CHAPTER 4.0
EXISTING ENVIRONMENTAL SETTING

4.1 DEVERS-HARQUAHALA 500kV TRANSMISSION LINE

4.1.1 Introduction

This proposed 500kV transmission line route is approximately 230 miles long and located between the Harquahala Generating Station in western Maricopa County, Arizona and the Devers Substation to the north of Palm Springs, California. The following sections include an inventory of land use, recreation, socioeconomics, population and housing, geology and soils, hydrology, air quality, traffic and transportation, biology, noise, mineral resources/energy, hazards and hazardous materials, public services and utilities, visual resources, cultural resources, and public health and safety. Each of these sections is separated into discussions of the Arizona and California portions of the Devers-Harquahala study corridor.

4.1.2 Land Use

The study corridor for the California portion of the proposed Devers-Harquahala route is 2 miles wide, or 1 mile on either side of the route, an appropriate distance within which potential impacts can be assessed. A 4-mile-wide study corridor is delineated for the Arizona portion of the proposed Devers-Harquahala route to include 2 miles on either side of the proposed transmission line route as required for the Arizona CEC.

Federal land and associated uses dominate the study corridor. Private land can be found primarily on the Harquahala Plain in Arizona, the Coachella Valley north of Palm Springs, and south of Blythe in California. The Agua Caliente Indian Reservation is the only Native American land in the study corridor located near the proposed Devers-Harquahala transmission line route.

Areas designated by federal agencies for preservation, conservation, and/or recreation occur within the study corridor. These areas include wilderness areas (WAs), areas of critical environmental concern (ACECs), the KOFA NWR, and the Coachella Valley NWR/Preserve.

Incorporated cities within or adjacent to the study corridor include Coachella, Indio, Cathedral City, Desert Hot Springs, and Palm Springs, which are all located in Riverside County, California. Other nearby population centers include unincorporated rural communities (e.g., Ripley, Desert Center, Chiriaco Summit, Cactus City, Thousand Palms, and North Palm Springs), small settlements along major transportation routes, trailer/mobile home parks, and large-lot rural residential tracts.

Other land uses within the study corridor include energy facilities, military reservations (Yuma Proving Ground), mines, farms, ranches, rural residences, communications sites, air facilities, and agriculture. A detailed description of land uses found in the study corridor follows.

The inventory was compiled by updating the land use data used for SCE's 1988 Amended PEA for the DPV2 transmission line and existing data from previous studies occurring within the study corridor. Next, existing maps and aerial photographs within and adjacent to the proposed route segment were interpreted. The mapped information was then field verified by air and ground reconnaissance. In addition, key federal, state, county, and local land resource agencies were contacted to update official information and identify planned land uses.

Land use inventory results are described in the following sections and displayed on the following maps, at the end of Chapter 4:

- Map 4-1 a-c: Land Ownership
- Map 4-2 a-e: Land Jurisdiction
- Map 4-3 a-e: Land Use – Existing
- Map 4-4 a-e: Land Use – Future

4.1.2.1 Arizona

<u>Land Ownership/Jurisdiction</u>

Land ownership and jurisdiction status were identified and mapped within the Arizona portion of the Devers-Harquahala study corridor based on available secondary data sources. Descriptions of the major categories follow, and the information is listed in Tables 4-1 and 4-2 and shown on Maps 4-1a, 4-2a, and 4-2b (end of Chapter 4).

TABLE 4-1
LAND OWNERSHIP CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN ARIZONA

Ownership Category	Total Miles Crossed
U.S. Fish and Wildlife Service	23.8
Bureau of Land Management	55.4
Bureau of Reclamation (Central Arizona Project)	0.1
Department of Defense	0.1
Arizona State Trust Land	10.8
Private Land	12.1
Total	**102.2**
Note: Totals may not check due to rounding.	

TABLE 4-2
LAND JURISDICTION CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN ARIZONA

Jurisdiction Category	Total Miles Crossed
Unincorporated Maricopa County	27.2
Unincorporated La Paz County	75.0
Total	**102.2**
Note: Totals may not check due to rounding.	

U.S. Fish and Wildlife Service

Land managed by the USFWS within the Arizona portion of the Devers-Harquahala study corridor includes the KOFA NWR. The KOFA NWR is located east of SR 95 between the town of Quartzsite and the city of Yuma, and is 1,040 square miles in size. The study corridor would cross approximately 24 miles of the KOFA NWR along Link 2 parallel to the existing DPV1 transmission line.

Bureau of Land Management

Public land is nearly continuous in the La Paz and Maricopa County portions of the Devers-Harquahala study corridor. The BLM Phoenix Field Office and Yuma Field Office administer this land. BLM WAs within or adjacent to the study corridor include the Big Horn Mountains, Hummingbird Springs, Eagletail Mountains, New Water Mountains, and KOFA NWR WA. The Big Horn Mountains WA is 21,000 acres in size, Hummingbird Springs WA is 31,200 acres, Eagletail Mountains WA is 100,600 acres, New Water Mountains WA is 24,600 acres in size and the KOFA NWR WA is 510,900 acres in size.

Department of Defense

The U.S. Army Yuma Proving Ground is the only military reservation within the Arizona portion of the Devers-Harquahala study corridor, and is located west of Arizona SR 95 between the town of Quartzsite and the city of Yuma. The Yuma Proving Ground is 1,272 square miles in size and is crossed by Link 2 near Milepost 40 for 0.1 mile.

Bureau of Reclamation

The USBR administers land used for the CAP Canal. The CAP Canal transports water from the Colorado River to the Phoenix and Tucson metropolitan areas. The proposed Devers-Harquahala route crosses the canal at two locations north of I-10 at Mileposts 4.5 and 9.0 along Link 1B.

Arizona State Trust Land

Arizona State Trust Land is located primarily in the Harquahala and Ranegras plains and near the Colorado River. They occupy the bulk of the land not managed by the BLM, USFWS, and the DOD (Yuma Proving Ground).

Private Land

Private land is found scattered throughout the Arizona portion of the Devers-Harquahala study corridor interspersed between federal and state lands.

Native American Land

The proposed transmission line would not cross any Indian reservation land in Arizona. The Colorado River Indian Reservation boundary is located approximately 6 miles north of the DPV1 and proposed DPV2 transmission line corridor.

On February 14, 2005, Arizona Representative Raul Grijalva introduced House Bill H.R. 794, which would change the boundary of the Colorado River Indian Reservation to the boundaries delineated by the Robbins Survey of 1875 and affirmed by the Harrington Resurvey of 1912, including approximately 16,000 acres. A companion bill in the Senate, S.536, was introduced by

Arizona Senator McCain on March 7, 2005. The proposed legislation would extend the reservation boundary south, across I-10 and immediately north of the existing DPV1 and proposed DPV2 rights-of-way in the Dome Rock Mountains. However, some DPV1/DPV2 access roads are located within the proposed new boundary.

Existing Land Use

The following categories of existing land uses within the Arizona portion of the Devers to Harquahala study corridor were identified and mapped based on aerial photography, existing maps, public documents, and field reconnaissance. Results are shown on Maps 4-3a and 4-3b. A general description of land uses is presented in Table 4-3, which summarizes land uses crossed by the study corridor.

TABLE 4-3
EXISTING LAND USES CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN ARIZONA

Land Use Category	Link	Milepost	Miles Crossed
Agriculture	1a	0.5 – 2.5	2
Yuma Proving Ground	2	40	0.1

Residential

Residential land uses are dispersed and somewhat limited in the Arizona portion of the Devers-Harquahala study corridor because of the large amount of federal and state land present. The residential uses include trailer/mobile home parks, large-lot residential subdivisions, and small settlements along major transportation routes.

Rural agricultural residential living can be found in the vicinity of Link 1a on the Harquahala Plain from Milepost 0 to 2.5. A small grouping of trailer homes is located north of Link 1b from Milepost 23 to 25.

Commercial and Industrial

Commercial and industrial uses are somewhat limited and dispersed within the Arizona portion of the Devers-Harquahala study corridor. Sand and gravel operations are found along with mining sites and mineral extraction locations. Most of the mining sites identified are abandoned or inactive. The Copper Bottom Mine is located north of Milepost 2 of Link 6 in the Copper Bottom Pass. Communication sites primarily consist of microwave, radio, and cellular towers and are usually located atop mountain peaks.

Agriculture

Agricultural areas within the Arizona portion of the Devers-Harquahala study corridor are located close to Harquahala Generating Station, generally in the Harquahala Plain. Link 1a crosses approximately 1 mile of agricultural land. Agricultural production by type includes field crops (cotton, alfalfa, and grains).

The Department of Agriculture (Natural Resource Conservation Service) has established a classification of importance for agricultural land. The classifications are Prime Farmland and Farmland of Unique Importance based on criteria for soil characteristics, climatic conditions, and water supply. The criteria include soil type, moisture content, water supply, soil temperature, acidity, salinity, depth, drainage, water table, flooding, slope, erodibility, permeability, rock content, rooting depth, growing season, crop type and value, and other economic factors. In Maricopa County, the agricultural land within the study corridor has been classified as Prime Farmland and Farmland of Unique Importance. There is no agricultural land within the study corridor in La Paz County.

Air Facilities

Air facilities in the study corridor with Federal Aviation Administration (FAA) recognized airspace were identified. Other facilities exist in the vicinity of the study corridor as agricultural operations, and utilize sparsely traveled roads as take-off and landing strips. The FAA establishes airport interference or clear zones. Interference zones were identified around existing airports and airstrips, although the proposed transmission line would not be located within any of these zones.

There are two private and one emergency (abandoned) airstrip in or near the Arizona portion of the study corridor. The Mauldin private airstrip is located approximately 1.6 miles east of the proposed transmission line (Link 1b, near Milepost 1). The Tonopah private airstrip is located approximately 4 miles east of Link 1b near Milepost 10. The abandoned Salome Civil Aeronautic Administration Emergency Air Strip is located near the Link 1 and Link 2 junction. The airport is approximately 3 miles to the north of the study corridor.

Military

Link 2 crosses the Yuma Proving Ground for 0.1 mile near Milepost 40. The proving ground is used by the U.S. Army to test artillery, aircraft target acquisition equipment and armament, and vehicle performance.

Vacant/Undeveloped and Grazing Land

The vacant/undeveloped land use category includes all of the land within the Arizona portion of the Devers to Harquahala study corridor that does not contain an inventoried land use. The vacant/undeveloped land administered by the BLM and Arizona State Land Department (ASLD) are predominantly open range and are largely used by ranchers who have BLM and state land grazing permits and/or leases for livestock grazing.

Linear Features

Numerous utilities cross the study corridor including pipelines, transmission lines, aqueducts, canals, transportation routes, and railroads.

The major pipelines within the Arizona portion of the Devers-Harquahala study corridor include El Paso Natural Gas lines passing through Wenden Pump Station 4126 and the Castle Dome Pump Station. The Wenden Station is located south of Milepost 30 on Link 1b and the pipelines that pass through it include lines 1600, 1103, 1100, and the All American Pipeline (Line 2000). The All American Pipeline passes from the south, through the station, north to I-10 and parallels the I-10 into California. Pipelines 1600, 1103, and 1100 parallel the proposed transmission line through the KOFA NWR. Line 1110 begins near the eastern boundary of the KOFA NWR, crosses the KOFA NWR, and proceeds north out of the study corridor near Milepost 32 of Link 2, paralleling Lines 1103 and 1100. Line 1600 continues west within the study corridor through Copper Bottom Pass, and moves out of the study corridor to the north near Milepost 6 of Link 6.

The major high voltage electrical transmission lines within the study corridor include the DPV1 500kV, Harquahala-Hassayampa 500kV, and WAPA Gila-Parker 115kV transmission line. The proposed Devers-Harquahala route parallels the existing DPV1 500kV line, at a distance of 130 feet, beginning at Milepost 0 of Link 1b. The lines are in parallel rights-of-way throughout the Arizona portion of the Devers-Harquahala study corridor, with the exception of the Copper Bottom Pass where they are placed on double-circuit towers in the existing right-of-way. The Harquahala-Hassayampa 500kV transmission line parallels the proposed route along Link 1a for 5 miles. The WAPA Gila-Parker 115kV line crosses the proposed transmission line near Milepost 38 of Link 2.

Water is distributed by canal and aqueduct systems throughout the Arizona portion of the Devers-Harquahala study corridor. The CAP Canal provides supplemental water for established agricultural areas, including Native American communities in Maricopa, Pinal, and Pima counties, as well as municipal and industrial water for the rapidly expanding Phoenix and Tucson metropolitan areas. The CAP Canal is near Link 16 from Milepost 4 to 30 and is crossed at Mileposts 4.5 and 10.

Major transportation routes in the Arizona portion of the study corridor include I-10 and SR 95. Secondary roads of varying quality provide access throughout the study corridor. The proposed Devers-Harquahala transmission line route crosses I-10 twice at Mileposts 2.5 and 26 of Link 1b. The route crosses SR 95 at Milepost 38 of Link 2.

Future Land Use

General Comprehensive and Land Management Plans

General comprehensive and land-management planning documents were reviewed to identify future land uses in Arizona. Table 4-4 lists these documents by jurisdiction with their adoption status. The future land uses identified in the Arizona portion of the Devers-Harquahala study corridor are shown on Maps 4-4a and 4-4b.

TABLE 4-4 LAND MANAGEMENT AND GENERAL PLANS FOR THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN ARIZONA			
Agency	**Plan Title**	**Managing Jurisdiction**	**Date of Adoption**
BLM	Final Amendment and Environmental Assessment to the Lower Gila North Management Framework Plan and the Lower Gila South Resource Management Plan	Phoenix District	Feb 2000
	Lower Gila North Management Framework Plan	Phoenix District	May 1985
	Lower Gila South Resource Management Plan	Phoenix District	Aug 1985
	Lower Gila South Final Wilderness Environmental Impact Statement	Phoenix District	Apr 1987
	Yuma District Resource Management Plan	Yuma District	Aug 1985
	Yuma District Resource Management Plan Amendment	Yuma District	Jan 1992
	Proposed Yuma District (Havasu) Resource Management Plan Amendment and Final Environmental Assessment	Yuma District	Sept 1994
	Final Yuma District (Lands) Resource Management Plan Amendment	Yuma District	Mar 1996
	Final Ehrenberg-Cibola Recreation Area Management Plan	Yuma District	Jan 1994
Maricopa County	Maricopa County 2020 Comprehensive Plan	Maricopa County	Oct 1997
	Maricopa County 2020 Tonopah/Arlington Area Plan	Maricopa County	Sept 2000

Bureau of Land Management

The Lower Gila North Management Framework Plan (MFP) became effective May 1985. The amended versions of the MFP have included updates to the land exchange decisions for state, minor estate, and for special legislation. The Lower Gila South RMP adopted August 1985 and the Lower Gila South Final Wilderness Environmental Impact Statement adopted April 1987 (RMP/EIS) provide a comprehensive framework for managing and allocating public land and resources in BLM's Lower Gila South Resource Area in southwestern Arizona. The BLM Phoenix Field Office is currently preparing a new RMP for the Agua Fria National Monument and an Amendment to the Phoenix RMP and Lower Gila North MFP. The Yuma District RMP (1985) and amendments (1992, 1994, and 1996) likewise provide a comprehensive framework for managing public land and resources in the Yuma District over the next 10 to 20 years.

