SOURCE: i-cubed, March 2009; Pala GIS, 2010

Figure 2-4
Alternative B

SECTION 3.0

DESCRIPTION OF AFFECTED ENVIRONMENT

SECTION 3.0

DESCRIPTION OF AFFECTED ENVIRONMENT

This section presents relevant information about existing resources and other values that may be affected by the fee-to-trust action and development/operation of the proposed facilities. Resources that are described include Land Resources, Water Resources, Air Quality, Biological Resources, Cultural Resources, Socioeconomic Conditions, Transportation, Land Use/Agriculture, Public Services, Noise, Hazardous Materials and Visual Resources.

3.1 LAND RESOURCES

3.1.1 TOPOGRAPHY

The project site sits on a gently sloping river terrace accentuated with a steep mount in the center. The topography of the Project site is extremely variable. The mount rises quickly to an elevation of approximately 490 feet above mean sea level; the terrace slopes gently from the northeast at an elevation of approximately 255 feet to the southeast at an elevation of about 250 feet. The channel of the San Luis Rey River drops about another 10 feet to 240 feet.

3.1.2 GEOLOGIC SETTING

The project site is located in the Peninsular Ranges geomorphic province. Steep-walled mounts and mountains rise dramatically in the Pala valley; these bedrock outcrops consist of Cretaceous-aged granodiorite and gabbroic rocks. Mass-wasting of these bedrocks has filled in the valleys with Quaternary-aged alluvial (floodplain) and colluvial (slopewash) deposits. The Project site is situated on an alluvial fan, consisting of unconsolidated river channel deposits; the mount consists of granodiorite which is resistant to weathering.

3.1.3 SOILS

Soils at higher elevations of the project site are designated by the Natural Resources Conservation Service as "Vista, coarse sandy loam." Soils at lower elevations of the project site and adjacent parcels are designated variously as: "Fallbrook, sandy loam," "Grangeville, fine sandy loam," "Ramona, sandy loam," "Cieneba, coarse sandy loam," "Placentia, sandy loam," "Visalia, sandy loam." Within the San Luis Rey River channel two soils types are designated: "Riverwash, gravelly coarse sand" and "Tujunga, sand." None of these soils are designated as expansive soils.

3.1.4 SEISMICITY

The known fault zones within a 100-km radius are the Coronado Bank-Palos Verde Hills, Elsinore, Newport-Inglewood-Rose Canyon, San Andreas, San Diego Trough, and San Jacinto. The nearest fault zone is the Elsinore Fault zone located approximately 8 km to the east. There is a potential for ground-shaking to occur at the project site, but it is unlikely that the project site would experience ground rupture or surface displacement from a known fault zone. Soils of the project site consists of alluvial deposits, and these are not known to be subject to liquefaction. Similar soils were evaluated for the nearby Gregory Canyon Landfill project, and testing showed that the alluvial materials are not particularly susceptible to liquefaction (County of San Diego, 2002).

3.1.5 MINERAL RESOURCES

The California State Mining and Geology Board classifies mineral resources within the State into Mineral Resource Zones. Within the Pala valley region, these zones are based on the presence of significant sand and gravel deposits and crushed rock source areas, which are primarily used in the production of cement and concrete. The following guidelines are presented in the mineral land classification for the region:

- MRZ-2 - Areas where adequate information indicates that significant mineral deposits (notably Portland cement and asphaltic concrete aggregate) are present or where it is judged that there is a high likelihood for their presence.
- MRZ-3 - Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
- MRZ-4 - Areas where available information is inadequate for assignment to any other MRZ zone.

The MRZ-2 zone in the vicinity of the project Site trends east to west and roughly follows the floodplain of the San Luis Rey River, with its thick accumulations of alluvial deposits of loose sands and rounded gravels. Aggregate within the San Luis Rey River channel represents a potentially important mineral resource and has been mined in the past. The region is also known for a number important gem mines. The closest of these operations is approximately 1.5 miles north of Pala.

