas, Ferrellgas, or Suburban Propane, all located in Parker, Arizona.

3.9 TRANSPORTATION

Regional access to the community of Palo Verde includes State Highway 78, which runs east-west, across Imperial County from Blythe to Oceanside. In addition, Interstate 10 (I-10), located 10 miles north of Palo Verde, is a major east-west route extending from Los Angeles to Phoenix, Arizona.

There are two primarily north-south streets in Palo Verde: Main Street (State Highway 78) in the western portion of the community, and Sunset Way on the eastern side of the Palo Verde Lagoon. Cross streets are numbered (First through Ninth), and are generally aligned east-west. The majority of streets in the community are unpaved. There are no curbs, gutters, or sidewalks in the Community. Fourth Street, also called Palo Verde Drive, provides the only access across the Palo Verde Lagoon to the residential area along Sunset Way. The eastern portion of Fourth Street, including the bridge, is paved and in generally good condition. The bridge was constructed in 1950 and is approximately 118 feet long and 35 feet wide. The inventory rating of the bridge is 35,935 pounds (lb) (16.3 metric tons) and an operating rating of 50,044 lbs (22.7 metric tons). A 2008 Bridge Inspection Report indicated that the bridge is aging and experiencing cracking, and recommended the replacement of several deck planks and backfilling the northeast wing wall. CalTrans has no current plans to improve or repair the bridge.

3.10 WASTE MANAGEMENT

The Environmental Health and Consumer Protection Services section of the Imperial County Public Health Department serves as the designated solid waste Local Enforcement Agency implementing federal and state laws and regulations for safe and proper handling of solid waste. Collected waste is then disposed of at the Palo Verde Landfill located on Bureau of Land Management (BLM) property in Imperial County. Burning of refuse is permitted in the Community, but is rarely practiced. The existing rate of disposal from Palo Verde is estimated at a half ton per day. The landfill is a Class III landfill and is located approximately 3 miles southeast of the community.

Imperial County Environmental Health and Consumer Protection Services participates on the Imperial County Hazardous Emergency Assistance Team providing health and safety expertise in the containment and cleanup of accidental hazardous waste spills. There are no hazardous waste contamination sites in need of cleanup or response listed within or near the community of Palo Verde.

3.11 SOCIOECONOMICS

The Palo Verde Valley has a higher percentage of poverty than many regions in California. In Imperial County, the estimated 2008 median household income was $41,757. About 9 percent of households earned less than $10,000 per year, and approximately 22 percent of households earned between $10,000 and $25,000 per year.

The 2010 population of Palo Verde was 171, a reduction of approximately 27.5 percent from 2000 levels. This reduction in population was in part due to the loss of housing units in the 2007 tornado, which could not be rebuilt. According to the Southern California Association of Government (SCAG), the population of Palo Verde is projected to increase to approximately 371 by 2020 and to approximately 411 by 2035. Population estimates and percentage increase over 2000 population levels are summarized in Table 3-4 below.

Table 3-4 Population Trends in Palo Verde, California

	2000	2010	2020	2035
Total Population	236	171	371	411
Percent Increase from 2000	--	-27.5%	57.2%	74.2%

3.12 ENVIRONMENTAL JUSTICE

In 1994, EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low Income Populations*, was issued to focus attention of federal agencies on human health and environmental conditions in minority and low-income communities and to ensure that disproportionately high and adverse human health or environmental effects on these communities are identified and addressed. Because children may suffer disproportionately from environmental health risks and safety risks, EO 13045, *Protection of Children from Environmental Health and Safety Risks*, was introduced in 1997 to prioritize the identification and assessment of environmental health risks and safety risks that may affect children and to ensure that federal agencies' policies, programs, activities, and standards address environmental health risks and safety risks to children.

For the purposes of this EA, Environmental Justice and the Protection of Children were examined for Imperial County and the Community of Palo Verde.

Based on 2010 Census data, 27.5 percent of the total population in Palo Verde is classified of a minority background, a majority of whom are *Hispanic* (19.3 percent of the community's total population). By comparison, minority populations respectively comprise 80.4, 77.1, and 44.7 percent of the total populations of Imperial County, the State of California, and the nation.

In addition, the percentage of the population in the Palo Verde below the poverty level was 55.9 percent in 2008. This is substantially higher than Imperial County (22.9 percent), the State of California (13.3 percent) and the nation (13.2 percent).

Finally, according to 2010 *Census*, the percentage of the population in the Community of Palo Verde under age 18 was 14.6 percent. This is less than Imperial County (29.3 percent), the State of California (21.9 percent) and the nation (21.2 percent).

3.13 SUSTAINABILITY AND GREENING

In accordance with EO 13423 – Strengthening Federal Environmental, Energy, and Transportation Management, Palo Verde would incorporate practices in an environmentally, economically, and fiscally sound, integrated, continuously improving, efficient, and sustainable manner in support of their mission.

3.14 PUBLIC HEALTH AND SAFETY

Public Health
Households in the community rely on septic systems for their wastewater disposal needs and many of these systems are failing. Additionally, many of the septic systems are nonconforming and do not meet the Palo Verde and Imperial County required setback distances of 50 to 100 feet from the adjacent Palo Verde Lagoon. Sewage systems are regulated by the Imperial County Public Health Department's Liquid Waste Program.

Public health concerns usually focus on fecal-associated pathogens; however, warm waters also harbor other free-living organisms that may cause serious illness in humans. Pathogens pose a health hazard for humans. Symptoms of water-borne pathogens include gastroenteritis, dehydration, headache, vomiting, and fever. Pathogens such as *E.coli*, enterococci, and fecal coliform have been identified in the Palo Verde Agricultural Drain and the Palo Verde Lagoon. These pathogens pose a health hazard to humans. They are at levels that violate quantitative water quality objectives established by the Colorado River Basin Regional Water Quality Control Board (RWQCB). These violations indicate that Palo Verde Lagoon and Agricultural Drain beneficial uses are impaired. The probable main source of pathogens to Palo Verde Agricultural Drain is waterfowl (96.9 percent). Other sources include mammals (2.3 percent), septic systems (0.4 percent), and songbirds (0.4 percent).

Occurrence rates for selected gastrointestinal diseases and Hepatitis A in Imperial County for 2009 are greater than rates for the State of California as a whole. All of these diseases can be contracted through contact with contaminated water; therefore, it is possible that water quality in Imperial County, including the community of Palo Verde, could affect the number of cases of these diseases observed in the project area.

Public Safety
Hazardous materials may include any solid, liquid, contained gaseous, or semisolid material, or any combination of materials that pose a substantial present or potential hazard to human health or the environment. Typical hazardous materials include combustible fuels, radioactive materials, and biohazardous material (i.e., biological material capable of causing disease in humans), and pesticides and herbicides.