The BLM has planned for utility corridors within its jurisdiction. The proposed Devers-Harquahala 500kV transmission line would be located within a 130-foot-wide right-of-way in the BLM designated 1-mile-wide Palo Verde-Devers utility corridor. The corridor is identified as Utility Corridor 2 (UC-2) within the Phoenix District, and UC-8 within the Yuma District.

Maricopa County

The Maricopa County Comprehensive Plan, along with the Tonopah/Arlington Specific Plan, were updated in 2000. The comprehensive plan includes a collection and analysis of existing data specifying goals and policies to guide general land development. It also indicates the intended future function, density, and characteristic use of land for the different parts of the Maricopa planning area. Land use definitions designated by the Maricopa County Comprehensive Plan within the study corridor include open space and low-density residential.

La Paz County

La Paz County does not have an adopted general plan. According to a representative at the La Paz County Planning Department, the proposed Devers-Harquahala transmission line would not conflict with future land use plans in the county, and would follow a designated utility corridor (Brad Weekley, June 2003).

Other

There is a possibility of private land development along I-10 as a result of potential BLM and ASLD land exchanges. The ASLD, upon exchange, would most likely sell or lease the land for private development purposes.

Park, Recreation, and Preservation Land Uses

Park, recreation, and preservation land uses in the Arizona portion of the Devers-Harquahala study corridor are presented on the Land Use Map (Map 4-4a and 4-4b). Table 4-5 summarizes recreational land uses crossed by the proposed project.

TABLE 4-5
SUMMARY OF PARKS, RECREATION, AND PRESERVATION AREAS CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN ARIZONA

Land Use Category	Link	Milepost	Miles Crossed
KOFA National Wildlife Refuge	2	10 – 35	23.8
Colorado River	8	1	0.1

National Wildlife Refuge

The KOFA NWR encompasses 665,400 acres and is under USFWS jurisdiction. The KOFA NWR is composed of desert environment inhabited by the desert bighorn sheep and the California palm, the only native palm in Arizona. Presently, recreational uses that include hiking, photography, hunting, and wildlife observation are encouraged. Other activities such as camping and rock hounding are permitted.

Wilderness Areas

There are several BLM WAs located within or near the Arizona portion of the Devers-Harquahala study corridor. The WAs include Hummingbird Springs, Big Horn Mountains, Eagletail Mountains, and New Water Mountains. The KOFA NWR also contains wilderness areas within its boundaries. The Hummingbird Springs WA is near Milepost 6.5 of Link 1b. Big Horn Mountains WA is near Link 1b from Mileposts 8 to 14. Eagletail Mountains WA is within the study corridor near Link 1b from Mileposts 30 to 32. The KOFA NWR WA is near Link 2 from Mileposts 10 to 34.

Scenic Roads

There are no roads designated as scenic in the Arizona portion of the Devers-Harquahala study corridor.

Recreation Areas

Hiking and Riding Trails

No established hiking and riding trails are located within the Arizona portion of the Devers-Harquahala study corridor. Currently, the Arizona State Parks Department is supporting the Arizona Hiking and Equestrian Trails Committee in its effort to develop a trail system adjacent to the CAP Canal.

Campgrounds

There are no designated campgrounds within the Arizona portion of the Devers-Harquahala study corridor. The Crystal Hill campground is located within the KOFA NWR and is managed by the USFWS.

Water-Oriented Use Areas

The Lower Colorado River provides many water-based recreational opportunities, primarily fishing, swimming, boating, and water skiing. Activity is concentrated around the population centers of Lake Havasu City, Parker Strip, Blythe, and Yuma.

Recreation on public land along the Lower Colorado River can be found in developed and undeveloped BLM recreation sites, developed concessions, and areas leased for state, county, and city parks. There are no developed park or recreation sites within the Arizona portion of the Devers-Harquahala study corridor.

Roadside Rest Areas

An Arizona Department of Transportation (ADOT) roadside rest area was identified within the study corridor. The Burnt Well rest stop is located approximately 8 miles west of Tonopah, and is 2 miles west of Link 1b at Milepost 2.5.

Other

Various recreational activities and opportunities are available on public land in the Arizona portion of the Devers-Harquahala study corridor. The desert provides open-space opportunities for activities such as soaring, target shooting, hang gliding, model rocket and airplane flying, and land sailing. Camping, off-road vehicle use, hunting, rock collecting, recreational mining, driving for pleasure, hiking, photography, nature study, sightseeing, and other dispersed recreational activities also occur on public land in the study corridor.

4.1.2.2 California

Land Ownership/Jurisdiction

Land ownership and jurisdiction status were identified and mapped within the California portion of the Devers-Harquahala study corridor, based on secondary data sources. Descriptions of the major categories follow, and a summary of the information is listed in Tables 4-6 and 4-7 and shown on Maps 4-1b, 4-1c, 4-2c, 4-2d, and 4-2e.

TABLE 4-6
LAND OWNERSHIP CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN CALIFORNIA

Ownership Category	Total Miles Crossed
U.S. Fish and Wildlife Service (Nature Conservancy)	2.3
Bureau of Land Management	54.9
Bureau of Indian Affairs (Agua Caliente)	0.1
California State Land	0.6
Private Land	69.5
Total	**127.4**
Note: Totals may not check due to rounding.	

TABLE 4-7
LAND JURISDICTION CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN CALIFORNIA

Jurisdiction Category	Total Miles Crossed
Unincorporated Riverside County	120.9
City of Coachella	3.1
Cathedral City	3.3
Total	**127.4**
Note: Totals may not check due to rounding.	

U.S. Fish and Wildlife Service

Land managed by the USFWS within the California portion of the Devers-Harquahala study corridor includes portions of the Coachella Valley NWR. The wildlife refuge also is known as the Coachella Valley Preserve and is managed jointly by the BLM, the Nature Conservancy, California Department of Fish and Game (CDFG), USFWS, and the California Department of Parks and Recreation. The preserve is 20,000 square acres in size and is located approximately 5 miles northwest of Indio between I-10 and Dillon Road. The study corridor would cross 2.3 miles of the preserve along Link 14 starting at Milepost 19.

Bureau of Land Management

The California portion of the proposed Devers-Harquahala route crosses approximately 54.9 miles of public land managed by the BLM. Public land is nearly continuous for the California portion, with the exception of an area between Indio and Palm Springs, and the Palo Verde Valley area southwest of Blythe. BLM WAs within or adjacent to the study corridor include the Chuckwalla Mountains WA, Orocopia Mountains WA, and Mecca Hills WA. The Chuckwalla Mountains WA is 80,770 acres, the Orocopia Mountains WA is 40,735 acres, and the Mecca Hills WA is 24,200 acres in size. The BLM also administers five ACECs within the study corridor.

National Park Service

The proposed Devers-Harquahala route passes within 1 mile of the Joshua Tree National Park. The 1,590-square-mile park is located between I-10 and Highway 62, covering portions of both the Mojave and Colorado deserts.

Native American Land

The Aqua Caliente Indian Reservation is located east of Palm Springs. The proposed Devers-Harquahala route crosses about 0.1 mile of the reservation along Link 14 between Mileposts 25 and 26.

Department of Defense

Section 6 of Township 5 South, Range 8 East, located north of Indio, is under the jurisdiction/ownership of the federal military. The section is north of Link 14 at Milepost 12.

California State School Land

Isolated parcels of California State School Land are scattered throughout the California portion of the Devers-Harquahala study corridor. The proposed Devers-Harquahala route crosses approximately 0.6 mile of State School Land along Link 13 at Milepost 31.

Incorporated Areas

Five incorporated areas—Coachella, Indio, Cathedral City, Desert Hot Springs, and Palm Springs—are located within or adjacent to the Devers-Harquahala study corridor. The study corridor crosses within the Cathedral City and Coachella city limits. Link 14 crosses Coachella from Milepost 4 to 7.5 and Cathedral City from Milepost 28 to 31.

Private Land

Private land is found throughout the California portion of the Devers-Harquahala study corridor interspersed between federal and state land. The study corridor crosses approximately 69.5 miles of private land.

Existing Land Use

The following categories of existing land uses within the California portion of the Devers-Harquahala study corridor were identified and mapped based on aerial photographs, existing maps, public documents, and field reconnaissance. Results are shown in Maps 4-3c, 4-3d, and 4-3e. Following the general description of land uses is Table 4-9, which summarizes the land uses potentially affected by the study corridor.

Residential

Residential land uses are primarily associated with developed communities located within and adjacent to the California portion of the Devers-Harquahala study corridor. Developed areas include the incorporated cities of Palm Springs, Desert Hot Springs, Cathedral City, Indio, and Coachella, and the unincorporated rural communities of North Palm Springs, Thousand Palms, Chiriaco Summit, Desert Center, and Ripley. In addition, smaller settlements along major transportation routes, trailer/mobile home parks, and large-lot residential subdivisions have been classified as residential use.

Along Link 10 from Milepost 0 to 11 are low-density residential land uses associated with agriculture. An abandoned single-family dwelling unit is located north of Link 10 at Milepost 5.3. The residence is located ½ mile between 22nd Avenue and 24th Avenue and ⅛ mile east of Arrowhead Boulevard. Two single-family dwelling units and a mobile home are located on a single parcel north of Link 10 at Milepost 6.2. The existing corridor contains the DPV1 centerline, a canal, and the proposed Devers-Harquahala centerline. The DPV1 line is located approximately 500 feet south of the residences. The Palo Verde Irrigation District maintains a canal located approximately 200 feet north of the existing DPV1 line. The proposed Devers-Harquahala centerline would be located 100 feet south of the residences. The residences are located ½ mile between 22nd Avenue and 24th Avenue adjacent to CA 78. An area of medium-density residential is located south of Link 14 at Milepost 18, and an area of low-density residential at Milepost 24 is associated with Thousand Palms. Link 16 crosses an area of low-density residential along Mileposts 4 and 5 associated with the unincorporated community of North Palm Springs.

Commercial and Industrial

Commercial uses correlate with developed areas and are associated with the major transportation routes found in the rural areas of the California portion of the Devers-Harquahala study corridor. Commercial centers can be found in Ripley (Link 10, Milepost 6), Indio (Link 14, Milepost 10), Thousand Palms (Link 14, Milepost 24), and North Palm Springs (Link 16, Milepost 3.5).

Light and heavy industrial uses are situated throughout the study corridor. Heavy industrial operations can be found in the urbanized areas. Large-scale commercial wind energy facilities are located in the vicinity of and southeast of Devers (Link 16, Milepost 6). Sand and gravel operations occur throughout the study corridor, along with mining sites and mineral extraction locations such as Link 13, Milepost 38, and Link 14 at Milepost 26. Link 14 crosses approximately 1 mile of the Granite Construction Company's property at Milepost 15. The vast majority of mining sites are abandoned or inactive. Communication sites within the study corridor mainly consist of microwave, radio, and cellular towers and are usually located atop mountain peaks and hillsides.

Agriculture

Agriculture within the California portion of the Devers-Harquahala study corridor is located in the Chuckwalla, Coachella, and Palo Verde valleys. Agricultural production includes field crops (cotton, alfalfa, grains) in most agricultural areas, with citrus, deciduous, and truck crops in the Coachella and Palo Verde valleys.

Agricultural land located in southern California consists of the following four classifications of farmland, as established by federal and state agencies: Prime Irrigated, Statewide Important, Unique, and Local Important. Agricultural land is located within the Palo Verde Valley, along Link 10 from Milepost 0 to 10.5 and within the Coachella Valley along Link 14 at Milepost 8. Within Palo Verde Valley, the agricultural land that is crossed by Link 10 contains farmland that is classified as Prime Irrigated, Statewide Important, and Local Important. Within Coachella Valley, land that is crossed by Link 14 contains farmland that is Prime Irrigated and Unique. Other areas that are not traditional agricultural areas have not been surveyed and therefore do not receive a designation.

Air Facilities

Air facilities with FAA recognized airspace were identified. Other such facilities may exist in the vicinity of the study corridor as agricultural operations, and may utilize sparsely traveled roads as take-off and landing strips. The FAA establishes airport interference or clear zones around all airports and airstrips, although the proposed transmission line would not be located within any of these zones.

One airport is located in the California portion of the Devers-Harquahala study corridor. The Chiriaco Summit Airport is a public use airport situated approximately 25 miles east of Coachella, north of Milepost 51 of Link 13. An additional five airports are located near the study corridor. The Blythe Airport is located 5 miles north of Link 10 near Milepost 10. Desert Center

Airport is located 3 miles north of Link 13 near Milepost 29. The Julian Hinds Private Airstrip is located 2 miles north of Link 13 near Milepost 47. The Bermuda Dunes Airport is located 3 miles south of Link 14 near Milepost 15. Palm Springs International Airport is located 3.5 miles southwest of Link 14 near Milepost 29.

Vacant/Undeveloped and Grazing Land

The vacant/undeveloped land use category includes all of the land within the California portion of the Devers-Harquahala study corridor that is not contained within the inventoried land uses. The vacant/undeveloped land administered by the BLM is open to limited grazing leases.

Linear Features

Numerous utilities cross the California portion of the Devers-Harquahala study corridor, including pipelines, transmission lines, aqueducts, canals, transportation routes, and railroads. The proposed transmission line parallels the existing DPV1 500kV transmission line throughout the California portion of the proposed Devers-Harquahala study corridor. Other existing utility linear features (i.e., pipelines and transmission lines) either parallel and/or cross the study corridor, as shown in Table 4-8.