3.2 WATER RESOURCES

3.2.1 SURFACE WATER, DRAINAGE, FLOODING

WATERSHED

The project site is located within the San Luis Rey River watershed; annual rainfall ranges from approximately 11 inches at low elevations near Oceanside, to more than 45 inches in the mountains of the river's headwaters. The region experiences a Mediterranean climate, with dry, hot summers and cool, wet winters. The project site is situated at the confluence of the San Luis Rey River and an unnamed tributary. Three water resources were detected during the site reconnaissance: the reservoir on top of the hill, the San Luis Rey River, and an unnamed tributary drainage.

The reservoir is cement lined and copper sulfate is used to discourage algal or plant growth. The perimeter is fenced. The San Luis Rey River is an intermittent drainage, with wide washes and braided channels. Within the Project site, a 3,200-foot segment of this river meanders in and out of the southern boundary of the Project site. Much of this river's flow is intermittent or hyporheic. The unnamed tributary is an ephemeral drainage with a variable channel width and riparian zone. The eastern boundary of the Project site is defined as the middle of this channel; this eastern boundary is an approximately 1,400-foot long segment. The high water mark is readily evident. Just downstream and beyond the southwestern corner of the Project site, the tributary Keys Creek joins the San Luis Rey River.

The USFWS National Wetland Inventory maps several wetland features within, and adjacent to, the Project site. Two freshwater ponds are indicated on these USFWS maps; the northern pond is obviously the cement-lined pond on top of the hill; the southern pond could not be found within the existing citrus orchard. Freshwater forested/shrub wetlands and riverine wetlands are also mapped in the river channels of the San Luis Rey River and its unnamed tributary. No vernal pools or other isolated wetlands were identified within the Project site. The conditions within the Project site—the sloping topography and the modified contours from intensive agriculture—make it highly unlikely that any wetlands other than riverine wetlands exist within the Project site.

FLOODING

The southern and eastern portions of the project site are located within the 100-year floodplain of the San Luis Rey River (see **Figure 3-1**); this portion of the project site is designated Zone A on Federal Emergency Management Agency Flood Insurance Rate Maps Nos. 06073C0484F and 06073C0483F (see following figure). FEMA defines Zone A as follows, "*Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage*."

SOURCE: i-cubed, March 2009, Natural Investigations, 2010

Figure 3-1
Floodplain

3.2.2 GROUNDWATER

The project site is located within the San Luis Rey Valley Ground Water Basin. This groundwater region is an alluvial aquifer comprised primarily of alluvial deposits that are younger than the Pleistocene period. The Basin conforms to the riparian zone and/or flood zone of the San Luis Rey River. The groundwater quality in the Pala sub-basin is characterized by relatively high TDS concentrations; chloride and sulfate concentrations typically exceed secondary maximum contaminant levels.

Numerous public and private groundwater wells were identified in EDR's query of readily-available databases: approximately 30 wells were identified in the USGS database; 28 wells were identified in the State database; no public water supplies were noted. Two wells are indicated on the project site (see **Figure 2-1**). No specific hydrogeologic data was readily available. MAZ Environmental (2006) reports, "*Based on information obtained during an interview with Mr. Victor Pankey, the depth to groundwater varies seasonally, but is approximately 70 feet below ground surface. Direction of groundwater flow is to the southwest*." (p. 3).

The project Site is located within the boundaries of the San Luis Rey Municipal Water District, whose principal mission to protect the groundwater resource that existing landowners pump from wells. The SLRMWD currently operates as a groundwater management agency, and does not provide retail water services to any customers.

3.2.3 WATER QUALITY

The project site is located within the Monserate hydrologic area of the San Luis Rey hydrologic unit, of the San Diego Basin Plan. The lower San Luis Rey River is listed the Clean Water Act (CWA) Section 303(d) list of impaired waters for exceedances of chloride and total dissolved solids. Chloride sources include urban runoff and various point and non-point sources. Total dissolved solids sources include agriculture, urban runoff, and natural sources. The segment of the San Luis Rey River that occurs within the project site is not listed as an impaired water body (San Diego RWQCB, 2006).