The use of pesticides in agricultural operations is a large source of hazardous materials usage since the community and project area is surrounded by agricultural operations. The community does not have direct authority over the use of pesticides. The Imperial County Agricultural Commissioner and staff enforce state laws and regulations pertaining to pesticide use at the local level. Incidences of severe mosquito infestation are fairly common due to ideal breeding grounds in the Palo Verde Lagoon. Abatement crews from the Imperial County Public Health Department, Environmental Health & Consumer Protection Services Vector Control Program treat larvae with larvecides and with adults with adulticide fogging.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 LAND USE

The proposed project site for the WWTP, Assessor Parcel Number (APN) 006-220-056, is zoned Residential (R-1) and has a land use designation of Medium Agriculture. In order to comply with the Imperial County General Plan and zoning ordinance, the proposed project would require a rezone of the subject parcel to Government/Special Public (G-S).

Additionally, a minor subdivision or a Parcel Map Waiver from Imperial County would be required to create a separate legal parcel for the WWTP site. Resolution of land use and zoning consistency issues would be required prior to construction, and upon resolution, impacts would be less than significant.

The Preferred Alternative would also require acquisition of land and/or rights-of-way. Portions of each wastewater collection system include pipe installation in State Highway 78, which would require coordination with the California Department of Transportation (Caltrans). Installation of the WWTP would require land acquisition, as the community of Palo Verde owns limited land for siting of the plant. Land for the WWTP site has been donated and the title is held in the PVCWD's name.

Prior to construction, coordination with the Palo Verde Irrigation District (PVID) would occur, including obtaining encroachment permit(s) for all water, sewer, stormwater, and any other underground utilities that would encroach upon existing and proposed PVID right-of-ways. Southern California Edison (SCE) has overhead transmission lines and both overhead and underground distribution lines in the project area. Coordination with SCE would occur prior to construction to avoid disturbance and to minimize power disruption to these facilities.

Implementation of the Preferred Alternative would allow for the redevelopment of properties that were destroyed in the 2007 tornado. These properties previously utilized septic systems that were within the 50- to 100-foot buffer area adjacent to the Palo Verde Lagoon, and therefore were prohibited from reconstruction. The proposed project would therefore be beneficial by improving the quality of land use by permitting in-fill development of existing parcels of record, and potentially reducing vacant properties within Palo Verde.

Under implementation of the No Action Alternative, a wastewater collection and treatment system would not be constructed in the proposed project area. Therefore, there would be no land use changes. Conditions would remain unchanged.

4.2 SOILS AND GEOLOGY

Soils

Under the Preferred Alternative the proposed WWTP would be constructed on currently undeveloped land in the northeast portion of Palo Verde. The WWTP would have a total footprint of approximately 11 acres, which would involve construction of an access road from Sunset Way, ground clearing, soil importation, and earth movement.

Soils in the project area are not considered to be expansive and are suitable for the installation of utility pipelines. During the course of project development, soils would be exposed or non-compacted and the potential for wind- and/or water-driven soil erosion would arise. In order to minimize such potential impacts, BMPs such as watering exposed soils and covering stockpiled soils would be implemented during construction.

Substantial fill activities would occur during construction of the pond WWTP, particularly during construction of the four aerated treatment cells which would be 190 feet long by 50 feet wide by 13 feet deep, resulting in a total of 494,000 cubic feet of water capacity. In addition, due to shallow groundwater depths, the percolation ponds would be built-up above existing ground level and contained behind earthen dikes. However, since soil disturbance would be occurring mostly on non-prime soils, erosion would be lessened through BMPs, and provisions to prevent soil erosion would be incorporated into the SWPPP to be implemented prior to construction, impacts to soils under this alternative would be less than significant.

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Geology

No known active faults are located in the Palo Verde area and major tectonic activities associated with earthquakes are believed to have ended more than 1 million years ago. Consequently, the potential for seismic activity and ground rupture is low. Further, the proposed facilities would be constructed in accordance with the California State Building Code (Title 24 of the California Administrative Code), which contains specifications to minimize adverse effects due to ground shaking from earthquakes and liquefaction. With the implementation of building and construction standards, impacts to the proposed facilities resulting from geologic hazards are expected to be less than significant. Since construction would be occurring in previously disturbed or developed areas, excavation trenches would not substantially affect soils, geology, or seismicity, potential impacts under the Preferred Alternative would be less than significant.

Under implementation of the No Action Alternative, no wastewater collection or treatment system would be constructed in the proposed project area, and no new improvements would be affected by ground-disturbing activities; therefore, geological and soil conditions would remain the same.

4.3 WATER RESOURCES

Groundwater

Under implementation of the Preferred Alternative a wastewater collection and treatment system would replace the use of septic systems in Palo Verde. Under the Preferred Alternative, failing septic systems in Palo Verde would be properly abandoned, which would potentially improve groundwater quality. Leaking septic systems can damage water quality, and proper removal would ensure that no future contamination from septic system sources would occur.

Groundwater within the Palo Verde Valley, including the project site, occurs at approximately 10 feet below ground service (bgs). Construction of the proposed wastewater collection and treatment system would occur at or below existing groundwater levels. Excavation trenches for the 4-inch-diameter sewer service lines would range from 4.0 to 8.0 feet in depth and trenches for the 8-inch-diameter gravity sewer pipe would range from 5.0 to 12.0 feet in depth. Therefore, dewatering to remove groundwater from subsurface construction areas would be necessary during the installation of the wastewater collection and pump components. Dewatering would involve the short-term, localized removal of groundwater around a subsurface construction area. Dewatering during construction would not result in any short-term or long-term impacts to groundwater resources.

Implementation of the Preferred Alternative would involve the construction of a WWTP, which would use percolation/evaporation basins for treated wastewater discharge. To provide sufficient capacity, the two percolation/evaporation basins would each be approximately 135 feet long by 100 feet wide by 6 feet deep. A minimum of 4.0 feet from the bottom of the percolation/ evaporation basins to groundwater is required to ensure proper function of the ponds. Due to the shallow depth to groundwater, the percolation/evaporation basins would be elevated with appropriate fill material to ensure that the minimum of 4.0 feet is maintained between the percolation/evaporation ponds and groundwater levels. Additionally, an under drain beneath the percolation/evaporation basins would be installed to prevent groundwater from coming to the surface. Once constructed, the WWTP would provide groundwater recharge through the associated percolation basins.