TABLE 4-8 EXISTING PIPELINES AND TRANSMISSION LINES THAT PARALLEL OR CROSS THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN CALIFORNIA			
Pipeline/Transmission Line Name	**Link**	**Parallels Proposed Project**	**Crosses Proposed Project**
Sohio Pipeline	12, 13	x	-
Southern California Gas Company H.P. Pipelines (3)	13	x	-
EPNG Pipeline 2051	13	-	x
EPNG Pipeline 2001	13, 14	x	x
EPNG Pipeline 2000	13, 14	x	x
Devers-Mirage #1 230kV	14, 16	x	-
Devers-Mirage #2 230kV	14, 16	x	-
Devers-Santa Rosa 115kV	14, 16	x	x
Garnet-Santa Rosa 115kV	14, 16	x	-
Devers-Eisenhower 115kV	14, 16	x	-
Devers-Hi Desert 115kV	16	x	x
Devers-Palo Verde #1 500kV	10, 12, 13, 14, and 16	x	-
Blythe-Niland 161kV	10	-	x
Blythe-Knob 161kV	10	-	x
Eagle Mountain-Dunes 161kV	13	x	-
Devers-Eagle Mountain Control Line	13, 14	x	x
Devers-Hayfield 230kV	14, 16	x	-
Devers-Julian Hinds 230kV	13, 14, 16	x	x

Water is distributed by canal and aqueduct systems throughout the California portion of the Devers-Harquahala study corridor. The All American Canal and its main branch, the Coachella Canal, provide supplemental water for the Coachella and Imperial valleys of southern California. The Coachella Canal traverses the study corridor along the western side of the Mecca Hills and the Chocolate Mountains to the Coachella Valley. In the Palo Verde Valley, the Palo Verde Irrigation District maintains irrigation canals that transport water for irrigation purposes from the Palo Verde Diversion Dam.

Major transportation routes in the California portion of the Devers-Harquahala study corridor include I-10; CA 62, 78, and 177; Box Canyon Road; and Dillon Road. Secondary roads of varying quality provide access throughout the study area. Link 13 crosses the I-10 at Milepost

64. CA 62 is located west of Link 16 near Milepost 6.5. Link 10 crosses CA 78 at Milepost 6. CA 177 is located north of Link 13 near Milepost 33. Link 13 crosses Box Canyon Road at Milepost 60. Link 14 crosses Dillon Road at Milepost 10.

TABLE 4-9
EXISTING LAND USES CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN CALIFORNIA

Land Use Catergory	Link	Milepost	Miles Crossed
Agriculture	10	0 – 10.5	10.5
House (abandoned)	10	5.3	-
Rural Residences (2 single family homes and 1 mobile home)	10	6.2	-
Mobile Home	10	6.2	-
House	10	6.2	-
Extraction Mining	14	14.5 – 15.5	1
Corral	16	3.4	-

Future Land Use

General Comprehensive and Land Management Plans

General comprehensive and land-management planning documents were reviewed to identify future land uses within the California portion of the Devers-Harquahala study corridor. Table 4-10 lists these documents by jurisdiction with their adoption status. The future land uses identified in the California portion of the corridor are shown on Maps 4-4c, 4-4d, and 4-4e.

TABLE 4-10 LAND MANAGEMENT AND GENERAL PLANS FOR THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN CALIFORNIA			
Agency	**General Plan Title/Location of Information**	**Managing Jurisdiction**	**Date of Adoption**
BLM	California Desert Conservation Area Plan	California Desert District	1980 (as amended 1999)
	Proposed California Desert Conservation Plan Amendment for the Coachella Valley and Final Environmental Impact Statement	Palm Springs/South Coast Field Office	Oct 2002
	Northern and Eastern Colorado Desert Coordination Management Plan	California Desert District	Dec 2002
	Record of Decision, California Desert Conservation Area Plan Amendment for the Coachella Valley	California Desert District	Dec 2002
National Park Service	General Management Plan	Joshua Tree National Park	1995
County	Riverside County Comprehensive General Plan	Riverside County	Oct 2003
Local	City of Coachella General Plan 2020	City of Coachella	Oct 1998
	City of Indio General Plan 2020	City of Indio	Oct 1993
	City of Cathedral City Comprehensive Plan	Cathedral City	Jul 2002
	Desert Hot Springs Comprehensive General Plan	City of Desert Hot Springs	Sept 2000
	City of Palm Springs General Plan	City of Palm Springs	Mar 2003

Bureau of Land Management

The California Desert Conservation Area Plan of 1980 (CDCA) is a comprehensive long-range plan for BLM land in eastern California, and was designed to direct the future development of BLM land. The CDCA has been amended six times. One amending document is the Proposed Northern and Eastern Colorado Desert Coordination Management Plan and Final Environmental Impact Statement (NECO) (see Table 4-10). NECO was adopted in December 2002 and provides additional guidance for the land within the study corridor. Additional plans reviewed include the Proposed California Desert Conservation Plan Amendment for the Coachella Valley and Final Environmental Impact Statement (October 2002), and the Record of Decision for CDCA Plan Amendment for the Coachella Valley (December 2002). The collection of plans provides general, regional guidance for management of the CDCA over a minimum time period of 20 years. All of the public land in the CDCA is under BLM management, except for a few small and scattered parcels.

The BLM has identified utility or planning corridors within the California portion of the Devers-Harquahala study corridor as part of the Energy Production and Utility Corridors Element of the CDCA plan. These planning corridors are used to guide the necessary detailed planning and environmental assessment work that is to be required when a right-of-way is requested. The proposed Devers-Harquahala 500kV transmission line falls within the designated utility corridor K according to Map 16 (Energy Production and Utility Corridors) of the CDCA plan. A right-of-way has been granted by the BLM for the proposed line located within the Palo Verde-Devers Utility Corridor, UC-K, in the California Desert District. Generally, the corridors set aside for utility development are designated as joint-use and are from 2 to 5 miles wide. The UC-K is described as being 2 miles wide, which generally provides sufficient flexibility in selecting alternative routes to be located near an existing right-of-way according to the BLM. The 5-mile standard is selected where there is no existing facility and, therefore, little or no engineering and environmental data are available to define a narrower corridor alignment. It also is selected in those cases where there are so many facilities or merging corridors that a 5-mile width is needed to ensure sufficient space for system integrity and flexibility.

The line will pass through Class M and Class L multiple land use classes along Links 10, 12, 13, and 14. Class M (Moderate Use) is centered on controlling the balance between higher intensity use and protection of public land. Class L (Limited Use) protects sensitive, natural, scenic, ecological, and cultural resource values. Class L is managed to provide for lower-intensity controlled multiple uses while protecting sensitive values.

Desert Southwest Power plans to construct either a 230kV or 500kV transmission line to provide increased transmission line capabilities from a proposed substation/switching station near Blythe to the Devers Substation. The project would include the construction and operation of a new substation/switching station and an approximately 118-mile transmission line. The project would be located along existing transmission line rights-of-way (UC-K) for much of its alignment, and would use existing access roads.

California State Land Commission

The California State Land Commission has designated rights-of-way granted on state land as property that can be leased. The proposed transmission line crosses a small portion of state land along Link 13 at Milepost 31.

Riverside County

The Riverside County Comprehensive General Plan policy format provides a means for meeting State General Plan requirements and county needs for long-range direction, while allowing Riverside County sufficient flexibility to respond to future changes.

Riverside County has established land use categories that define the intensities and extent of future land uses. These categories are agricultural, rural, open space, and community development. Each of these is subdivided into more detailed land use designations at the area plan level. Riverside County has been divided into 19 Land Use Planning Areas, and 4 of the 19 areas encompass the proposed Devers-Harquahala transmission line corridor: Palo Verde Area, Desert Center, Eastern Coachella Valley, and Western Coachella Valley. The study corridor generally crosses rural residential, agriculture, open space, and conservation areas.

In June 2004, the Riverside County Planning Department provided data for specific development plans along the proposed DPV2 project route right-of-way. Three planned developments were identified within the study corridor right-of-way in Riverside County. An approved commercial development, including a gas station, two restaurants, and a self-storage, is located on the northern side of the study corridor at Milepost 23 of Link 14. Two approved residential developments occur on the southern side of the study corridor. The proposed Paradise Valley Residential Development is approximately 215 acres and is located along Link 13 at Milepost 65, south of I-10. An approved tract map of 33 residential lots is located along the southern side of Link 14 at Milepost 22.

Coachella

The proposed transmission line crosses within the city limits of Coachella. The line passes through the northeastern portion of the city, which is designated as planned open space, public, and low-density residential.

Indio

The city of Indio's sphere of influence falls within the study corridor. In addition to the general plan, a specific region plan called the Shadow Hills Interim Policy Plan, prepared in 1992, was developed to guide city decision makers with respect to projects north of I-10. The Shadow Hills Interim Policy Plan covers the portion of Indio through which the proposed line crosses at Link 14. The existing land use designation for the area calls out a utility easement through which the proposed transmission line would cross. The future land use designation for this area is predominantly low residential land use.

Cathedral City

The proposed transmission line crosses within the city limits of Cathedral City. The general plan has given an open space designation to the corridor through which the proposed line would cross. The other land uses that fall within the study corridor include low-density residential, general commercial, industrial, business park industrial, public open space, and watercourse open space.

Desert Hot Springs

The southeastern corner of the city of Desert Hot Springs falls within the study corridor and is planned for industrial use. Additionally, the line will cross through a large portion of the city's sphere of influence. The land use designations that would be crossed by the proposed line include low and medium-density residential, energy related industrial, and general commercial.

Palm Springs

The proposed transmission line would end at Devers, north of the city limits of Palm Springs. The line would cross through the Palm Springs sphere of influence. The land use designations within the sphere of influence include low-density residential, general commercial, industrial, energy related industrial, and open space.

<u>Park, Recreation, and Preservation Land Uses</u>

Park, recreation, and preservation land uses in the California portion of the Devers-Harquahala study corridor are presented on the land use maps (Maps 4-3c, 4-3d, and 4-3e) and are summarized in Table 4-11.

TABLE 4-11
SUMMARY OF PARKS, RECREATION, AND PRESERVATION AREAS CROSSED BY THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR IN CALIFORNIA

Name	Link	Milepost	Miles Crossed
Chuckwalla Dune Thicket ACEC	13	13	1
Alligator Rock ACEC	13	28.5	7.5
Coachella Valley Fringe-toed Lizard ACEC	14	20	1
Coachella Valley Preserve and Nature Conservancy	14	19	2.3

National Wildlife Refuge/National Park

The Coachella National Wildlife Refuge is located near Palm Springs, and has been developed for the preservation of the Coachella Valley fringe-toed lizard (*Uma inornata*), a federally designated threatened species. The refuge is 12,000 acres in size and is contained within the Coachella Valley Nature Conservancy. The study corridor would cross approximately 2.3 miles of the preserve along Link 14 starting at Milepost 19.

The Joshua Tree National Park also is located within the study corridor north of Link 13 from Milepost 64 to 69. The park was elevated from national monument to national park status in 1994. In 1976, Congress designated 420,000 acres as wilderness. Currently, of the 794,000 acres, 585,000 acres are designated as wilderness. Joshua Tree National Park provides habitat for numerous plant and animal species unique to the Southwest deserts.

Wilderness Areas

Three BLM WAs are located within the California portion of the Devers-Harquahala study corridor: Chuckwalla Mountains WA, Orocopia Mountains WA, and Mecca Hills WA. The Chuckwalla Mountains WA is south of Link 13 along Mileposts 17 to 40. The Orocopia Mountains WA is south of Link 13 along Mileposts 49 to 52. The Mecca Hills WA is south of Link 13 Milepost 68.

BLM Areas of Critical Environmental Concern

Existing BLM ACECs are situated in the California portion of the Devers-Harquahala study corridor. The names of these areas are intended to represent a well-known feature in or near the area. The ACECs include Mule Mountains, Chuckwalla Valley Dune Thicket, Alligator Rock, Chuckwalla Bench, and the Coachella Valley Fringe-toed Lizard. The Mule Mountains ACEC is

4,100 acres and is located approximately 1 mile south of Link 10 near Milepost 14. It was designated in September 1980 for its cultural value. The Chuckwalla Valley Dune Thicket ACEC is 2,275 acres in size and is crossed by Link 13 near Milepost 5. It was designated in September 1980 for its fish, wildlife, and botanical value. The Alligator Rock ACEC is 7,740 acres and is crossed by Link 13 from Milepost 29 to Milepost 36. It was designated in May 1984 for its cultural value. Link 13 passes within 1 mile to the north of the Chuckwalla Bench ACEC from Milepost 40 to 43. It was designated in September 1980 for its fish, wildlife, and botanical values. The Coachella Valley Fringe-toed Lizard ACEC is 11,630 acres and is crossed by Link 14 near Milepost 20. It was designated in April 1993 for its biological value.

California Department of Fish and Game Wildlife Areas

CDFG holdings in the study corridor consist of three small areas that provide protection for the Coachella Valley fringed-toed lizard. These areas are contiguous with the California Department of Parks and Recreation Indio Hills Palms State Park, Coachella Valley National Wildlife Refuge, and Nature Conservancy preserves.

State and County Parks

One state park is located within the California portion of the Devers-Harquahala study corridor. Indio Hills Palms State Park is north of Indio, approximately 3 miles north of I-10, in Township 4 South, Range 6 and 7 East. Link 14 passes south of the park at Milepost 25.

There are two county parks that are found in or near the study corridor. These include Goose Flats Wildlife Area and McIntyre Park. Goose Flats Wildlife Area is located 3.5 miles southeast of Blythe on the Colorado River, north of Link 10 Milepost 0. McIntyre Park is located about 7 miles southeast of Blythe on the Colorado River and accommodates camping, river access, and picnic areas. Link 10 passes north of McIntyre Park at Milepost 0.

Nature Conservancy Preserves

The Edmund C. Jaeger and Coachella Valley Nature Conservancy preserves are situated within the California portion of the Devers-Harquahala study corridor. The Edmund C. Jaeger Nature Conservancy Preserve is approximately 80 acres and is south of Link 13, Milepost 35. The Coachella Valley Preserve is 20,000 acres in size and is crossed by Link 14 from Milepost 19 to 21. The Coachella Valley Preserve contains the Coachella Valley NWR within its boundaries.

Scenic Roads

The State of California Department of Transportation (Caltrans) has designated scenic highways and highways eligible for scenic designation. The officially designated scenic highway within the study corridor is CA 62 between I-10 and the San Bernardino county line, which is west of Milepost 5 of Link 16. In addition to the officially designated scenic highway, there is a highway eligible for scenic designation. CA 111 between CA 74 near Palm Desert and I-10 near Whitewater is eligible for scenic designation and has a view of the study corridor. CA 111 is located south of Devers and Link 16.

Recreational Areas

Hiking and Riding Trails

The California Desert Trail corridor was proposed for establishment in the 2002 California Recreational Trails Plan developed by California State Parks. The California Desert Trail connects Mexico to Nevada through the Colorado and Mojave deserts. The trail corridor crosses 650 miles of California desert and continues north to Canada, aligning with the National Desert Trail. The California Desert Trail corridor crosses the California portion of the Devers-Harquahala study corridor through Link 13.