The San Diego Basin Plan designates beneficial uses of groundwater in the Pala Hydrologic Subarea as municipal supply, industrial service supply, and domestic water supply, and agricultural supply (San Diego RWQCB, 1994). San Luis Rey River and its tributaries have designated beneficial uses of agricultural supply, industrial service supply, water contact recreation, non-contact water recreation, warm freshwater habitat, rare/threatened/endangered species habitat, and groundwater recharge. The San Diego Basin Plan designates water quality objectives and implementation policies to enhance beneficial uses and protect beneficial uses against water quality degradation.

3.3 AIR QUALITY

3.3.1 REGIONAL SETTING

The project site is located within the San Diego County Air Basin (SDAB), which is one of 15 air basins in California. The SDAB is classified as a federal non-attainment area for 8-hour ozone (O_3 8-Hr). According to the County of San Diego, about half of the air pollution in the County comes from mobile sources, which consist primarily of cars, trucks and buses (San Diego County, 2004). However, construction equipment, trains and airplanes also contribute to these emissions.

3.3.2 PROJECT SITE AND VICINITY

The project site is located in the upper San Luis Rey River Valley and floodplain northwest of Lancaster Mountain and southwest of Monserate Mountain. Interstate 15 borders the site to the west, SR 76 parallels the northern border, and a residential development borders the San Luis Rey River corridor to the southeast of the project site. The project site has been extensively modified by agricultural operations since the 1920's, which have continued to the present with an active orchard and range crops. There are no permanent urban developments/occupation on the project site.

3.3.3 POLLUTANTS OF CONCERN

The SDAB is primarily affected by ozone and particulate matter. Not only is exposure to elevated levels of these pollutants a health hazard, but particulate matter may also cause nuisance type impacts. Nuisance type impacts include reduced visibility and dust settlement on nearby areas. In addition, near heavily traveled corridors and congested intersections, carbon monoxide from vehicular traffic is also a pollutant of concern.

Ozone is a reactive pollutant, which is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving volatile organic compounds (VOC) and oxides of nitrogen (NO_x). VOC and NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours. Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources of VOC and NO_x under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone. Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. Besides causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. Motor vehicles are a principal source of VOC and NO_x emissions in most areas that have elevated ozone concentrations.

"Respirable" particulate matter (PM_{10}) and "fine" particulate matter ($PM_{2.5}$) consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. (A micron is one-millionth of a meter.) PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates also can damage materials and reduce visibility.

ODORS

At this time, there are no existing facilities or activities in the vicinity of the site that would generate offensive odors.

SENSITIVE RECEPTORS

There are no existing sensitive receptor on the project site. There are no sensitive receptors to the west and north of the site as this area is used by the Interstate 15 and SR 76 corridors. Vacant lands border the site to the northeast and east. Pankey Road is also located northeast of the project site. The nearest sensitive receptor to the project site is located southeast of the site across the San Luis Rey and its associated riparian corridor (approximately 600 feet from the site).

FEDERAL REGULATORY CONTEXT

Ambient Air Quality Standards (AAQS) represent the maximum levels of background pollution considered safe, with an adequate margin of safety, to protect the public health and welfare. The federal Clean Air Act (CAA) was enacted in 1970 and amended in 1977 and 1990 [42 U.S.C. 7401] for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. In 1971, in order to achieve the purposes of Section 109 of the Clean Air Act [42 U.S.C. 7409], the U.S. Environmental Protection Agency (EPA) developed primary and secondary national ambient air quality standards (NAAQS).

Seven pollutants of primary concern were designated: ozone (O3), carbon monoxide (CO), sulfur dioxide (SO2), nitrogen dioxide (NO2), lead (Pb), and suspended particulates PM10 and PM2.5. The primary NAAQS "…in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health…." and the secondary standards "…protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air" (42 U.S.C. 7409(b)(2)). The primary standards were established, with a margin of safety, considering long-term exposure for the most sensitive groups in the