Due to the shallow depth of groundwater, recharge from the percolation/evaporation basins would occur quickly. A limited increase in impermeable surface area would occur as a result of the WWTP structure; however due to the minor contribution of rainfall and the relatively undeveloped nature of the project area, such increase would not affect groundwater recharge rates. Since land effluent discharges would occur under the Preferred Alternative, which would potentially affect groundwater, the Palo Verde County Water District (PVCWD) would be required to file a Report of Waste Discharge with the State Water Resources Control Board (SWRCB) to obtain waste discharge requirements (WDRs) Form 200. The Preferred Alternative would not substantially alter groundwater recharge and impacts would therefore be less than significant.

Under implementation of the No Action Alternative, conditions would remain the same, and potentially adverse impacts to groundwater quality would continue.

Surface Water

Short-term impacts to surface water could result from run-off related to construction of the

proposed wastewater collection and treatment system. Ground-disturbing activities associated with the Preferred Alternative would involve new construction of a wastewater collection and treatment system. Site preparation activities (e.g., grading, trenching) and construction would result in temporary exposure and compaction of soils, affecting surface water drainage flow patterns and percolation rates. Increases in surface water runoff could result in increased sediment loading to the Palo Verde Lagoon and other canals/drainage ways during periods of precipitation. Precipitation events in the Palo Verde region are minor and infrequent and would not be expected to result in substantial runoff; however, a Storm Water Pollution Prevention Plan (SWPPP) would be developed for the proposed project.

Implementation of BMPs, including adherence to the SWPPP, would limit the effects of any construction adjacent to and/or beneath the Palo Verde Lagoon. For any construction occurring within the Palo Verde Lagoon, a CWA Section 404 Permit application would be submitted to and obtained from the US Army Corps of Engineers (USACE) prior to commencement of any construction activities within jurisdictional waters. With implementation of measures determined by and in compliance with USACE requirements, impacts to surface water resources would be reduced to less than significant. In addition, during construction phases, application of BMPs including development and implementation of a SWPPP, silt fencing, and suspension of construction activities during rainy periods would mitigate the effects of increased surface water runoff and sedimentation.

The long-term implication of the Preferred Alternative is the replacement of septic systems in Palo Verde. Sewage leaks caused by inadequate infrastructure through the development of appropriate wastewater collection infrastructure would be eliminated, thereby reducing the potential for untreated or poorly treated wastewater to enter the environment (e.g., surface water).

Implementation of the Preferred Alternative would involve the discharge of treated wastewater into percolation/evaporation basins (land effluent discharge), where treated wastewater would enter the groundwater or evaporate. For land effluent discharges, PVCWD would be required to file a Report of Waste Discharge with the Colorado River RWQCB to obtain waste discharge requirements (WDRs). Implementation of the Preferred Alternative would not result in long-term impacts to surface water resources.

Under implementation of the No Action Alternative, new infrastructure for the collection and treatment of wastewater would not be constructed. Therefore, under implementation of the No Action Alternative, conditions would remain unchanged, and poor surface water quality conditions would continue.

Wetlands

No designated wetlands are located within the proposed project area, and no direct impacts to wetlands would occur; however, indirect impacts could occur from siltation to wetlands located along the Palo Verde Outfall Drain. Ground-disturbing activities associated with construction of the Preferred Alternative, particularly trenching and/or excavation, may temporarily result in increased sedimentation into the Palo Verde Lagoon and the Palo Verde Agricultural Drain; however, application of BMPs including development and implementation of a SWPPP, silt fencing, and suspension of construction activities during rainy periods would mitigate the effects

of increased sedimentation. Thus, no short-term or long-term changes to wetlands are anticipated as a result of the Preferred Alternative.

Under the No Action Alternative, a wastewater collection and treatment system would not be constructed. No impacts to wetlands would occur from implementation of the No Action Alternative.

Floodplains

Under the Preferred Alternative construction would comprise installation of wastewater collection lines, with collected wastewater conveyed to a proposed new WWTP. The wastewater collection system would be constructed largely within the Federal Emergency Management Agency (FEMA) 100-year floodplain, which occurs along the banks of the Palo Verde Lagoon for the length of the Community, as well as areas of southern Palo Verde. Pipeline segments would be buried at depth and would not be affected by potential flood events. Watertight manhole covers would be used for all manholes occurring within the 100 year floodplain and wherever the manhole tops may be flooded by street runoff or high water. The pump station would be waterproofed with sealing lids/hatches to prevent water from flowing into the pump station. Pumps would be located approximately 10 to 20 feet bgs at the bottom of the 'wet well' enclosed in a manhole. Therefore no impacts to flooding would occur related to the wastewater collection system.

The WWTP site for the Preferred Alternative would be located outside the FEMA 100-year flood boundary, so no direct impacts to structures would occur during a flood event; however, a rise in groundwater conditions could temporarily affect the function of the percolation/evaporation basins. To offset the rise in groundwater, the WWTP under the Preferred Alternative would include installation of an under drain beneath the percolation/evaporation basins to prevent groundwater from coming to the surface. Impacts would be temporary and less than significant.

Under the No Action Alternative, a wastewater collection and treatment system would not be constructed. Therefore, there would be no activities that result in either direct or indirect impacts to floodplains.

4.4 BIOLOGICAL RESOURCES

Under the Preferred Alternative the WWTP would consist of an approximately 11-acre footprint and would require the construction of an access road. The WWTP would be sited within an approximately 30-acre site directly east of the community of Palo Verde that contains disturbed vegetation consisting of interspersed shrub communities, of which approximately 10 acres are heavily disturbed by a network of informal trails.

Construction activities associated with the collection system and WWTP would be temporary and would occur primarily along existing roadways and previously disturbed areas, including agricultural fields. Trenching to install pipelines would occur along previously disturbed areas within Palo Verde. The impact of most concern regarding wildlife would be indirect noise and dust related to construction on agricultural land and residential areas. However, this impact would be temporary, and would no longer be an issue once implementation of the wastewater collection and treatment system is accomplished. Therefore, species that use agricultural land or residential

areas have a low potential for being impacted by the project. In addition, implementation of the SWPPP, and its associated BMPs, would limit the effects of construction adjacent to and/or beneath the Palo Verde Lagoon during the construction of the bridge crossing. Overall, impacts to biological resources would be less than significant.

If the No Action Alternative were selected, no improvements to the wastewater collection or treatment system would be constructed in the proposed project area; therefore, there would be no activities that result in ground-disturbance and either direct or indirect impacts to habitat or vegetation, terrestrial, and aquatic wildlife. Conditions would remain unchanged.