Campgrounds

McIntyre Park is located about 7 miles southeast of Blythe on the Colorado River and accommodates camping, river access, and picnic areas.

Golf Courses

Three golf courses are situated in the California portion of the Devers-Harquahala study corridor: Indio Municipal (south of Link 14 near Milepost 11), Rancho Casa Blanca (south of Link 14 near Milepost 12), and Sun City Palm Desert (south of Link 14 at Milepost 18.5).

Roadside Rest Areas

Two California roadside rest areas were identified within the study corridor: Wiley's Well, located approximately 15 miles west of Blythe, and Cactus City, approximately 15 miles east of Indio. Wiley's Well is north of Link 13 at Milepost 2, and Cactus City is south of Link 13 at Milepost 67.

Other

Various recreational activities and opportunities are available on public land in the California portion of the Devers-Harquahala study corridor. The desert provides open-space opportunities for activities such as soaring, target shooting, hang gliding, model rocket and airplane flying, and land sailing. Camping, off-road vehicle use, hunting, rock collecting, recreational mining, driving for pleasure, hiking, photography, nature study, sightseeing, and other dispersed recreational activities also occur on public land in the study area.

4.1.3 Socioeconomics, Population, and Housing

4.1.3.1 Arizona

The proposed transmission line passes through largely rural, undeveloped areas of Maricopa and La Paz counties in Arizona. Maricopa County is located in central Arizona and encompasses 9,203 square miles with a population density of about 333.8 persons per square mile. The majority of the population is located in a large metropolitan area that includes 22 different municipalities separated only by jurisdictional lines. The aggregate household income in 1999 was $67.6 billion, comprising almost 66 percent of the state aggregate household income of $102.5 billion. The nearest Maricopa County communities in the project study area are the town of Buckeye, roughly 25 miles east of Harquahala, and the unincorporated community of Tonopah, located about 10 miles east of the project with a population of approximately 1,900. These communities historically have been agriculturally based. However, the town of Buckeye has numerous communities planned for development. The town of Buckeye Municipal Planning Area (MPA) contains over 500 square miles, of which approximately 160 square miles are currently annexed into the town. Population projections provided by the Department of Economic Security (DES) for the Buckeye MPA indicate a population of 28,144 by the year 2010 (DES 1997). The 2000 population for the town of Buckeye was 8,497 (corrected count, DES 2001), and 11,955 in 2002 according to the Department of Commerce (DOC 2003). Tonopah contains one hotel and three RV parks. Buckeye contains three hotels, four RV parks, and several apartment complexes.

La Paz County was formed in 1983 when Yuma County was separated into two jurisdictions. The proposed transmission line would pass through an undeveloped area of the 4,500-square-mile county, which is sparsely populated with a density of 4.4 persons per square mile. The aggregate household income in 1999 was $288 million, comprising less than one percent of the state aggregate household income of $102.5 billion. The town of Quartzsite is the only incorporated La Paz County community near the study corridor and is located approximately 8 miles to the north. Quartzsite has a population of 3,354 (Census 2000) and is projected to reach

3,668 in 2010 (DES 1997). Although the population is small, the Quartzsite Chamber of Commerce states that the town receives over 1 million visitors per year, and tourism is a major contributor to the local economy. The town has three motels and 70 mobile home and recreational vehicle parks with over 6,117 total spaces (Town of Quartzsite 2003).

Tables 4-12 through 4-15 demonstrate current and future population, housing data, and employment statistics for Maricopa and La Paz counties. As shown, Maricopa County experienced a 44.8 percent growth rate between 1990 and 2000, and a 7.3 percent growth rate between 2000 and 2002. La Paz County experienced a 42 percent growth rate between 1990 and 2000, and 3.3 percent growth between 2000 and 2002. The state of Arizona experienced 40 percent growth between 1990 and 2000 (Census 2000). Tables 4-16 and 4-17 include population and housing data for the town of Quartzsite.

TABLE 4-12
YEAR 2000 POPULATION AND DEMOGRAPHICS

	La Paz County	**Maricopa County**
Total Population	19,715	3,072,149
Gender:		
Male	10,123	1,536,473
Female	9,592	1,535,676
Race:		
White	74.2%	77.4%
African American	.8%	3.7%
Native American	12.5%	1.8%
Asian or Pacific Islander	.5%	2.3%
Other	12.0%	14.8%
Total	**100%**	**100%**
Hispanic Heritage	22.4%	24.8%
Source: U.S. Census Bureau, 2000 Census; Arizona DOC		

TABLE 4-13 HISTORIC AND ESTIMATED FUTURE POPULATION GROWTH		
Year	Population	
	La Paz County	Maricopa County
1980	12,557	1,509,175
1990	13,844	2,122,101
2000	19,715	3,072,149
2002	20,365	3,296,250
2005	22,799	3,329,561
2010	25,096	3,709,566
2015	27,193	4,101,784
2025	30,656	4,948,423
Source: Arizona DES, Research Administration, Population Statistics Unit Feb. 1997		

TABLE 4-14 YEAR 2000 HOUSING DATA		
	La Paz County	Maricopa County
Total Housing Units	15,133	1,250,231
Occupied	8,362	1,132,886
Owner occupied	6,521	764,547
Rented	1,841	368,339
Vacant	6,771	117,345
Single unit	4,773	821,198
Multiple unit	517	332,061
Mobile	9,843	96,972
Median Value	$86,500	$129,200
Source: U.S. Census Bureau, 2000 Census		

TABLE 4-15 YEAR 2000 EMPLOYMENT BY OCCUPATION		
	La Paz County	Maricopa County
Total Civilian Labor Force	7,139	1,498,223
Total Unemployment	572 8%	70,931 4.7%
Total Employment	6,567	1,427,292
Management, professional, and related	1,565	483,582
Service	1,537	208,498
Sales and office	1,562	423,504
Farming, fishing, forestry	349	5,327
Construction, extraction, maintenance	726	149,539
Production, transportation, material moving	828	156,842
Median Household Income	$25,839	$45,358
Source: U.S. Census Bureau, 2000 Census		

TABLE 4-16 YEAR 2000 POPULATION AND DEMOGRAPHICS	
Town of Quartzsite	
Population	3,354
White	94.5%
African American	.2%
Native American	1.2%
Asian or Pacific Islander	.3%
Other	3.8%
Total	**100%**
Hispanic Heritage	5%
Source: U.S. Census Bureau, 2000 Census	

TABLE 4-17 YEAR 2000 HOUSING DATA	
Town of Quartzsite	
Total Housing Units	3,193
Occupied	1,850
Owner occupied	303
Rented	186
Vacant	1,336
Single unit	570
Multiple unit	30
Mobile	2,593
Median Value	$84,500
Source: U.S. Census Bureau, 2000 Census Note: Numbers of occupied and rented units indicated in Census data as "specified" and do not match total number of units.	

4.1.3.2 California

In California, the study corridor is located entirely in Riverside County, which encompasses 7,207 square miles with a population density of 214 persons per square mile. Between 1990 and 2000, Riverside County experienced the fifth highest California county growth rate at 32 percent. West of the Arizona/California state border, the study corridor passes near the small town of Blythe and through the Coachella Valley municipalities of Coachella, Indio, Cathedral City, Palm Springs, and Desert Hot Springs. The upper Coachella Valley surrounding Palm Springs is a rapidly growing resort area. The lower Coachella Valley including Indio, the Palo Verde Valley, and the town of Blythe to the east, are primarily agricultural. The ethnic heritage of these areas is primarily Hispanic, as shown on Table 4-18. Tables 4-19 through 4-21 demonstrate historic and future population projections, housing, and employment statistics for Riverside County and the municipalities through which the study corridor would pass.

TABLE 4-18 YEAR 2000 POPULATION AND DEMOGRAPHICS RIVERSIDE COUNTY						
	Riverside County	**Coachella**	**Indio**	**Cathedral City**	**Palm Springs**	**Desert Hot Springs**
Total Population	1,545,387	22,724	49,116	42,647	42,807	16,582
Gender:						
Male	769,384	11,365	24,710	21,608	22,208	8,155
Female	776,003	11,359	24,406	21,039	20,599	8,427
Race:						
White	65.6%	38.8%	48.7%	65.3%	78.3%	68.2%
African American	6.2%	.5%	2.8%	2.7%	3.9%	6.1%
Native American	1.2%	.8%	1.0%	1.0%	1.0%	1.4%
Asian or Pacific Islander	4%	.3%	1.6%	3.8%	4.0%	2.1%
Other	23%	59.6%	45.9%	27.2%	12.8%	22.2%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Hispanic Heritage	36.2%	97.4%	75.4%	50%	23.7%	40.4%
Source: U.S. Census Bureau, 2000 Census; SCAG 2000						

TABLE 4-19 HISTORIC AND ESTIMATED FUTURE POPULATION GROWTH						
Year	**Population**					
	Riverside County	**Coachella**	**Indio**	**Cathedral City**	**Palm Springs**	**Desert Hot Springs**
1980	663,172	9,129	21,611	8,910	34,666	5,941
1990	1,170,413	16,896	36,793	30,085	40,181	11,668
2000	1,545,387	22,724	49,116	42,647	42,807	16,582
2002	1,645,300	24,300	52,200	45,450	43,750	16,900
2005	1,864,700	22,996	52,140	41,953	50,464	17,566
2010	2,159,700	24,894	56,330	45,219	51,514	19,180
2015	2,459,600	26,577	59,949	48,166	52,467	20,635
2020	2,817,600	29,283	65,797	52,373	53,825	22,714
Source: California Dept. of Finance 2000, 2002, 2003; SCAG 2001 Note: Table shows actual population figures through 2002. The projections obtained for the years 2005-2020 were obtained from the SCAG 2001 Regional Transportation Plan Growth Forecast. However, discrepancies are present as forecasted population in some instances is lower than the actual population counts in 2000 or 2002. This is attributed to the fact that SCAG completed the forecast in 1998, but due to agency and public review and approval, the study was not deemed complete until 2001.						

TABLE 4-20 YEAR 2000 HOUSING DATA – RIVERSIDE COUNTY						
	Riverside County	**Coachella**	**Indio**	**Cathedral City**	**Palm Springs**	**Desert Hot Springs**
Total Housing Units	584,674	5,024	16,909	17,893	30,823	7,034
Occupied	506,218	4,807	13,871	14,027	20,516	5,859
Owner occupied	348,532	2,508*	6,097*	6,837*	9,265*	2,357*
Rented	157,686	1,881*	6,045*	4,901*	8,055*	3,052*
Vacant	78,456	217	3,038	3,866	10,307	1,175
Single unit	398,747	3,419	8,540	11,411	16,272	3,960
Multiple unit	103,066	1,150	5,199	3,846	12,316	2,506
Mobile	82,861	455	3,170	2,636	2,235	568
Median Value	$146,500	$83,700	$99,000	$125,500	$157,000	$81,400
Source: California Dept. of Finance 2003; U.S. Census Bureau, 2000 Census *these figures are noted as "specified" and do not total full number of occupied units						

TABLE 4-21 YEAR 2000 EMPLOYMENT BY OCCUPATION						
	Riverside County	**Coachella**	**Indio**	**Cathedral City**	**Palm Springs**	**Desert Hot Springs**
Total Civilian Labor Force	651,952	8,391	19,382	18,626	19,017	6,571
Total Unemployment	49,096 7.5%	979 11.7%	1,581 8.2%	1,326 7.1%	1,176 6.2%	674 10.3%
Total Employment	602,856	7,412	17,801	17,300	17,841	5,897
Management, professional, and related	167,739	669	3,064	3,800	5,625	983
Service	105,446	2,292	5,226	5,278	4,459	1,719
Sales and office	163,095	1,252	4,043	4,391	5,210	1,550
Farming, fishing, forestry	9,499	1,425	832	57	32	7
Construction, extraction, maintenance	70,974	1,010	2,760	2,264	1,432	906
Production, transportation, material moving	86,103	764	1,876	1,510	1,083	732
Median Household Income	$42,887	$28,590	$34,624	$38,887	$35,973	$25,987
Source: SCAG 2001; U.S. Census Bureau, 2000 Census; Coachella Valley Association of Governments (CVAG) 2000						

The city of Blythe is approximately 5 miles north of the study corridor, just west of the California/Arizona border. Although the area is primarily agricultural, Blythe also enjoys a tourism industry due to the presence of the Colorado River and the associated recreation opportunities. Blythe's year 2000 population was 12,155 (Southern California Association of Governments [SCAG] 2000); the city estimates that the area's population triples during the winter months (City of Blythe 2003). In 2000, available labor force was 5,165, with an unemployment rate of 4.7 percent (SCAG 2000). There are 23 motels, 7 recreational vehicle parks, and more than 20 mobile home and trailer parks in the Blythe area.

The cities of Coachella, Indio, Cathedral City, Palm Springs, and Desert Hot Springs are part of the Coachella Valley, which is 50 miles long and runs from Palm Springs to the Salton Sea. The Coachella Valley is known as both a desert resort and a major agricultural area. Actual population growth in these cities exceeded population projections prepared by the SCAG in 1998 (see Table 4-19). There are numerous hotels and recreational vehicle resorts in each community, as well as several small airports and the Palm Springs International Airport. The Coachella Valley and Blythe areas have adequate public services and housing accommodations. Public services, however, are limited along the central portion of the study corridor that traverses sparsely populated desert land.

The study corridor would also passes through a small portion of the Agua Caliente Indian Reservation, which has a population of 21,357 and a median household income (1999) of $37,560 for the 11,780 households (Census 2000). The median household income is about $13,000 lower than the average for Riverside County (see Table 4-21). However, the median value of homes on the reservation is $157,200, nearly $11,000 higher than the median home value for Riverside County (Census 2000). The unemployment rate in 2000 was about 5.7 percent, nearly 2 percent lower than the unemployment rate for Riverside County.

4.1.4 <u>Geology and Soils</u>

4.1.4.1 Arizona

<u>Physiographic Setting</u>

The study corridor for the Arizona portion of the proposed Devers-Harquahala transmission line lies within a broad continental physiographic division called the Intermontane Division. Within that division, five physiographic provinces have been established: Salton Trough, Transverse Ranges, Western Mojave Desert, Eastern Mojave Desert, and Sonoran Desert. Within Arizona, the proposed Devers-Harquahala study corridor crosses the Eastern Mojave and Sonoran Desert. The relationship of these provinces to the study area is shown on Plate 4 in Section 2.1.2 Physiography of SCE's 1977 Environmental Report (hereinafter referred to as 1977 Environmental Report) for the existing DPV1 500kV transmission line. The boundaries for the physiographic provinces were modified from Jenkins (1943) and Wilson (1962) during investigations by SCE in 1974 in the Eastern Mojave Desert, and they remain applicable to this study.