general population (i.e., children, senior citizens, and people with breathing difficulties). In 1997, the EPA promulgated a new eight-hour ozone standard of eight parts per hundred million (pphm) to replace the existing one-hour standard of 12 pphm, and a new standard for "fine" particulate matter that is 2.5 microns or less in diameter (PM2.5). The existing federal standard for PM10 was retained. That portion of the SDAB containing the Proposed Project has been designated a "basic" non-attainment area for the eight-hour ozone standard under Subpart 1 of Part D of the CAA (EPA 2004a). Using the discretion provided by Section 172(a)(1) of the CAA, the EPA has chosen not to classify the basin (e.g., moderate, serious, etc.). For areas subject to Subpart 1, consistent with Section 172(a)(2)(A) of the CAA, the period of attainment will be no more than five years from the effective date of designation (EPA 2004b). Consequently, the SDAB must demonstrate attainment by June 15, 2009.

If warranted, the EPA may grant an extension of the attainment date to no more than 10 years after designation (June 15, 2014). Also, per the EPA's final rule for implementing the eight-hour ozone standard, the one hour ozone standard was to be revoked "in full, including the associated designations and classifications, one year following the effective date of the designations for the eight hour NAAQS [for ozone]" (69 FR 23951). As such, the one-hour ozone standard was revoked in the SDAB on June 15, 2005. Requirements for transitioning from the one hour to eight-hour ozone standard are described in the final rule. The SDAB was initially classified as a non-attainment area for the federal PM2.5 standard. However, it has since been reclassified as an attainment area. The SDAB is a non-attainment area for the state PM2.5 standard (State of California 2005a). On September 21, 2006, the EPA revised the NAAQS for particulate matter. The 24-hour PM2.5 standard was strengthened from 65 micrograms per cubic meter (μg/m3) to 35 μg/m3. The existing standard for annual PM2.5 of 15 μg/m3 remained the same. In addition, the EPA also revised the standard for PM10. Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM10 standard (effective December 17, 2006). States had until December 18, 2007, to make recommendations for areas to be designated attainment and non-attainment. It was recommended that the SDAB be designated as an attainment area for the revised standards (State of California 2007a). The EPA will make the final designations by late 2009 and those designations will become effective in April 2010. For areas designated as non-attainment, State Implementation Plans for meeting the new standard will be due three years after the designations. States must meet the standards by April 2015 with a possible extension to April 2020.

On March 12, 2008, the EPA further revised the eight-hour ozone standard to 7.5 pphm. On March 12, 2009, CARB submitted its recommendations for area designations for the revised federal eight-hour ozone standard. The recommendations are based on ozone measurements collected during 2006 through 2008. It was recommended that the SDAB be classified as non-attainment. EPA will issue final area designations no later than March 2010 (if there is insufficient information to make these designation, the EPA will issue designations no later than March 2011). California must then submit an SIP outlining how the state will meet the standards by a date that EPA will establish in a separate rule. That date will

be no later than three years after EPA's final designations (e.g., if final designations are made in 2010, the SIP must be submitted by 2013). The deadline for attaining the standard may vary based on the severity of the problem in the area.

FEDERAL ATTAINMENT STATUS

Table 3-1 below shows that the SDCAB has a federal designation of Attainment or Unclassifiable in all but one category – Ozone (8Hr), which has a Non Attainment designation. Given the NonAttainment status for Ozone, the *de minimis* thresholds of 100 tons per year for Ozone precursors (ROG and NOx) are applicable to the proposed project.

TABLE 3-1
FEDERAL ATTAINMENT STATUS

Criteria Pollutant	Federal Designation
Ozone (1 Hr)	Attainment[1]
Ozone (8 Hr)	Non Attainment
Carbon Monoxide (CO)	Attainment
PM_{10}	Unclassifiable[2]
$PM_{2.5}$	Attainment
Nitrogen Dioxide (NO_2)	Attainment
Sulfur Dioxide (SO_2)	Attainment
Lead (Pb)	Attainment

1/ The federal 1-hour standard of 12 pphm was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in State Implementation Plans.
2/ At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.
Source: APCD, 2008