Threatened and Endangered Species

EPA is required through this NEPA document to address project impacts to Federally-listed threatened and endangered species. EPA prepared a biological evaluation of the potential impacts of the project on aquatic resources found within the vicinity of the Palo Verde Lagoon including the Razorback sucker, Xyrauchen texanus. The biological evaluation found that the Preferred Alternative would have "No Effect" on listed fish species, as there will be no direct or indirect impacts to aquatic environments (namely, the Palo Verde Lagoon). The construction and operations and maintenance (O&M) phases will occur entirely outside of the lagoon, and as such, completely avoid aquatic species altogether.

As part of the Preferred Alternative, a pipeline would be constructed on the deck of the Fourth Street Bridge and over the Palo Verde Lagoon in order to connect the mainland side of the community to the WWTP on the island side. If not feasible, a secondary option, would involve directional drilling and placement of the force main pipeline under the lagoon at a depth of 30-40 feet below ground surface and/or approximately 10 feet below the lagoon bottom, which provides a safe distance from the top of the force main to the bottom of the lagoon, including below the scour depth of the lagoon.

Regardless of the method chosen, construction crews will not enter the lagoon to conduct work at any time. All construction activities will be performed from the bridge deck itself, from the island and mainland sides of the lagoon, or at least 10 feet below the lagoon bottom should the directional drill method be implemented. Measures will be undertaken to ensure best management practices will be adhered to. At the forefront of this will be the implementation of a SWPPP that lays out specific measures to protect all water bodies within and adjacent to the project footprint. A key component in protecting the lagoon, and any sensitive fish potentially occupying it, is creating a physical barrier between the construction activities and the water body in order to prevent sediment or material discharge. As part of the SWPPP, erosion control devices such as silt fences, straw wattles, filter fabric, and plywood reinforced with t-posts may all be utilized to contain spoils generated by construction activities occurring on both the island and mainland sides of the community. When properly installed and maintained with regularity, these temporary devices will prevent sediment from entering the lagoon. To prevent discharge of any construction debris while performing work on the bridge deck, a temporary catchment device is recommended for installation on the underside of the bridge. The work occurring on the bridge deck is not anticipated to generate a substantial amount of construction debris, therefore the catchment can be as simple as a tarp or similar device, which can be easily maintained and removed following the completion of the project.

EPA will include the following conservation measure to reduce impacts to the fish and aquatic species potentially present in the Palo Verde Lagoon:

CM #1: Storm Water Pollution Prevention Program (SWPPP) - A SWPPP will be prepared and implemented which will include site-specific Best Management Practices (BMP) to contain any potential spoils generated during construction. The SWPPP will be the guiding framework to ensure environmental compliance with no effects to listed fish species or any other aquatic species.

In addition, the southwestern willow flycatcher (SWFL) is a state and federally endangered subspecies of willow flycatcher (*Empidonax traillii*; WIFL) that was identified as having habitat within the two-mile radius of the proposed project site. The Preferred Alternative would include the removal of tamarisk scrub and other vegetation considered to be vital to the SWFL successful migration. On May 23, 2013, a site inspection was conducted and 10 individual SWFL were observed within the tamarisk scrub where the WWTP is proposed, plus an additional three individuals along the Palo Verde Lagoon itself. In addition to occupying areas within the WWTP footprint, some individuals were observed occasionally foraging for insects over the adjacent alfalfa fields.

It was determined that approximately six acres of critical habitat would need to be removed for the Preferred Alternative's proposed WWTP and main line route. The calculation was derived from the 11-acre WWTP parcel being approximately 50% covered by tamarisk scrub, while the 1-acre area along the northern 8-inch main line route exhibits approximately 85% tree/shrub cover. Taken together, this amounts to approximately 53% tree/shrub cover (or six acres), the vast majority of which is non-native, highly invasive tamarisk. In this condition, the area supports migratory SWFL. These impacts are considered permanent, as all vegetation would be removed and prevented from regrowth throughout the operations and maintenance phase of the overall system. There is no permanent or temporary loss of migratory SWFL habitat anywhere else along the project footprint.

Due to the loss of six acres of critical habitat for the SWFL, as well as potential impacts to aquatic species, EPA requested informal Section 7 consultation with the U.S. Fish and Wildlife Service (Service). EPA determined that the loss of six acres of critical habitat" may affect" SWFL species, but was "not likely to adversely affect." On December 10, 2014, the Service confirmed EPA's determination and included the following conservation measures (CM) for protection of the SWFL:

CM #2: *Habitat Mitigation Management Plan (HMMP) - Preparation of a formal Habitat Mitigation Management Plan (HMMP) for the SWFL which must receive approval from the Service. The final design for the proposed project will not be considered complete until Service approval of the HMMP has been obtained.*

CM #3: *Vegetation Management - During the construction phase, all project-related brushing, clearing and trimming of existing shrub/tree-dominated naturalized habitats within and immediately adjacent to the proposed project footprint shall occur outside the two general SWFL migratory periods (May 1 to June 20 and August 10 to October 10); grading activities must be conducted outside of the migration period. A qualified biologist experienced with the SWFL shall monitor*

all brushing, clearing, trimming and grading activities. In the event that the qualified biologist detects SWFL or any subspecies on the site during such activities, all such activities shall be halted within 500 feet of the existing tamarisk trees or whatever greater distance necessary to reduce noise levels at the edge of the tamarisk woodland below 60 decibels; the activities will cease within this distance until the bird is observed to depart the site or cannot be relocated the next morning.

During the O&M phase, all project-related brushing, trimming, clearing and grading of existing shrub/tree-dominated naturalized, restored and/or preserved habitats within and/or adjacent to the project site must be conducted outside the two SWFL migratory periods. The brushing, trimming, clearing and grading of shrub/tree-dominated naturalized, restored and /or preserved habitats shall be monitored by a qualified biologist experienced in identifying SWFL, and subspecies, in the field, and these activities shall be subject to the terms specified in all of the other applicable mitigation measures, including those relating to dust control, noise reduction, night lighting, and general O&M procedures. In the event that the qualified biologist detects SWFL, and subspecies, on the site during such activities, all such activities will be halted within 500 feet of the existing tamarisk trees or whatever greater distance is necessary to reduce noise levels at the edge of the tamarisk woodland below 60 decibels. If the bird detected is a SWFL, the activities will cease within this distance until (a) the bird is observed to depart the site, or (b) cannot be relocated within an hour of sunrise on the following work day by any of the following means: visual sighting, passive listening (for its songs/calls) and a failure to respond to playback of recorded SWFL calls broadcast from a portable speaker.

All project personnel, equipment, vehicles and materials shall remain within approved work areas, access routes, laydown areas, construction yards and other feature workspaces. Existing shrub/tree-dominated naturalized, restored and/or preserved habitats outside of approved workspaces shall be avoided by construction and operation and maintenance personnel, vehicles, equipment and materials throughout all phases of the project. Should additional temporary work space become required at any time, a variance may be processed, ensuring that no additional impacts to migratory SWFL are anticipated.