The description of the Eastern Mojave Desert Province is provided in Section 4.1.4.2 with the California portion of this study.

The Sonoran Desert Province, which includes the eastern portion of the study area, lies to the south and east of the Eastern Mojave Desert Province and extends into Mexico (refer to Plate 4 in the 1977 Environmental Report). Approximately 85 miles of the proposed Devers-Harquahala study corridor is located within the Sonoran Desert, which is characterized by discontinuous, subdued mountain ranges that trend northwest to northeast. The Granite Wash, Eagletail, Harquahala, and KOFA NWR mountains rise above alluviated desert plains within the Sonoran Desert Province. In general, the mountains have subdued topography, suggesting advanced stages of the erosion cycle. The plains form approximately 70 percent of the total area. Mountain peaks are generally less than 4,000 feet in elevation with most valleys below 3,000 feet in elevation. Elevations generally decrease southward toward the Gulf of California.

Regional Geology

The generalized geology of the study corridor is based on the 1977 Environmental Report for the DPV1 transmission line and remains applicable to this study. The delineations are shown on Plate 7 of the Environmental Report. Detailed descriptions of the geologic conditions characterizing each of the physiographic provinces along the existing DPV1 transmission line also were presented in Section A-1 of Appendix A in the 1977 report.

The geological formations exposed within the study corridor were grouped into five basic categories: alluvium, non-indurated sedimentary deposits, indurated sedimentary rocks, igneous rocks, and igneous/metamorphic rocks. All Holocene surficial deposits were mapped as alluvium. Older alluvial fan deposits (of predominantly Plio-Pleistocene age) and all other deposits exhibiting little or no cementation were mapped as non-indurated sedimentary formations. The indurated sedimentary rock category in the 1977 DPV1 Environmental Report Generalized Geologic Map included all bedded and massive sedimentary rocks, such as shale, sandstone, and conglomerate. Granitic and volcanic rocks comprised the igneous rock category. Complexes of igneous and metamorphic rocks were combined to form the last rock category. No attempt was made to designate the age of the rock types.

A major portion of the study corridor is underlain by Holocene alluvial sand and gravel deposits and Pleistocene fan deposits (mapped as non-indurated sedimentary deposits in the 1977 Environmental Report). Igneous and metamorphic rock underlie a small percentage (estimated to be less than 5 percent) of the total length of the proposed alignment. These crystalline rocks occur primarily where the alignments cross mountain passes, such as in the Dome Rock and Plomosa mountains, or where the alignments cross small inselbergs (outlying hills that protrude above the surrounding alluvium).

From the Harquahala Switchyard, the study corridor crosses non-indurated sedimentary rock as it leaves the Harquahala Switchyard, crosses I-10, and goes west, paralleling I-10 through Quaternary alluvium to the KOFA NWR. Within the refuge, the study corridor crosses rock of an igneous and metamorphic complex as it goes through the New Water Mountains. From the New Water Mountains, the study corridor continues through alluvium to the Dome Rock Mountains, an igneous and metamorphic rock complex. The study corridor then crosses through the Dome Rock Mountains and through non-indurated sedimentary rock to the Arizona/California state border.

Seismic Activity

The Arizona portion of the proposed study corridor falls in the Sonoran Zone, a relatively stable tectonic region that is found is southwestern Arizona, southern California, southern Nevada, and northern Mexico. Seismic activity that could affect the proposed project is described under the California Section 4.1.4.2.

Economic Geology

Metallic and non-metallic mineral deposits occur within the study corridor. These resources are summarized in Table 4-22. Metallic mineral deposits are restricted primarily to the areas of exposed bedrock in mountain areas. The metallic deposits identified in Arizona include copper, manganese, gold, silver, and iron. Metallic ore deposits tend to dominate Arizona's mineral resources. However, within the study area, non-metallic deposits including barite, bentonite, sand, and gravel are the most plentiful.

TABLE 4-22
MINERAL LOCALITIES IN ARIZONA

Mineral Resource	Locality
Sand, gravel, rock products	Alluvial apron of the Dome Rock Mountains, La Posa Plain, Plomosa Mountains, Harquahala Mountains
Barite and Bentonite	Ranegras Plain, McMullen Valley, Harquahala Plain
Gold and Silver	Dome Rock Mountains, Plomosa Mountains, Harquahala Mountains, New Water Mountains
Copper	Dome Rock Mountains, Plomosa Mountains, Little Harquahala Mountains
Iron	Big Maria Mountains, Plomosa Mountains
Manganese	Little Maria Mountains, Dome Rock Mountains, Plomosa Mountains, Ranegras Plain, Harquahala Mountains, Granite Wash Mountains
Source of Data: McCrory and O'Hare 1965; Saul, et al. 1968; SCE 1977 Environmental Report; Stipp, et al. 1967	

There are no known economic deposits of oil, gas, or coal within the study corridor.

Soils

Desert soils can be sensitive to man-induced activities. However, the impact of transmission lines on soils, when compared with other types of facilities (such as highways, canals, or pipelines), is minimal and is primarily associated with access roads. In preparing the 1977 Environmental Report for the existing line, SCE mapped the various types of soils in the study area (Plate 9) and ranked the relative sensitivity to erosion and other soil impacts (Plate 23).

Scope and Investigative Procedures

In order to evaluate the potential impacts the proposed new transmission line may have on soils, SCE reviewed soil erosion sensitivities previously estimated for the existing DPV1 line, and observed in the field the actual impacts of the existing line over the first five years after its construction and reported this information in the 1988 Amended DPV2 PEA. Based on this information, a determination was made as to how the proposed transmission line, that parallels the existing DPV1 line, might affect the soils.

The following two sections present a review of the soils characteristics and the results of the soils sensitivity analysis for the proposed line within the Arizona portion of the Devers-Harquahala study corridor.

Soil Associations

Detailed discussions on the characteristics of desert soils in the study area were provided in Section 2 and Appendix A of SCE's 1977 Environmental Report. These discussions remain applicable to the proposed project. Table 4-23, which has been reproduced from the 1977 report, provides descriptions of each of the classes of soils found in the study area. The soil classes are presented in order of relative age and degree of potential sensitivity.

TABLE 4-23 CLASSES OF RELATIVE SOIL EROSION SENSITIVITY		
Sensitivity Class	**Soil Order (Suborder)**	**Representative Terrain Characteristics**
1	Entisols (Psamments)	Sand dunes and shifting sand sheets; low water-holding capacity; subject to deflation if disturbed; low bearing strength. Sand accumulation downwind from playa lakes; e.g., Palen and Ford dry lakes, in California; Rice Valley, Bouse and Tyson washes, in Arizona.
1	Entisols (Fluvents)	Silts and clays in playa lakes; high shrink-swell potential; e.g., Ford and Palen dry lakes in California; local deflation upon disturbance. Includes some Vertisols.
2	Entisols (Fluvents)	Medium to fine-grained fluvial sediments, typically in Colorado River floodplain, Parker and Palo Verde valleys, in Arizona. Medium shear strength; subject to local, man-induced (irrigation) high groundwater.
2	Entisols (Fluvents and Psamments)	Generally medium to fine-grained alluvial sediments on Pleistocene and Holocene age alluvial fans; typically merge into basins of interior drainage. Low to moderate bearing strength; subject to local hydrocompaction and collapse. Extensive areas in Butler and McMullen valleys in California, and Ranegras and Harquahala plains, in Arizona.
3	Entisols (Orthents)	Primary soils of mountain areas; recent erosional surfaces, usually steep slopes. Not differentiated from rockland, bare surfaces (lithosols, regosols) or from numerous small, linear valleys with alluvial fill giving rise to Orthids or Argids. Includes all upland areas except badland topography of Mecca Hills, in California, and Bouse Hills, in Arizona, designated as sensitivity class 3.
4	Aridisol (Orthid)	Low- and some intermediate-level alluvial fans; usually calcareous and characterized by cambic but not argillic or petrocalcic horizons. Merges imperceptibly and often frequently underlies, as buried soils, younger Fluvents on Holocene-age fans. Typically about 20,000 to 50,000 years old. Moderately extensive on piedmont fans flanking the Orocopia, Chuckwalla mountains in California; Dome Rock, Plomosa, and Harquahala mountains, in Arizona.
5	Aridisol (Orthid)	Intermediate-level and locally higher geomorphic surfaces; local desert pavement common, especially in volcanic and metamorphic rock terrane. Cambic horizon pronounced. Mapped area includes some Argids in the Southern Coxcomb, Palen, Maria and Riverside mountains, in California.
6	Aridisol (Argid)	High-level fan remnants; calcareous with multiple carbonate horizons common, probably indicative of Quaternary climatic change. Argillic horizon present; desert pavement pronounced. Only slight temporary erosion hazard owing to loading and collapse of stonefree eluvial (A_2) horizon. Locally preserved at apex of inset fan systems. Typical of Palen, McCoy, Palo Verde, Maria and Riverside mountains, in California and Dome Rock Mountains, in Arizona.
7	Aridisol (Argid)	Highest level fan remnants preserved only on drainage divides. Stable surfaces; typified by argillic and duripal (usually petrocalcic) horizons. Desert pavement well preserved; eluvial horizon (A_2) to 6 inches thick. Identified on north flanks of Chocolate Mountains, in California and in Dome Rock Mountains, in Arizona. Numerous inclusions mapped within sensitivity classes 5 and 6.

Soils Sensitivity

There are three major areas of soil sensitivity that pertain to desert soils within the study corridor: soil collapse or consolidation, wind erosion, and fluvial erosion. SCE's 1977 Environmental Report provided discussions of each of the conditions in relation to the various soils found within the study area.

The following sections review the characteristics of each of these sensitivities, along with the observed effects of the existing DPV1 transmission line on the soils.

Soil Collapse and Consolidation

Soil collapse and consolidation result from hydrocompaction and loading of the surface. Hydrocompaction is a condition that occurs when water is introduced into some moisture deficient fine-grained soils (typically silts and clay) of arid environments. The introduction of the water causes a collapse of the soils intergranular structure, which consolidates the soil and in turn results in a depression of the ground surface. Within the study area, the soils that are most likely to be susceptible to hydrocompaction are the fine-grained Fluvents and young Orthids found along the basin margins of alluvial fans and adjacent to playa lakes. Hydrocompaction is most commonly associated with projects that introduce large volumes of water to moisture deficient soils, such as canals, irrigation associated with agriculture, or landscaping of development projects.

The potential degree of hydrocompaction resulting from a transmission line is far less than the potential soil compaction resulting from the loading and consolidation of loose surface soil horizons by construction traffic. Such consolidation from vehicular traffic commonly produces a permanent rut or depression in the road surface. If water is channeled into the rut, and there is sufficient gradient to develop surface flow, the rut also may become a location for erosion.

Soil compaction resulting from vehicular traffic also occurs on older alluvial surfaces that have well-developed desert pavements, but to a lesser degree. As previously discussed, these older Argid or Orthid soils typically have a soft, vesicular, silty A_2 horizon immediately below the desert pavement. Loading of this silty A_2 horizon by vehicular traffic compacts the silt, leaving a permanent, slight depression in the pavement surface.

Based on observations made during the reconnaissance of the existing DPV1 transmission line and associated access road, the relative ranking of sensitivity previously presented in SCE's 1977 Environmental Report (Plate 23) appears to represent the sensitivity of the soils present in the study area with respect to soil collapse or consolidation. Areas of revision include the mountainous bedrock areas, which appear to have a low to negligible susceptibility to soil collapse. The apparent impacts due to soil collapse along the existing transmission line are minor, even in soils rated as having the highest sensitivity.

Wind Erosion

Deflation or erosion of soils by wind is a common natural phenomenon in deserts and is governed by the characteristics of the soil and the velocity of the wind. Fine-grained silt and clay particles are picked up by the wind and blown away as dust. Heavier sand particles usually do not become airborne but move in short leaps, referred to as saltation. The most susceptible soils to wind erosion are fine-grained, young Fluvent soils typical of the basin margins of alluvial fans and sediments in washes and playas, such as Ford Lake or the Bouse and Centennial washes. These soils are most susceptible to wind erosion when recently disturbed by activities such as vehicular traffic. In some of the fine-grained soils, raindrops produce a thin film of clay to coat the surface. This crust, referred to as a carapace crust, provides a fragile shield against wind erosion until it is broken again by vehicular traffic or other activities. As a result, most of the wind erosion associated with the existing DPV1 transmission line occurred during its construction. The sensitivity maps presented in Plate 23 of SCE's 1977 Environmental Report can be used to estimate the sensitivity of the various soils within the study area to wind erosion during the construction phase of the proposed project. However, observation of the existing transmission line suggests that neither the access road nor the tower sites have experienced any appreciable wind erosion since the construction period.

Surface Water Erosion

The sensitivity of a particular site to erosion by surface runoff is a function of the soil type, among other factors. Fluvent and Orthents of the Entisol soil order appear to be more susceptible to erosion than the Orthid and Argid soils of the Aridisol soil order. Another important variable that contributes to surface water erosion sensitivity of a particular site is the degree of topographic relief, which governs the velocity of the surface water runoff.

Erosion due to surface water runoff was the most apparent soil impact observed during the reconnaissance of the existing DPV1 transmission line. However, this erosion was relatively minor and localized. Typical erosional features consist of shallow gulleys and rills along localized areas of access road courses. Favorable factors that appear to have contributed to low erosion rates include the limited grading used along the existing transmission line, the general conformance of access roads to topography, and the utilization of existing roads where possible. Also, the majority of the existing line crosses terrain of low topographic relief.

In Arizona, the highest sensitivity to surface water erosion along the existing transmission line was observed along the river terraces bordering the Colorado River floodplain. These locations are characterized by relatively high topographic relief where access roads cross ephemeral washes. Construction of the access roads has disrupted erodible Entisols on the slopes that border the washes; these slopes also are underlain by soft, erodible fine sands and silt river deposits. Fill slopes built from these materials also appear to be relatively highly erodible. Based on these observed conditions, it is anticipated that any new access roads sited within similar topographic and soil conditions may experience a similar degree of surface water erosion.