TABLE 3-2
NATIONAL AMBIENT AIR QUALITY STANDARDS

	Primary Standards		Secondary Standards	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour [(1)]	None	
	35 ppm (40 mg/m^3)	1-hour [(1)]		
Lead	0.15 $\mu g/m^3$ [(2)]	Rolling 3-Month Average	Same as Primary	
	1.5 $\mu g/m^3$	Quarterly Average	Same as Primary	
Nitrogen Dioxide	0.053 ppm (100 $\mu g/m^3$)	Annual (Arithmetic Mean)	Same as Primary	
Particulate Matter (PM_{10})	150 $\mu g/m^3$	24-hour [(3)]	Same as Primary	
Particulate Matter ($PM_{2.5}$)	15.0 $\mu g/m^3$	Annual [(4)] (Arithmetic Mean)	Same as Primary	
	35 $\mu g/m^3$	24-hour [(5)]	Same as Primary	
Ozone	0.075 ppm (2008 std)	8-hour [(6)]	Same as Primary	
	0.08 ppm (1997 std)	8-hour [(7)]	Same as Primary	
	0.12 ppm	1-hour [(8)]	Same as Primary	
Sulfur Dioxide	0.03 ppm	Annual (Arithmetic Mean)	0.5 ppm (1300 $\mu g/m^3$)	3-hour [(1)]
	0.14 ppm	24-hour [(1)]		

(1) Not to be exceeded more than once per year.

(2) Final rule signed October 15, 2008.

(3) Not to be exceeded more than once per year on average over 3 years.

(4) To attain this standard, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m3.

(5) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m3 (effective December 17, 2006).

(6) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)

(7) (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.

(8) (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1.

(b) As of June 15, 2005 EPA has revoked the 1-hour ozone standard in all areas except the fourteen 8-hour ozone nonattainment Early Action Compact (EAC) Areas. For one of the 14 EAC areas (Denver, CO), the 1-hour standard was revoked on November 20, 2008. For the other 13 EAC areas, the 1-hour standard was revoked on April 15, 2009.

Source: U.S. EPA, 2009

3.4 BIOLOGICAL RESOURCES

3.4.1 GENERAL DESCRIPTION OF HABITAT

Classification and description of terrestrial plant communities follows the methodology accepted by CDFG (2003), which is based upon Sawyer and Keeler-Wolf (1995)'s *Manual of California Vegetation*. Wildlife habitat was not classified separately, unless a community association could not encompass a specific wildlife habitat (e.g., cave). In these cases, Holland (1986)'s vegetation classification system or the California Wildlife Habitat Relationships System (Mayer and Laudenslayer 1988) was used. Note that aquatic habitats are discussed separately (see Section 4.2). Wetlands and other aquatic habitats were classified using USFWS National Wetlands Inventory Classification System for Wetland and Deepwater Habitats, or "Cowardin class" (Cowardin et al. 1979; USFWS 2007).

The Study Area currently contains five terrestrial natural community/habitat types, listed in descending areal preponderance: agricultural; ruderal/developed; riparian, coastal scrub, and oak woodland; the following table gives acreages, estimated using GIS. These natural community/habitat types are described in the following text and are delineated in **Figure 3-2**; **Figure 3-3** shows photographs of the Study Area. **Table 3-3** below provides the acreage counts for the on-site natural community/habitat types.

TABLE 3-3
NATURAL COMMUNITY/HABITAT TYPE

Type	Acreage
Agriculture	55.5
Ruderal/Developed	12.5
Riparian	12.0
Coastal Scrub	8.7
Oak Woodland	1.7
Total	90.5

Source: Natural Investigations, 2009a.

3.4.2 VEGETATIVE COMMUNITIES AND WILDLIFE HABITATS

AGRICULTURE

Approximately 55.5 acres (61%) of the Study Area can be classified as agricultural lands. Approximately 39 acres of orchard have recently been cleared of trees, with only disced earth and mulch remaining; these areas can be classified as Disturbed Habitat (11300). Approximately 16 acres are still in production, with citrus and avocado as the primary crops. An extensive irrigation system is present and active. These areas can be classified as Orchard (18100). Vegetation in the orchard understory consists of non-native grasses and weedy herbaceous species similar to those found in non-native annual grassland communities (42200). Where the orchard grounds have not been maintained, a few coastal shrub community species have re-established. The conversion of native habitats to orchards