CM #4: *<u>Dust Control</u> - The following standard mitigation measures for fugitive dust control were adopted from the CEQA Air Quality Handbook provided in Appendix B of the EID (AMEC 2011). In addition to numerous project, wildlife and community benefits, these measures also serve to reduce impacts on migratory SWFL to less than significant levels.*

All disturbed areas, including bulk material storage which is not being actively utilized, shall be effectively stabilized, and visible emissions shall be limited to no greater than 20% opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps or other suitable material such as vegetative ground cover.

All on site and off site unpaved roads will be effectively stabilized, and visible emissions shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.

All unpaved traffic areas one (1) acre or more with 75 or more average vehicle trips per day will be effectively stabilized, and visible emission shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.

The transport of bulk materials shall be completely covered unless six inches of freeboard space from the top of the container is maintained with no spillage and loss of bulk material. In addition, the cargo compartment of all haul trucks is to be cleaned and/or washed at delivery site after removal of bulk material.

All track-out or carry-out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within the community of Palo Verde.

Movement of bulk material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers or by sheltering or enclosing the operation and transfer line.

Vehicle speed for all construction vehicles shall not exceed 15 mph on any unpaved surface at the construction site.

CM #5: *Noise Reduction Measures - The following standard mitigation measures relating to noise reduction were adopted from the CEQA Air Quality Handbook provided in Appendix B of the EID (AMEC 2011). In addition to numerous project, wildlife and community benefits, these measures also serve to reduce impacts on migratory SWFL to less than significant levels.*

Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum.

Limit, to the extent feasible, the hours of operation of heavy-duty equipment and/or the amount of equipment in use.

Noise levels generated by equipment, vehicles, personnel, facilities, and all other project features throughout the construction and operation and maintenance phases should be kept below 60dBA or existing ambient conditions (if greater than 60dBA) throughout the two general SWFL migratory periods (May 1 to June 20 and August 10 to October 10) over the life of the project.

CM #6: *Night Lighting Measures - The following mitigation measures relating to night lighting serve to reduce impacts on migratory SWFL to less than significant levels.*

To reduce impacts on nocturnally roosting SWFL, construction night lighting shall be reduced to the lowest practicable levels on existing shrub/tree-dominated naturalized habitats throughout the two general SWFL migratory periods (May 1 to June 20 and August 10 to October 10).

All exterior lighting associated with long-term facility O&M within the project area adjacent to existing shrub/tree-dominated naturalized, restored and/or preserved habitats shall be of the lowest illumination practical for human safety, selectively placed, shielded, and directed away from stated habitats to the maximum extent practicable.

CM #7: *General Operations & Maintenance (O&M) Measures - The following mitigation measures relating to long-term operation and maintenance procedures serve to reduce impacts on migratory SWFL to less than significant levels.*

All vegetation management, dust control, noise reduction and night lighting mitigation measures shall be followed as applicable to all long-term standard operation and maintenance procedures of the proposed project. Standard operation and maintenance procedures shall generally follow those stated in the Project Evaluation Report (PER) and will generally involve low intensity vehicle, personnel and equipment demands operating within developed areas on an annual basis.

If emergency repairs or other unanticipated non-standard repairs become necessary to maintain the wastewater treatment plant or collection system's integrity and operational functionality, relevant mitigation measures will be applied as necessary to remain in compliance.

CM #8: *Qualified Biologist - The project's qualified biologist shall possess the following qualifications:*

a) *Document training in identifying SWFL and subspecies by either sight or by calls and songs from those of other riparian bird species;*

b) *At least 40 hours of supervised experience successfully detecting and observing SWFL and subspecies in the field under the supervision of a more experienced ornithologist. At least 10 hours of the 40 hours of supervised field experience must have involved the use of playbacks of recorded willow flycatcher or subspecies call/songs to elicit vocalizations from SWFL in the field, and response vocalizations must have been successfully obtained from wild birds on at least two separate field days; and*

c) *Documentation of field training experiences meeting the above criteria, and current contact information for the trainers, must be submitted to the EPA and Service.*

CM #9 *Reporting Requirements for Construction Monitoring - During construction, the project's qualified biologist shall record all detections of SWFL and subspecies to the species level and map the location of the bird on or near the project site to the most accurate degree feasible. Within 120 days of completion of the construction, the qualified biologist shall submit a report to the EPA and the Service relating the dates within which ground-disturbing activities and construction occurred, a brief description of the*

types of construction activities, and a narrative relating the biological monitoring activities employed during the construction monitoring required in CM #3, above, including dates of monitoring, methods used, and especially the species, dates, and location of the SWFL detected during the monitoring. The report shall include one or more maps depicting the location of the SWFL and subspecies detected during construction monitoring.

CM #10 *Reporting Requirements for Vegetation Removal during Operations – The project's qualified biologist shall record all detections to the species level of SWFL detected while monitoring vegetation removal or disturbance activities, and map the location of the bird on or near the project site to the most accurate degree feasible. The qualified biologist shall submit an annual report to EPA and the Service relating the dates within which vegetation removal or disturbance activities occurred, a brief description of the types of activities which occurred, one or more maps depicting the location of the activities on the project site, and a narrative relating the biological monitoring activities employed during the monitoring required in CM #3, including dates of monitoring, methods used, and especially the species, dates, and locations of SWFL and/or subspecies detected during the monitoring. The report shall include one or more maps depicting the locations of the SWFL species detected during vegetation removal monitoring. The annual report shall describe any vegetation removal or disturbance activities and related biological monitoring for each calendar year (January 1 to December 31) during project operations, and shall be transmitted to the EPA and the Service by February 28 of the subsequent calendar year. If no project operations requiring monitoring for potential impacts to SWFL occurred during the calendar year in question, the Palo Verde County Water District (District) should sent a notification to that effect to EPA and the Service by February 28 of the subsequent year. The notification will take the place of the annual report.*

CM #11: *Dead and Injured Birds – All project construction and O&M personnel shall immediately report any observations of dead and injured birds on the project site to either the qualified biologist (if present) or to the District. This includes any eagles which appear to be sick.*

When an injured bird is found on the project site, the qualified biologist or the District (as applicable) shall make every effort to transport the injured bird to a CA Department of Fish and Wildlife (CDFW) rehabilitation center (www.dfg.ca.gov/wildlife/WIL/rehab/facilities.html).