The medium category of sensitivity to surface water erosion was observed in the mountains or hills that are underlain by indurated bedrock. Roads graded in this setting commonly have sections with steep gradients. In these areas, gulleys and rills typically develop along the road course. Erosion was usually negligible in mountainous bedrock terrain where the roads had flat or shallow gradients. Surface run-off erosion also was found associated with the loose fills, which were pushed to the edges of the road during construction. Also included under the medium category are terrains underlain by desert pavement and Orthid and Argid soils where relatively high topographic relief exists due to deep incision of drainage channels. The slopes along the incised drainage channels typically have young Entisols. In order to construct a road gradient suitable to cross these drainage channels, the access road has to be cut into these slopes and into the edges of the desert pavement surfaces. Minor erosion was typically found on the road where it descends into the drainage channels. Headward erosion also typically progresses up the road and onto the pavement surfaces. In addition to the erosion of the road, small fills, which were commonly left in the drainage channels following grading of the roads, were sources of soil erosion.

The lowest category of sensitivity to surface water erosion was observed in areas of low relief across surfaces underlain by desert pavements and Orthid and Argid soils. Minimal erosion also was observed in Entisols on low relief terrain where access roads crossed the drainages at nearly right angles. In these areas, minor gulleys and rills have developed where small ephemeral drainages reestablished their channels through the graded path of the road or the small berms left on the sides of the road. In a few cases, somewhat accelerated erosion appears to have developed where the small roadside berm resulted in the convergence of two small ephemeral drainage channels.

4.1.4.2 California

Physiographic Setting

The study corridor for the proposed Devers-Harquahala transmission line lies within a broad continental physiographic division called the Intermontane Division. This division may be further classified into five physiographic provinces: Salton Trough, Transverse Ranges, Western Mojave Desert, Eastern Mojave Desert, and Sonoran Desert. All but the Sonoran Desert occur within California. The boundaries for the physiographic provinces, as shown in SCE's 1977 Environmental Report for the existing DPV1 500kV transmission line, are based on the work of Jenkins (1943) for California and Wilson (1962) for Arizona. The relationship of these provinces to the study area is shown on Plate 4 in Section 2.1.2 Physiography of the 1977 Environmental Report.

The following sections provide a general discussion of the characteristics for each of the physiographic provinces through which the proposed transmission line will pass.

Salton Trough

Approximately 35 miles of the study corridor (between Devers Substation and the Mecca Hills) are located within the Salton Trough Province. This province is characterized by low relief and elevations and is bounded by relatively high linear mountain ranges on the east and west. These ranges converge at San Gorgonio Pass, marking the northern end of the Salton Trough. The province encompasses the Coachella Valley, Salton Sea, and Imperial Valley, and is separated from the Gulf of California by the delta of the Colorado River.

The typical landforms that characterize the province are broad, coalescing alluvial fans (bajadas), which flank mountain ranges, isolated low hills, and extensive sand dune areas.

Transverse Ranges

The western portion of the proposed Devers-Harquahala study corridor (approximately 37 miles) extends into the southwestern margin of the Transverse Ranges Physiographic Province. This province is characterized by a complex chain of mountains and valleys trending east-west across southern California. The San Bernardino, Little San Bernardino, and Eagle mountains are located north of the corridor between Devers Substation and Desert Center. The Orocopia Mountains and Mecca Hills lie to the south of the preferred route in this same area. Elevations within this portion of the province generally range from 2,000 to 4,000 feet; rugged terrain is common in the mountains with local relief exceeding 2,000 feet. The study corridor crosses the Transverse Ranges Province in an east-west trending valley between the Eagle and Orocopia mountains; the high point of this valley is Shaver’s Summit at an elevation of 1,710 feet (refer to Plate 5, Land Elevations in SCE’s 1977 Environmental Report).

Western Mojave Desert and Eastern Mojave Desert (California and Arizona)

There are marked differences between the Western Mojave Desert and Eastern Mojave Desert physiographic provinces. In the western province, the terrain is influenced by major northwest trending fault zones. This influence is well-expressed by northwest-southeast trending mountain ranges; the principal ranges are the Coxcomb, Chuckwalla, and Chocolate mountains. Elevations generally vary between 2,000 to 3,000 feet; a few peaks and ridges exceed 4,000 feet (refer to Plates 4 and 5 in the 1977 Environmental Report).

The mountains of the Eastern Mojave Desert Province are extremely variable in shape, size, trend, and elevation. Most ranges are less than 4,000 feet in elevation. Major north-trending ranges in the Eastern Mojave Desert Province include the Riverside, West Riverside, Plomosa, and Dome Rock mountains. Northwest-trending ranges in the Eastern Mojave Desert Province include the Little Maria, Granite, and McCoy mountains. The Palen Mountains trend to the northeast. Major valleys vary in elevation from 250 feet in the Palo Verde Valley south of

Blythe, to 400 feet in the Chuckwalla Valley, and 800 feet in the Vidal Valley. All mountains, from isolated small hills to large mountain blocks, are greatly eroded and irregular in outline, indicative of more advanced stages in the erosion cycle. This contrasts with the youthful-appearing ranges in the Western Mojave Province.

Broad alluvial basins or valleys within both the Western Mojave Desert and the Eastern Mojave Desert are underlain by alluvial fans, stream wash deposits, sand dunes, playas, and locally large floodplains such as that bordering the Colorado River. Closer to mountain fronts, dissected alluvial piedmont slopes and pediments are active erosional surfaces. Pediments are less common in the Western Mojave Desert than in the Eastern Mojave Desert.

Regional Geology

The generalized geology of the study area shown on Plate 7 of the 1977 Environmental Report remains applicable to this study for the proposed transmission line project. Detailed descriptions of the geologic conditions characterizing each of the physiographic provinces along the existing DPV1 transmission line were also presented in Section A-1 of Appendix A in the 1977 report.

West of the Colorado River, the study corridor crosses through Quaternary alluvium as it goes through the Palo Verde Valley and non-indurated sedimentary as it crosses the Palo Verde Mesa. It continues through Quaternary alluvium to the Chuckwalla Mountains, where it crosses non-indurated sedimentary and granitic and volcanic igneous rock. Portions of the corridor cross granitic and volcanic igneous rock as it passes the Orocopia Mountains and indurated sedimentary rock as it passes the Mecca and Indio hills. The proposed alignment is underlain by soft, non-indurated sediments of the Indio Hills, in California. Soft sands and silts also underlie a thin cap of Pleistocene alluvium in the bluffs bordering the Colorado River and locally in the walls of gullies and washes near the Mule Mountains. The study corridor continues through Quaternary alluvium to Devers Substation.

Structure

Active and potentially active faults and earthquake epicenters within the study area are shown in Plate 8, Selected Faults and Seismicity, of SCE’s 1977 Environmental Report. Since that report, the general distribution and rate of seismic activity apparently has not changed nor has the general geologic setting of active faults. In the following sections, the faults located within the study corridor are identified and reported. Discussions are provided as to the general level of seismic activity along the study corridor.

Quaternary Faults and Seismicity

Seismic activity is normally associated with active quaternary faults. All the known faults that might impact the proposed project are located in California and all but one of these are located in the Coachella Valley along the western portion of the study area. Portions of six faults occur within the study area. From the western end of the study area, these include: the Garnet Hill fault (which lies a few miles west of Devers Substation), the Banning Fault (to the southeast of Devers Substation), and the Mission Creek Fault (located to the east of Desert Hot Springs). These three faults are branches of the San Andreas Fault, which parallels CA 111 south of Indio to Bombay Beach on the northeastern shore of the Salton Sea. The Blue Cut Fault follows the Little San Bernadino Mountains in the northwest portion of the study area before heading east across the midsection of Joshua Tree National Park, and the Mecca Hills Fault zone crisscrosses the Mecca Hills. Finally, the Blythe Graben Fault parallels the southwest portion of the Big Maria Mountains, north of the town of Blythe. Each of these faults is described in greater detail in Section A-2 of Appendix A in the 1977 report.

The length of the southern segment of the San Andreas Fault, which includes the Banning and Mission Creek faults, is about 120 miles, and the total length of the fault is longer than 700 miles. In the Coachella Valley, the study corridor crosses the Banning Fault at a location southeast of Devers and northwest of the Indio Hills and crosses the Mission Creek Fault at a location southwest of the Indio Hills (near the town of Indio). Numerous earthquakes have occurred in this area. The San Andreas Fault is the longest active fault in California. It is a right-lateral, strike-slip fault that represents the boundary between the Pacific and North American lithospheric plates. Historically, the San Andreas Fault has produced earthquakes in excess of Richter magnitude 8. The most recent earthquake of this magnitude in southern California was the 1857 Fort Tejon earthquake, which was centered northwest of Cajon Pass. Work by Sieh (1978) provides evidence of a large earthquake occurring approximately every 145 years on this segment.

The southern segment of the San Andreas Fault does not appear to be as recently active as the segment that is associated with the 1857 Fort Tejon earthquake. Sieh (1978) studied the southern segment of the fault, which has been dormant seismically in historic time (at least since 1769). His work suggests that the average interval between major recurrent earthquakes on the southern segment is probably on the same order as the south-central segment.

Most of the geologically rapid slip that is occurring on the San Andreas Fault north of San Bernardino appears to have been taken up by the San Jacinto and Imperial-Brawley faults. The San Jacinto Fault's closest approach to the study area is 20 to 30 miles to the southwest and is the source of several earthquakes with magnitudes of greater than six during this century.

The study corridor crosses the Mecca Hills Fault just southeast of the Indio Hills. The Mecca Hills Fault is located about 2 miles northeast of and parallel to the San Andreas Fault through most of the Mecca Hills. The level of recent or Holocene activity of the fault is not known, but late quaternary activity is suggested by fault scarps, linear valleys, and apparent offsets of late Pleistocene alluvial fans. Evidence of displacement along the fault indicates the fault has a right-lateral, southwest-side upward mode of displacement.

The only known fault outside the Coachella Valley within the study corridor is the Blythe Graben, which is located along the southwestern flank of the Big Maria Mountains about 5 miles north of Blythe, California (SCE 1974; SDG&E 1974). This fault strikes northwest, parallel to the mountain front and is slightly arcuate with a mappable length of 3.5 miles and a width of 300 feet. Exploratory trenches across the graben revealed displaced older alluvial deposits covered by unbroken young alluvium. Based on estimated ages of the alluvial surfaces, the last displacement probably occurred within the last 30,000 years. No historic or recorded epicenters are associated with the Blythe Graben.

Seismicity levels decrease across the middle and eastern portions of the study area. The level of seismic activity in the Transverse Ranges Province may be characterized as moderate to high. Seismicity declines sharply across the Mojave Desert. The Western Mojave Desert contains numerous northwest-trending, right-lateral faults with some evidence of vertical displacement (1977 Environmental Report). This area is seismically active, but with only one major historic event (a magnitude 6.2 quake in 1947, outside of the study corridor). In contrast, the Eastern Mojave Desert has low seismic activity, little geological evidence of strike-slip faulting or breakage, and does not contain parallel northwest-trending linear mountain ranges and basins. The portion of the Mojave Desert that extends into Arizona and the Sonoran Desert has very low levels of seismic activity. Thus, the study area can be divided into two distinct tectonic zones. The western zone, which includes the Salton Trough, the Transverse Ranges, and the Western Mojave Desert, may be characterized as a strain-adjustment area associated with an active fault system (the San Andreas). The eastern zone, beginning approximately at the Colorado River, includes the Eastern Mojave Desert and the Sonoran Desert and lies outside of the strain adjustment area, and thus is relatively free of seismic activity.

Plate 8 of the 1977 Environmental Report shows the locations of 64 earthquakes with a Richter magnitude range of 4.0 to 8.0 that occurred within the Devers to Palo Verde portion of the study area from 1901 to 1975. Of these events, 56 were of magnitude 4.0 to 4.9; 7 were of magnitude 5.0 to 5.9; and 1 was of magnitude 6.0 to 6.9. Several significant earthquakes have been recorded within the study area since 1977. North Palm Springs experienced a magnitude 5.9 earthquake on July 8, 1986. A magnitude 6.1 earthquake shook Joshua Tree National Park on April 22, 1992 (SCEC 2004). A magnitude 4.0 earthquake was recorded 9.3 miles east of Indio July 13, 2004 (Riverside County 2004). The largest earthquake recorded within the study area occurred near

Desert Hot Springs on the Mission Creek Fault December 4, 1948. This event reached a magnitude of 6.5 on the Richter scale (1977 Environmental Report).

For the time period 1901 to 1975, a total of 1,812 events in the magnitude range of 2.0 to 3.9 were reported for the Devers-Harquahala portion of the study area; all of which were west of the Desert Center area (1977 Environmental Report). These small magnitude earthquake events were not included in Plate 8 of the 1977 Environmental Report because they conformed to the general distribution of seismic activity delineated by the larger magnitude earthquake events.

As seen on Plate 8 of the 1977 Environmental Report, the Salton Trough is one of the most seismically active regions within the study area. Ten events with magnitudes ranging from 6.0 to 7.1 were recorded in the Salton Trough between 1933 and 1977 (1977 Environmental Report).

No earthquakes have been reported for the seismically less active portion of the study area east of the Palen Mountains and including Arizona.

Economic Geology

Metallic and non-metallic mineral deposits occur within the study area. These resources are summarized in Table 4-24. Metallic mineral deposits are restricted primarily to the areas of exposed bedrock in mountain areas. Gold, copper, and iron are the predominant metallic minerals mined in California. Most of the metallic-mineral deposits in the California desert are no longer economically feasible to operate and have been abandoned (California Geology 1973). Sand, gravel, and rock products are the most important mineral resources in California and are still activity mined. Approximately five million short tons per year of sand and gravel have been mined from Riverside County alone.

There are no known economic deposits of oil, gas, or coal within the study area.

TABLE 4-24 MINERAL LOCALITIES IN CALIFORNIA	
Mineral Resource	**Locality**
Sand, gravel, rock products	Indio Hills, Coachella Valley
Barite and Bentotite	Mecca Hills, Palen Valley
Gold and Silver	Dome Rock Mountains, Plomosa Mountains, Harquahala Mountains, and New Water Mountains
Copper	Dome Rock Mountains, Plomosa Mountains, Little Harquahala Mountains
Iron	Big Maria Mountains, Plomosa Mountains
Manganese	Little Maria Mountains, Dome Rock Mountains, Plomosa Mountains, Ranegras Plain, Harquahala Mountains, Granite Wash Mountains
Source of Data: McCrory and O'Hare 1965; Saul, et al. 1968; SCE 1977 Environmental Report; Stipp, et al. 1967	

<u>Soils</u>

Soils for the California portion of the Devers-Harquahala study corridor are described under Section 4.1.4.1 with the Arizona portion of this study.

4.1.5 <u>Hydrology</u>

Hydrology for the study corridor is based on the 1977 Environmental Report for the DPV1 transmission line and remains applicable to this study.