Should a bird carcass be found on the project site, the qualified biologist or the District (as applicable) shall notify the SERVICE (Palm Springs Field Office, with the Carlsbad Field Office as a fall-back option) and the CDFW (Blythe office) within 72 hours of discovery of the carcass for further direction.

CM #12: *Monitoring and Reporting Requirements for the Riparian Woodland Habitat Restoration – These requirements will be specified in the SWFL HMMP which will be developed by the EPA subsequent to completion of the ESA Section 7 consultation.*

If the No Action Alternative was selected, the wastewater collection and treatment system would not be constructed in the proposed project area; therefore, there would be no activities that result in ground-disturbance and either direct or indirect impacts to habitat or threatened or endangered species. Conditions would remain unchanged.

4.5 CULTURAL RESOURCES

A cultural resources survey was conducted for the Preferred Alternative's Area of Potential Affect or APE. No historic properties or archaeological resources were identified as being impacted by the proposed project. EPA's determination of no affect was confirmed by the California State Historic Preservation Office in October 2013.

In addition, EPA sent letters to eight Native American governments in January 2013 to determine whether there were Traditional Cultural Places (TCPs) within the vicinity of the Preferred Alternative or other issues of concern by the tribes. Communication with the Native American governments was initiated in accordance with the federal NEPA guidance (42.U.S.C. 4321-43351) and Section 106 of the National Historic Preservation Act (16 U.S.C. 470, 36 CRFR 800.3). No TCPs or concerns were identified by the Native American governments.

Under the No Action Alternative, improvements to the wastewater collection and water distribution system would not be constructed in the proposed project area. Since no construction and associated ground-disturbing activities would occur, no impacts to cultural resources would occur and conditions would remain unchanged.

4.6 AIR QUALITY

Imperial County is designated as a federal *non-attainment* area for particulate matter equal to or less than 10 microns in diameter (PM_{10}), particulate matter equal to or less than 2.5 microns in diameter ($PM_{2.5}$) and 8-hour ozone (O_3) (United States Environmental Protection Agency [EPA] 2009a; 2009b). Imperial County is a State Ambient Air Quality Standards *non-attainment* area for 8-hour O_3, PM_{10}, and is unlisted for $PM_{2.5}$ (California Environmental Protection Agency [CalEPA] 2010).

Short-Term

Short-term pollutant emissions associated with the proposed construction activities would include fugitive dust emissions during ground disturbance and related site preparation activities, and combustion emissions from vehicles and heavy-duty equipment. Based upon emission modelling using the maximum estimated acreage that could be disturbed including sewer line installation, a projected total of approximately 0.26 tons of dust would be generated during construction.

Impacts from construction would be minimized through dust control and standard engineering practices required by Imperial County. Specifically, measures to minimize PM_{10} emissions during construction include the stabilization of disturbed and material storage areas (watering, dust suppressants, tarps, etc.), stabilization of on-site and off-site unpaved roads, and a maximum speed of 15 miles per hour (mph) for all construction vehicles on any unpaved surface at the construction.

The combustion emissions associated with construction-related vehicles and equipment would be 1.38 tons of nitrogen oxides (NO_x), 0.71 tons of carbon monoxide (CO), and 0.19 tons of reactive organic gas (ROG). Since these are short-term emissions and relatively minor, no significant impacts to regional air quality would occur.

Operational Emissions

Criteria pollutant emissions from the WWTP processes are expected to be negligible. The majority of criteria pollutants generated would be related to the off-site combustion of natural gas for the generation of industrial and utility electric power; however, the pump station and WWTP aerator would include solar panels to help limit dependence on grid power and reduce operation and maintenance costs. Additional electrical supply and controls would include a crossover connection for potential future power supply from an anticipated solar park near the water treatment plant in Palo Verde.

Emissions from off-site utility electric power generation associated with the WWTP, under worst case conditions where no solar panels are utilized, would likely occur in other air sheds and given the complexity of the electrical grid system, specific area impacts are difficult to predict. Electrical generation may include non-polluting sources such as solar, wind, or nuclear power. Operational emissions were calculated using an emission calculator. Emission factors for California are:

- NO_x = 0.000236 pounds per kilowatt-hour (lbs/kWh)
- Sulfur dioxide (SO_2) = 0.000144 lbs/kWh

The PM_{10} emission factor was taken from the California Air Resources Board:

- PM_{10} = 0.000040 lbs/kWh

The CO and ROG emission factors were estimated by taking natural gas combustion emission factors from EPA AP-42 Table 1.4-1 and 1.4-2 and calculating emissions based on a ratio of the CO and ROG emission factors to the NO_x emission factor.

- CO emission factor ratio to NO_x is 0.6 based on Low NO_x burners, so the estimated emission factor = 0.00014 lbs/kWh
- ROG emission factor ratio to NO_x is 0.039 based on Low NO_x burners, so the estimated emission factor = 9.27E-06 lbs/kWh

For calculation purposes, it was assumed the WWTP would not use solar panels and would consume a maximum of 100,000 kWh/year. It was also assumed that one pump station would consume a maximum of 7,000 kWh/year with 20 percent of the energy being generated from solar power.

Under the Preferred Alternative, long-term emissions would occur related to the one pump station and the operation of the WWTP. The majority of long-term operational emissions associated with the Preferred Alternative would relate to the off-site combustion of natural gas for the generation of industrial and utility electric power, and would occur in unspecified air basins. Estimated emissions for this alternative would be 20 lbs/year of NO_x and 13 lbs/year of SO_2, 3.4 lbs/yr of PM_{10}, 12 lbs/yr of CO, and 0.8 lbs/yr of ROG.

Under the Preferred Alternative, emissions associated with precursor pollutants for O_3 (NO_x and ROG) would be well below the significance thresholds under the General Conformity Rule, therefore a General Conformity analysis is not required. Direct impacts associated with construction of the Preferred Alternative would be less than significant. Therefore, no long-term air quality impacts associated with direct operation of wastewater collection and treatment systems would occur.

Under the No Action Alternative, the proposed wastewater collection and treatment system would not be constructed in the proposed project area. Therefore, air quality would remain unchanged.

4.7 NOISE AND ODOR

4.7.1 Noise

Short-Term

During construction, implementation of the Preferred Alternative would result in noise levels that are higher than existing ambient levels. However, construction noise generated during implementation of the Preferred Alternative would be short-term and temporary and would be reduced through BMPs – such as the use of equipment sound mufflers and restriction of construction activity to normal working hours. The project would be required to comply with Imperial County Noise Element standards, which apply to noise measured at the nearest sensitive receptor (adjacent residences). County standards would require construction equipment operation to be limited to the hours of 7 a.m. to 7 p.m. Monday through Friday, and 9 a.m. to 5 p.m. Saturday. No commercial construction operations are permitted on Sunday or holidays (Imperial County 2008). Therefore, short-term noise impacts would be reduced to less than significant levels.

Long-Term

Long-term operational noise of the WWTP under the Preferred Alternative would generate noise associated with the operation of WWTP machinery. Noise generated from aeration equipment and fans are the greatest source of noise associated with pond-type treatment systems. A noise buffer required for WWTPs range from 250 to 1,000 feet from sensitive receptors (residential properties), depending on the noise controls included in the WWTP design. Under the Preferred Alternative the WWTP would be constructed in northeastern Palo Verde, approximately 1,000 feet east of the northern terminus of Sunset Way and adjacent residences, which would reduce impacts associated with noise to less than significant. Long-term noise from the proposed pump station would produce a 'humming' noise for between two to three hours a day. The pump would be located at the bottom of a wet well, enclosed in a manhole approximately 10 to 20 feet below ground surface (bgs). Resulting noise generation would therefore be less than significant.

Once operational, the wastewater collection system (pipelines) would be buried and would not generate noticeable noise. Noise generated by the WWTP proposed under the Preferred Alternative would be reduced through the incorporation of noise reducing engineering and design (i.e., building enclosure) and placement away from residential receptors. Therefore, under implementation of the Preferred Alternative, no long-term direct or indirect operational noise would occur and would therefore result in less than significant impacts to noise.

Under the No Action Alternative, no construction activity would occur under this alternative, and no changes to the existing noise environment would occur. Therefore, no direct or indirect short-term or long-term noise-generating activity or associated impacts would occur, and conditions would remain unchanged.

4.7.2 Odor

Long-term implementation of the proposed wastewater collection system would not generate odors, as odors would be contained within the pipeline system underground; however, short term odor impacts would potentially occur during the abandonment of existing septic systems. Septic system abandonment would occur in accordance with Imperial County procedures which include either removing the septic tank completely or abandoning the tank in place. The abandonment of existing septic systems would result in a long-term decrease in odors in the project area, through the elimination of wastewater leaks and overflows.

Under the Preferred Alternative the WWTP would be constructed to the northeast of Palo Verde, approximately 1,000 feet east of Sunset Way and adjacent residences. Despite this buffer, there is some potential for odors to occur within Palo Verde under the Preferred Alternative. Winds in Palo Verde tend to be from the west or southwest, which would generally direct odors away from residential areas and to the east of the proposed WWTP; however easterly winds do occur and would occasionally direct odors towards residential areas.

The removal of septic systems would eliminate the overflow or leak of untreated treated wastewater into the environment, thereby eliminating associated odors. Under the Preferred Alternative odor would be minimal.

Under the No Action Alternative, the leak and overflow of untreated wastewater from failing septic systems to the proposed project area would continue to be released into the environment, contributing to odor. Therefore, current conditions would remain unchanged.

4.8 ENERGY AND NATURAL RESOURCES

Under the Preferred Alternative, energy demand would occur from the one pump station and operation of the WWTP. The majority of long-term operational energy associated with the Preferred Alternative would relate to the off-site combustion of natural gas for the generation of industrial and utility electric power. Energy use in Palo Verde will increase with the implementation of the Preferred Alternative, however, the Preferred Alternative would not constitute a substantial increase in existing power use on the electrical grid system. Therefore, there would be no significant impacts to energy resources. As part of project development, coordination with Southern California Edison (SCE) would be required to ensure that sufficient

infrastructure exists to support the proposed project. Increased energy use for pumping wastewater and operation of the WWTP are the only operational sources of GHG emissions associated with the project. This would indirectly contribute to GHG emissions through increased power demand from an offsite utility provider (SCE). The wastewater collection pumps would incorporate renewable energy sources (approximately 20 percent of energy would be generated from solar power). Both construction and the operation of the proposed wastewater collection and treatment system would incrementally contribute to GHG emissions; however, given the limited construction and energy utilization of the Preferred Alternative, contributions would be considered less than significant.

Under the No Action Alternative, a wastewater collection and treatment system would not be constructed in the proposed project area and conditions would remain unchanged.

4.9 TRANSPORTATION

Under the Preferred Alternative construction activities would occur along existing roadways. During construction, roadway access by residents or users of the proposed project area would be temporarily restricted. Short-term impacts regarding access would be minimized by the use of standard engineering and traffic management practices. Once operational, wastewater treatment infrastructure would not impact vehicular traffic or other transportation methods. Access at the Fourth Street Bridge would be temporarily impacted during construction of the force main across the Palo Verde Lagoon. The inventory rating of the bridge is 35,935 pounds (lb) and an operating rating of 50,044 lbs. Due to the aging nature of the bridge, no construction equipment weighing greater than a maximum of 35,935 lbs would be able to cross the bridge. In addition, if a structural assessment concludes that the bridge is capable of supporting the proposed force main, the force main would be placed on top of the bridge on one of the existing walkways. Therefore, only short-term impacts to transportation associated with the Preferred Alternative would occur.

Under the No Action Alternative, a wastewater collection and treatment system would not be constructed in the proposed project area. Conditions would remain unchanged.

4.10 WASTE MANAGEMENT

Upon implementation of the Preferred Alternative, waste conveyed to the wastewater treatment system would be contained within the system until fully treated. No hazardous chemicals or hazardous materials would be utilized in the operation of the proposed WWTP or stored at the facility. The WWTP ponds would need to be drained and waste sludge (bio-solids) removed two to four times per year. Depending on the WWTP final design, biosolids would need to be removed from the grit screen either monthly, at worst, but likely quarterly. It is anticipated that bio-solids would either be land applied or disposed of at an appropriate landfill. Appropriate disposal of bio-solids would be determined in a Bio-Solids Management Plan, which would be developed as part of the final WWTP design and would be consistent with local, state, and federal regulations. The removal of septic systems would eliminate the discharge of untreated or partially treated wastewater into the environment. Therefore, long-term impacts from the implementation of the Preferred Alternative would be beneficial by improving the quality of waste management in Palo Verde.

Under the No Action Alternative, the wastewater collection and treatment system would not be constructed in the proposed project area. Conditions would remain unchanged. The leakage of untreated wastewater into the environment would continue, which would result in continued adverse impacts to waste management in Palo Verde.

4.11 SOCIOECONOMICS

Implementation of the Preferred Alternative is intended to eliminate sewage leaks caused by inadequate infrastructure through the development of appropriate wastewater collection and treatment infrastructure, thereby reducing the potential for untreated wastewater to enter the environment and improving the water quality of the Palo Verde Lagoon. For project construction, construction crews would likely be hired from the available pool of workers in Palo Verde, Blythe, and nearby communities, resulting in an increase in short-term construction employment. Completion of the wastewater collection system would also allow for the redevelopment of properties that are abandoned or vacant as a result of the 2007 tornado, and that are currently undevelopable due to inadequate setback from the Lagoon. Construction activities would provide temporary employment and economic activity in Palo Verde.