4.1.5.1 Proposed Devers-Harquahala Study Corridor in Arizona and California

<u>Surface Water</u>

The study area is characterized by an arid climate with limited rainfall. With the exception of the Colorado River, all active drainages in the study area are intermittent or ephemeral, and flow only after a localized summer thunderstorm or, more commonly, during a strong winter storm. The flow in these ephemeral streams usually subsides rapidly following the passage of the storm.

Except for the gauging stations on the Colorado River, there are little or no data for surface run-off in the study area.

The study area is characterized by mountain ranges separated by broad valleys with coalescing alluvial fans. The valleys within the study area are normally drained by a main wash along the axis of the valley. On valley flanks, channels are entrenched within the older fans; their distributaries spread across younger fans toward basin centers. In some valleys, the main central drainage may be as much as 1 mile wide.

The names and locations of all major valleys within the study area, their main drainage, direction of flow, and termination points were discussed in SCE's 1977 Environmental Report for the existing DPV1 transmission line. Table 4-25, which has been modified from that report, provides a list of the major valleys and drainages within the study area. Generally, the drainage courses west of the Eagle Mountains in California drain toward the Salton Sea. East of the Eagle Mountains and west of the McCoy Mountains, the drainages empty into closed basins, the centers of which are formed by Palen Playa and Ford Dry lake in the Chuckwalla Valley. East of the McCoy Mountains and west of the Dome Rock Mountains in Arizona, the drainages flow directly to the Colorado River. East of the Dome Rock Mountains, all drainages flow toward the Colorado River via Tyson, Bouse, and Centennial washes. The latter wash flows toward the Gila River, which in turn flows to the Colorado River.

TABLE 4-25 DRAINAGES			
Valley	**Main Drainage**	**Direction of Flow**	**Termination**
Coachella, California	Whitewater River	SE	Salton Sea
Orocopia Valley, California	Box Canyon Wash	W	Salton Sea
Palen, California	Unnamed	S	Palen Dry Lake
Chuckwalla, California	Unnamed	SE-E	Ford Dry Lake and Colorado River
Palo Verde Mesa, California	Unnamed McCoy Wash	E SE	Colorado River Colorado River
Palo Verde Valley, California and Arizona	Colorado River	S	Gulf of California
La Posa Plain, Arizona	Tyson Wash	N-NW	Colorado River
Ranegras Plain, Arizona	Bouse Wash and Upper Bouse Wash	NW-W	Colorado River
Harquahala Plain, Arizona	Centennial Wash	SE	Gila River
Note: The Colorado River is the only permanent drainage; all others are ephemeral rivers, washes, and lakes. Source: Modified from Table 2.11-6, SCE Environmental Report for DPV1 Transmission Line, 1977.			

<u>Groundwater</u>

Groundwater within the study area is typically found in the sand and gravel layers within the thick sequence of sediments that underlie the alluvial valleys or basins. These alluvial basins generally are within structural troughs bounded by less permeable crystalline bedrock. These troughs can be several thousand feet deep. Depending on the geological conditions, the groundwater can range from a phreatic water table to confined artesian conditions. Wells drilled near the central portions of the basins typically encounter water at shallower depths than those near the mountain fronts where the water table is typically relatively deep.

Groundwater is a potential resource in most desert basins and valleys. However, recharge rates to these groundwater basins is typically low. Many desert groundwater basins have experienced a lowering of water levels. Typical of such areas is the Harquahala Plain of western Arizona, where pumping for irrigation purposes in the southern portion of the plain has caused a decline in the water level.

A summary of the groundwater characteristics of the major alluvial basins within the Arizona and California portions of the study area is presented in Table 4-26. The data contained in this table were largely generated from the California Department of Water Resources (1975) and U.S. Geological Survey (Denis 1976; Wilkens and Webb 1976) and was originally presented in SCE's 1977 Environmental Report for the existing DPV1 transmission line.

4.1.6 Air Quality

The proposed Devers-Harquahala study corridor is located in the southwestern United States, specifically extending from south-central Arizona to southern California. The meteorology for this region can be described as a typical desert climate and can be characterized by high daytime temperatures, low humidity, and low amounts of precipitation. The study area receives approximately 90 percent of the available annual sunshine. The seasons of the region are marked by hot dry summers and cool dry winters.

Temperature information has been collected from representative data stations throughout the project area. The data collection locations for the Devers-Harquahala transmission line study area are Buckeye, Blythe, and Palm Springs. The average maximum temperature for the study area in July is 108 degrees Fahrenheit, and in January is 68 degrees Fahrenheit. The average minimum temperature in July is 75 degrees Fahrenheit, and in January is 38 degrees Fahrenheit. The absolute maximum temperature found in the region was 125 degrees Fahrenheit, and the absolute minimum temperature was 11 degrees Fahrenheit (Western Regional Climate Center 2003).

TABLE 4-26
BASIN GROUNDWATER DATA FOR THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Basin Name County	Basin Description: Size, Major Stream, Water Bearing Material	Well Yields in gpm		Depth Zone in Feet	Storage Capacity in Acre-Feet	Usable Capacity in Acre-Feet	Development	Problems
		Maximum	Average					
Coachella Valley Imperial and Riverside Counties	A 690-square-mile basin drained by the Whitewater River; younger and older alluvium	3,000+	300	100-1,000	39,000,000	3,600,000	Moderate to high for municipal and irrigation use. Limited for domestic use. Natural recharge estimated at about 80,000 acre-feet per year. A potential for limited additional development.	Locally fluoride, sulfate and total dissolved solids (TDS) high for domestic use, boron high for irrigation. Poor quality semi-perched water.
Orcopia Valley Riverside County	A 140-square-mile basin drained by Box Canyon Wash	210	165	200-400	1,500,000	Unknown	Limited for domestic and irrigation use. Natural recharge estimated at about 500 acre-feet per year. A potential for moderate additional development.	Locally fluoride and TDS high for domestic use.
Chuckwalla Valley Imperial and Riverside Counties	A 870-square-mile basin; drainage internal under low surface water flows; younger alluvium	3,900	1,800	20-220	9,100,000	900,000 400-foot pumplift; 100-feet of saturated sediments	Limited for agricultural and domestic use. A potential for limited to moderate additional development.	Locally sulfate, chloride, fluoride, and TDS high for domestic use; boron, TDS, and percent sodium for irrigation use.
Palo Verde Valley, and Riverside Counties	A 200-square-mile basin with drainage to the Colorado River	2,180	670	0-300	4,960,000	Unknown	Moderate for domestic and irrigation use. Natural recharge est. at about 500 acre-feet per year. A potential for limited additional development.	Locally fluoride, chloride, TDS and sulfate high for domestic use, chloride and TDS high for irrigation use. Failing septic tank and leach field

TABLE 4-26
BASIN GROUNDWATER DATA FOR THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Basin Name County	Basin Description: Size, Major Stream, Water Bearing Material	Well Yields in gpm		Depth Zone in Feet	Storage Capacity in Acre-Feet	Usable Capacity in Acre-Feet	Development	Problems
		Maximum	Average					
								system.
Palo Verde Mesa Imperial and Riverside Counties	A 200-square-mile mesa drained by unnamed streams; younger alluvium	2,750	1,659	0-300	6,840,000	Unknown	Limited for domestic and irrigation use. National recharge est. at about 800 AFY. A potential for mod.	Locally arsenic, selenium fluoride, chloride, sulfate, and TDS high for domestic use chloride, buron, and TDS high for irrigation use. Overdraft.
Ranegras Plain and Butler Valley, Yuma County	A 575-square-mile basin drained by Bouse Wash to the Colorado River; younger alluvium	2,000	25 per foot of draw down	0-300	11,060,000	Unknown	Moderate for domestic and irrigation use.	Fluoride high for domestic use. Locally TDS high, only good for salt-tolerant crops.
Harquahala Plain Yuma and Maricopa Counties	A 520-square-mile basin drained by Centennial Wash	Unknown	Unknown	300-400	11,000,000	Unknown	Moderate for domestic and irrigation use.	Fluoride high for domestic use overdraft.

Precipitation data also were collected from the same three stations. Precipitation fluxes follow a general seasonal pattern. The annual average rainfall for the project area is 5.7 inches. A majority of the rain comes in the winter months, with additional localized heavy rain in the summer during the monsoon. Generally, the summer monsoon produces strong dust and electrical storms occasionally accompanied by precipitation in the form of rain. The monsoon is marked by high humidity, over 55 percent, during the summer months. Normally, the region has low humidity the rest of the year.

Finally, wind data were collected from the same three stations. The wind will dictate the amount of ventilation the area receives. A combination of wind speed and mixing depth will determine the amount of lateral and vertical air movement. For the Arizona portion of the study area, there are strong lateral and vertical winds developed from the storms associated with the monsoon. Near the Palm Springs area, the coastal effect forces air through the San Gorgonio Pass, causing sustained winds during the afternoon and evening hours. The average annual wind data are 8, 7.8, and 8.7 miles per hour for the Buckeye, Blythe and Palm Springs data stations, respectively. A summary of the climatology for the study corridor is presented in Table 4-27.

The proposed Devers-Harquahala study corridor is composed of numerous air basins and air quality regulation entities. The Arizona portion is governed by the Arizona Department of Environmental Quality (ADEQ) and contains two primary air quality districts—Maricopa County, governed jointly by ADEQ and Maricopa County, and La Paz County governed by ADEQ. The California portion of the Devers-Harquahala study corridor also crosses two major air basins in California—the Mojave Desert and Salton Sea air basins. The Mojave Desert air basin is governed by the Mojave Desert Air Quality Management District (MDAQMD), which has authority over most of San Bernardino County and an eastern portion of Riverside County. The Salton Sea air basin portion is governed by the South Coast Air Quality Management District (SCAQMD), which has authority over portions of Los Angeles, Riverside, San Bernardino and all of Orange counties.

TABLE 4-27 PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR - CLIMATOLOGY SUMMARY				
Temperature		**Buckeye, AZ**	**Blythe, CA**	**Palm Springs, CA**
Annual Average	max (F)	87.7	82.2	88.7
	min (F)	35.0	55.6	56.8
January	max (F)	67.8	67.6	69.5
	min (F)	34.6	38.2	42.0
July	max (F)	107.1	108.4	108.3
	min (F)	74.4	76.2	74.6
Absolute	max (F)	125.0	122.0	123.0
	min (F)	11.0	18.0	19.0
Precipitation				
Annual Average (inch)		7.6	3.8	5.6
Summer Average (inch)		2.1	0.9	0.6
Winter Average (inch)		2.4	1.5	3.0
Wind				
Annual Average (mph)		8.0	7.8	8.7
Source: Western Regional Climate Center, web page (accessed July 11, 2003).				

The Federal Clean Air Act of 1970 required the Environmental Protection Agency (EPA) to implement ambient air quality standards. The EPA developed a list of standards known as the National Ambient Air Quality Standards (NAAQS). The standards are a list of the maximum levels, given a margin of safety, of background pollution that is considered safe for the health and welfare of the public. The standards are divided into two categories—primary standards, which were developed to protect the health of humans, and secondary standards, which were developed to protect property and agriculture. States have been given the choice to enact air quality standards that are at least as strict as those developed at the federal level. The governing entities for the Arizona portion of the study area have adopted the standards set forth by the EPA. However, the California Air Resources Board (CARB) has implemented standards that are more stringent. A summary of the standards can be found in Table 4-28.

TABLE 4-28 FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS				
	Averaging	California	National and Arizona	
Air Pollutant	Time	Standard	Primary	Secondary
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m^3)	0.12 ppm (235 µg/m^3)	0.12 ppm (235 µg/m^3)
	8 hours		0.08 ppm (157 µg/m^3)	0.08 ppm (157 µg/m^3)
Carbon Monoxide (CO)	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	-
	8 hours	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	-
Nitrogen Dioxide (NO_x)	1 hour	0.25 ppm (470 µg/m^3)	-	-
	AAM	-	0.053 ppm (100 µg/m^3))	0.053 ppm (100 µg/m^3)
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm (655 µg/m^3)	-	-
	3 hours	-	-	0.5 ppm (1300 µg/m^3)
	24 hours	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)	-
	AAM	-	0.03 ppm (80 µg/m^3)	-
Particulate Matter (PM_{10})	24 hours	50 µg/m^3	150 µg/m^3	65 µg/m^3
	AAM	20 µg/m^3	50 µg/m^3	15 µg/m^3
Fine Particulate Matter ($PM_{2.5}$)	24 hours	-	65 µg/m^3	65 µg/m^3
	AAM	12 µg/m^3	15 µg/m^3	15 µg/m^3
Lead (Pb)	30 day average	1.5 µg/m^3	-	-
	calendar quarter	-	1.5 µg/m^3	1.5 µg/m^3
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm (42 µg/m^3)	-	-
Visibility-Reducing Particles	8 hours	Extinction coefficient of 0.23 per kilometer, visibility of 10 miles	-	-
NOTE: ppm – parts per million by volume AAM – annual arithmetic mean µg/m^3 – micrograms per cubic meter Source: Arizona Department of Environmental Quality 2003; California Air Resources Board 2003; Environmental Protection Agency 2003				

The EPA is required to specially designate areas that fail to meet the standards listed in Table 4-28. The areas that fail to meet the standards are classified as non-attainment. When an area is classified as non-attainment, the regional air quality management agency is required to develop detailed plans to reduce the pollution in that area.

As of June 2003, two of the three counties crossed by the study corridor were listed as non-attainment. Maricopa and Riverside counties were both listed as non-attainment for ozone, carbon monoxide, and particulate matter. All three non-attainment definitions for Maricopa

County were redefined to the Phoenix metropolitan area. The non-attainment status for Riverside County was also redefined. Non-attainment for carbon monoxide is limited to the Los Angeles portion of the South Coast Air Basin (SCAB), and is out of the study area for the proposed Devers-Harquahala transmission line. Non-attainment for ozone was limited to the Los Angeles portion of SCAB and Southeast Desert Modified AQMD. Finally, the particulate matter non-attainment status was limited to SCAB and the Coachella Valley portions of Riverside County according to the EPA (2003); however, all of Riverside County exceeded the standards developed by the state of California (CARB 2003).

4.1.7 Traffic and Transportation

The proposed Devers-Harquahala transmission line route generally parallels I-10 for its entire length, from the Harquahala Switchyard in Arizona, to Devers in California. The proposed transmission line would cross I-10 and other highways and arterials, as described below.