Maintenance and upkeep of the WWTP proposed under the Preferred Alternative would be conducted by existing Palo Verde Community Water District (PVCWD) staff thus, no significant long-term employment would be generated. Increased utility costs for Palo Verde residents may result from implementation of the Preferred Alternative. The increased costs would be based on numerous factors including the total project construction costs, project financing, potential governmental assistance, and future billing structure. Due to the higher than average poverty rate of the project area, increased utility costs have the potential to adversely affect residents and businesses; however, with potential cost increases unknown, and with the potential to offset some of these costs through government or other programs, the full impact to socioeconomics is difficult to quantify. It is anticipated that adverse but less than significant impacts to socioeconomics would occur.

Under the No Action Alternative, the wastewater collection and treatment systems would not be constructed in the proposed project area. Socioeconomic conditions would remain unchanged or may worsen as more homes are vacated and community development remains stalled.

4.12 ENVIRONMENTAL JUSTICE

Implementation of the Preferred Alternative is intended to eliminate sewage leaks caused by inadequate infrastructure through the development of appropriate wastewater collection and treatment infrastructure, thereby reducing the potential for untreated wastewater to enter the environment and improving the water quality of the Palo Verde Lagoon. As a result of project implementation under any alternative, risks to public health (e.g., water-borne pathogens) resulting from the leakage of untreated wastewater and interaction with Palo Verde Lagoon water would be reduced. No significant direct or indirect environmental impacts from either construction- or operations-related activities are anticipated to affect low-income populations, minority populations, or children in Palo Verde or the surrounding area. No significant short term or long-

term impacts are anticipated to occur; therefore, children and minority and low income populations would not experience direct or indirect disproportionate impacts related to the Preferred Alternative. A beneficial effect of the construction of a wastewater collection system is that sewage leaks would no longer occur, resulting in fewer contaminants in local waterways than under current conditions. Therefore, implementation of the Preferred Alternative would result in beneficial impacts for children and low-income populations because it would reduce exposure of the human population to pathogens found in untreated water.

Under the No Action Alternative, the wastewater collection and treatment system would not be constructed in the proposed project area. Conditions would remain unchanged and public health concerns related to the exposure to wastewater in the environment would continue in the project area, resulting in adverse impacts.

4.13 SUSTAINABILITY AND GREENING

Energy would be provided to the proposed project primarily from off-site combustion of natural gas for the generation of industrial and utility electric power; however, the pump station would be fitted with solar panels and the WWTP aerator would likely also be fitted with solar panels that would then be able to provide a secondary source of energy to reduce dependence on grid power, and reduce operation and maintenance costs. Grid power electrical generation may include air nonpolluting sources such as solar, wind, or nuclear power; however, power in the region is generally provided by combustion of natural gas. Anticipating potential future availability of renewable energy, electrical distribution supply and controls would include a cross-over connection should supply from an anticipated solar park near the water treatment plant in Palo Verde become available.

For this analysis, operational energy requirements of the WWTP were estimated under worst case conditions where no solar panels are utilized, and it was assumed the WWTP would consume a maximum of 100,000 kWh/year. Additionally, the pump station would consume a maximum of 7,000 kWh/year with 20 percent of the energy being generated from solar power.

Under the Preferred Alternative, energy demand would occur from the one pump station and operation of the WWTP including aerators. The majority of long-term operational energy associated with the Preferred Alternative would relate to the off-site combustion of natural gas for the generation of industrial and utility electric power. However, the Preferred Alternative would not constitute a substantial increase in existing power use; therefore, there would be no significant impacts to energy resources. As part of project development, coordination with SCE would be required to ensure that sufficient infrastructure exists to support the proposed project. Increased energy use for pumping water and operation of the WWTP are the only operational sources of GHG emissions associated with the project. This would indirectly contribute to GHG emissions through increased power demand from an offsite utility provider (SCE). The wastewater collection pumps would incorporate renewable energy sources (approximately 20 percent of energy would be generated from solar power). Both construction and the operation of the proposed wastewater collection and treatment system would incrementally contribute to GHG emissions; however, given the limited construction and energy utilization of the Preferred Alternative, contributions would be considered less than significant.

Under the No Action Alternative, a wastewater collection and treatment system would not be constructed in the proposed project area and conditions would remain unchanged.

4.14 HUMAN HEALTH AND SAFETY

Implementation of the Preferred Alternative is intended to eliminate sewage leaching and leaks caused by failing septic systems through the development of appropriate wastewater collection and treatment infrastructure, and thereby reducing the potential for untreated wastewater to enter the environment. The high levels of pathogens currently found in the Palo Verde Lagoon would be reduced upon implementation of the Preferred Alternative. As a result, risks to public health (e.g., water-borne pathogens) resulting from the use or contact with the Palo Verde Lagoon would be reduced. Further, potential contamination of well water resulting from leaking septic systems would be eliminated. Therefore, implementation of the Preferred Alternative would result in beneficial public health and safety impacts because it would reduce exposure of the human population to pathogens found in inadequately treated wastewater.

Under the No Action Alternative, the wastewater collection and treatment systems would not be constructed in the proposed project area. Public health and safety conditions would remain unchanged.

4.15 CUMULATIVE EFFECT

Cumulative impacts on environmental resources result from incremental impacts of the Preferred Alternative when combined with other past, present and reasonably foreseeable future projects in an affected area. Cumulative impacts can result from minor but collectively substantial actions undertaken over a period of time by various agencies (federal, state or local) or persons. In accordance with NEPA, cumulative impacts resulting from projects that are proposed, under construction, recently completed or anticipated to be implemented in the near future are discussed in this section.

No other projects are currently scheduled within Palo Verde; however, a solar power array has been discussed for development near the potable water plant at the southern margin of Palo Verde. This project is in the initial planning stage and no application has been submitted to Imperial County; the project is therefore not likely to be implemented until well after the construction of the Proposed Action is completed.

Implementation of the Preferred Alternative, if conducted simultaneously with other unforeseen planning improvements to Palo Verde, would have the potential to cumulatively impact air quality, water quality, and noise in the immediate area; however, impacts would be short-term and the use of BMPs would reduce impacts to less than significant levels. Long-term cumulative impacts associated with Preferred Alternative would be beneficial to water resources, public health and safety, land use, socioeconomic conditions and environmental justice and protection of children.