4.1.7.1 Arizona

In Arizona, the proposed Devers-Harquahala study corridor would cross I-10 twice— once in Maricopa County about 5 miles west of Tonopah Road, and once in La Paz County about 4 miles west of the Maricopa County line. The study corridor also would cross SR 95 about 8.5 miles south of the Quartzsite and I-10 interchange. Traffic counts below (Table 4-29) demonstrate average annual daily traffic volume in the areas where the study corridor crosses state and interstate highways. Traffic counts also have been provided along key points of these major travel arterials near the study corridor.

TABLE 4-29 ARIZONA 2003 AVERAGE ANNUAL DAILY TRAFFIC (AADT)		
Road Name/Section	**Distance (in miles)**	**AADT**
SR 95		
County 53rd St. to I-10 frontage road*	5.5	1,700
I-10		
Exit 19 – Quartzsite to Exit 26 – Gold Nugget Road	6.9	21,600
Exit 26 – Gold Nugget Road to Exit 31 – US 60	4.5	25,800
Exit 31 – US 60 to Exit 45 – Vicksburg Road	14.2	26,400
Exit 45 – Vicksburg Road to Exit 81 – Salome Hwy.	35.9	25,400
Exit 81 – Salome Hwy. to Exit 94 – Tonopah*	13.0	25,800
Source: ADOT Transportation Planning Division (2003) *Indicates locations where proposed Devers-Harquahala study corridor crosses state or interstate highways		

4.1.7.2 California

In California, the study corridor passes just south of the town of Blythe, crossing CA 78 about 3 miles west of the Arizona border and generally paralleling the I-10 along the existing DPV1 500kV transmission line. About 7 miles west of the Cottonwood Springs Road exit, the study corridor crosses to the north side of I-10. The route closely parallels the northern side of I-10 before angling slightly north to continue following the existing DPV1 500kV transmission line into Devers. Table 4-30 provides traffic counts in the areas where the corridor crosses I-10 and CA 78, as well as traffic counts along key points of major travel arterials near the study corridor.

4.1.8 Biology

This section summarizes the results of the sensitive plant and wildlife surveys and lists the special status species that could be present within the proposed Devers-Harquahala 500kV transmission line study corridor in Arizona and California. It also describes existing biological conditions of plant and wildlife resources present within the study corridor.

TABLE 4-30 CALIFORNIA 2003 AVERAGE DAILY TRAFFIC (ADT)						
	South or West of Intersection			North or East of Intersection		
Location	Peak Hour	Peak Month ADT	Annual ADT	Peak Hour	Peak Month ADT	Annual ADT
Blythe Area						
US Highway 95 –Palo Verde Diversion Dam exit	200	2,150	1,800	220	2,150	1,800
CA 78 – 28th Avenue to Neighbors Boulevard*	180	1,800	1,600	190	2,250	2,000
CA 78 – Palo Verde Road to 4th/Main Street	500	2,600	1,950	210	2,050	1,750
I-10 at Mesa Drive	2,400	25,000	21,700	2,300	25,000	21,700
I-10 at Wileys Well Rest Area	2,200	23,000	20,000	2,400	25,000	21,700
Coachella Valley						
I-10 at Dillon Road exit	2,700	29,000	25,000	2,400	25,000	22,000
I-10 at Cottonwood Springs Road exit (Box Canyon Road)	2,400	25,000	22,000	2,400	26,000	22,200
Dillon Road south of Landfill Road*	3,642 (daily average, 6/13/01)	NA	NA	NA	NA	NA
Source: CDOT Division of Traffic Operations 2003; Riverside County DOT, Engineering/Planning Division 2004 *Indicates locations where proposed Devers-Harquahalas study corridor crosses state or interstate highways						

Methods

Field surveys for sensitive species in Arizona and California conducted in 2002 and 2003 were performed in a manner similar to that employed in previous surveys in 1987 and 1994 (Smith 1987 and EPG 2003). The survey method called for biologists to visit each tower site, laydown site, access road, and spur road along the proposed Devers-Harquahala transmission line corridor, and record observations of sensitive species. Sensitive species occurrences were plotted on field data sheets that depict tower locations on a grid in which each grid cell represents a distance of 6 feet. Surveys were conducted for a 10,000-square-foot (100 foot by 100 foot) area centered on the center survey stake for each proposed tower. In addition to recording data at road and tower sites, field biologists recorded pertinent wildlife observations. In Arizona, the primary concern along the route is protected native plant species including various species of cacti, ocotillo (*Fouquieria splendens*), ironwood (*Olneya tesota*), paloverde (*Parkinsonia* spp.), and mesquite (*Prosopis* spp). Potential habitat for cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*) in Arizona was noted. Sonoran population desert tortoise (*Gopherus agassizii*) sign also was noted when observed. The route also passes through desert bighorn sheep habitat in the New Water Pass area and the Dome Rock Mountains.

The Sonoran population of desert tortoise in Arizona is considered sensitive by the BLM. The BLM has designated three categories of desert tortoise habitat on BLM land. The following four criteria are used to group tortoise habitat into the three categories: (1) importance of the habitat to maintaining viable populations, (2) resolvability of conflicts, (3) desert tortoise density, and (4) population status (stable, increasing, or decreasing). BLM aims to maintain viable desert tortoise populations in Category 1 and 2 habitats, and limit population declines in Category 3 habitats (Arizona Interagency Desert Tortoise Team 1996). BLM designated desert tortoise habitat that falls within the study area is depicted in Maps 4-5a-c (end of Chapter 4).

In California, there are numerous species of state and federally listed plants and animals that could potentially be affected by construction of the proposed transmission line between the Colorado River and Devers. In California these include Mojave population desert tortoise and the Coachella Valley fringe-toed lizard (*Uma inornata*). USFWS has designated critical habitat for both of these species. Additionally, BLM has created ACECs for the management and protection of these two species. These areas of critical habitat and the ACECs within the study corridor are depicted in Maps 4-5c-e (end of Chapter 4).

An assessment of habitat conditions was also undertaken at the Valley Substation. The facilities would be installed within the existing substation property. The substation property has been previously disturbed, and no endangered or threatened wildlife or plant species, or otherwise sensitive species are present or would be expected to occur at the site.

New telecommunications system facilities (described in Section 3.4.2) would be installed at, or adjacent to, existing telecommunications sites. Facilities would be installed on existing properties at the Black Peak, Smith Peak, and Harquahala Mountain communication sites and within existing properties at Devers, Mirage, and Harquahala Generating Station substations. The new Blythe Optical Repeater facility would be constructed within the proposed Devers-Harquahala 500kV right-of-way in California.

The new series capacitor bank sites in Arizona and California would be located adjacent to the existing DPV1 capacitor banks. Descriptions provided in Sections 4.1.8.1 and 4.1.8.2 of existing vegetation and wildlife resources within the Devers-Harquahala study corridor includes the telecommunication and series capacitor sites.

4.1.8.1 Arizona

Vegetation

The project study area lies within the Lower Colorado River Valley Subdivision of the Sonoran Desert and is frequently referred to as the “Colorado Desert” (Jaeger 1941; Raven and Axelrod 1978; Turner and Brown 1982). The Lower Colorado River Valley Subdivision characteristically covers broad alluvial valley floors and is usually dominated by creosote bush (*Larrea tridentata*) in association with white bursage (*Ambrosia dumosa*) on gravelly soils, and with big galleta grass (*Pleuraphis rigida*) on finer textured soils. Washes that dissect valley bottoms of creosote bush scrub may support woodland-like communities of blue paloverde (*Parkinsonia florida*), ironwood, and several species of shrubs where soils are coarse and rocky. Where soils are finer textured, mesquite may occur as a dominant. Washes may be dominated by more shrubby species such as white burrobrush (*Hymenoclea salsola*), smoketree (*Psorothamnus spinosus*), and sweetbush (*Bebbia juncea*).

In the western portions of the Sonoran Desert (i.e., western Arizona and eastern California), floral elements that are characteristic of the Lower Colorado River Valley Subdivision (e.g., creosote bush) are frequently the dominant species on rocky mountain slopes and bajadas as well as in the alluvial valleys. This dominance is particularly true on hills derived from young, volcanic rock (Turner and Brown 1982).

In western Arizona, in the vicinity of mountain ranges (e.g., Dome Rock, New Water, Plomosa, and Eagletail mountains and associated uplands), elements of the Arizona Upland Subdivision of the Sonoran Desert become an integral part of the flora as mixed paloverde-cacti communities. Desert mountain ranges in western Arizona (i.e., west of a line drawn between Buckeye and Gila Bend and south of I-10) are largely ecotonal between the Lower Colorado River Valley and Arizona Uplands subdivisions of the Sonoran Desert. In these mountains, characteristic Arizona Upland community types (i.e., mixed paloverde-cacti) are rather strongly restricted to drainageways, with Lower Colorado River Valley Subdivision communities (i.e., creosote bush communities) dominating on interfluvial areas.

This distinction is clearly visible on the bajadas on the west side of the Dome Rock and Plomosa mountains, on the north side of the New Water Mountains, and on the east side of the Eagletail Mountains. In each of these ranges, there tends to be well-developed communities of foothill paloverde (*Parkinsonia microphylla*), ironwood, and a variety of cacti, including saguaro (*Carnegiea gigantea*), on the bajadas. Examination of the situation, however, reveals that these communities are almost wholly restricted to drainages, including the smallest runnels, rather than being evenly distributed. Between the drainageways, the landscape is dominated by Lower Colorado River Valley Subdivision communities of creosote bush and bursage, with several species of cholla (*Opuntia* spp.), small columnar cacti, and prickly pear cacti. The arborescent communities tend to follow drainages upslope, frequently giving hillsides the appearance of being true mixed paloverde-cacti communities, when in fact the interstitial landscape is dominated by creosote bush, bursage, and white brittlebush (*Encelia farinosa*). Perhaps the finest example of this situation in the study area occurs on the west slope of the southern Plomosa Mountains (west New Water Mountains), between Gold Nugget Road and Quartzsite, where one has the distinct impression that lands south of I-10 are wholly dominated by woodlands of paloverde, ironwood, and saguaro. Viewed from the air, however, it is clear that these species are totally riparian and do not occur on interwash sites.

Creosote bush communities in the Arizona study area strongly dominate alluvial valley bottoms and are often the dominant vegetation type on mountain slopes. In the western part of the Arizona study area, west from approximately the central Plomosa/New Water Mountain complex, creosote bush communities are found on highly varnished desert pavement, while in the eastern part of the study area (e.g., the Harquahala and Ranegras plains), they occur on fine textured to gravelly soils.

Wash communities in the Arizona study area vary in species dominance depending on soil type. Washes that traverse broad creosote bush flats on fine soils (e.g., Centennial Wash) tend to be dominated by mesquite. Washes traversing rockier soil types support communities of ironwood, paloverde, saguaro, and a variety of shrubs. Smoketree, white burrobrush, and sweetbush are common in larger washes away from major mountain masses. For example, the large washes that drain the west side of the Dome Rock Mountains are dominated by smoketree and burrobrush at their lower ends.

Cacti are a common feature within the Arizona study area. Most species are restricted to rockier, upland conditions, although at least one, the night-blooming cereus, is rather strongly restricted to creosote bush flats with fine soils. Mountain slopes, hills, and rocky outcrops provide habitat for several species of cholla, prickly pear , and columnar cacti. The saguaro tends to become less common from east to west in the study area, and it probably does not occur at all in the study area west of the Colorado River. This obvious decrease in saguaro density is probably related to the diminution of summer rainfall from east to west in Arizona.

Special Status Plant Species – Arizona

The federal government uses the following definitions in its current or proposed listings of plants and animals (Endangered Species Act 1973).

Endangered: A species that is in danger of extinction throughout all or a significant portion of its range.

Threatened: A species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Proposed: A species that has been proposed for listing as threatened or endangered, but the status has not been finalized.

Species of Concern: Species that are believed to be declining in population, but insufficient data exist for classification as threatened or endangered (includes most species that were listed as candidates under the former classification system).

The State of Arizona has four categories for special status plants as follows.

Highly Safeguarded: Species of native plants whose prospects for survival in Arizona are in jeopardy or those that are in danger of extinction.

Salvage Restricted: Species of native plants that are not included in the highly safeguarded category but are subject to damage by theft or vandalism. All species in the families Agavaceae, Cactaceae, Liliaceae, and Orchidaceae are salvage restricted protected native plants, unless listed as highly safeguarded.

Salvage Assessed: Species of native plants that are not included in either the highly safeguarded or salvage restricted categories but have a sufficient value if salvaged to support the cost of salvage.

Harvest Restricted: Species of native plants that are not included in the highly safeguarded category but are subject to excessive harvesting or overcutting because of their intrinsic value.

The ANPL extends protection to nearly 200 species of plants, including all Liliaceae (including *Yucca*, *Nolina*, *Hesperocallis*, and *Allium*) and all plants within the families Agavaceae, Crassulaceae, Cactaceae and Orchidaceae. Also protected by the ANPL are ocotillo, desert holly (*Atriplex hymenelytra*), smoketree (*Psorothamnus spinosus*), crucifixion thorn (*Castela emoryi*), Mexican jumping bean (*Sebastiana bilocularis*), mesquite, paloverde, ironwood, and elephant tree (*Bursera microphylla*).

The ANPL does not prevent the clearing of land for a project such as the proposed transmission line, provided the Arizona Department of Agriculture is notified at least 60 days prior to the clearing of land so that affected plants may be salvaged.

Following literature review and consultation with the BLM and Arizona Game and Fish Department (AGFD), initial field surveys for sensitive plant species were conducted in 1985 within the Arizona portions of the preferred and alternate transmission line corridors. Five species considered sensitive at that time were found during field surveys along the preferred corridor in Arizona. These species were California snake bush (*Colubrina californica*), woollyheads (*Nemacaulis denudata*), Wiggins cholla (*Opuntia wigginsii*), night-blooming cereus (*Peniocereus greggii*), and Hall shrub spurge (*Tetracoccus hallii*). None of these species is currently included on the sensitive species lists for Maricopa or La Paz counties in Arizona (AGFD 2003).

Plant species currently listed as threatened, endangered, or sensitive and known to occur in Maricopa or La Paz counties are listed in Table 4-31 (AGFD 2003). This list includes state and federally listed threatened and endangered species, species of concern, and BLM sensitive species. This list includes numerous species that were not considered sensitive in 1985. Several species from that time are no longer listed as sensitive, and are not included in Table 4-31. Species for which pre-construction surveys are recommended, or may be required, are noted.

TABLE 4-31
SENSITIVE PLANT SPECIES CURRENTLY KNOWN TO EXIST IN MARICOPA OR LA PAZ COUNTIES, ARIZONA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Abutilon parishii	Pima Indian mallow	FSC, BLM, SR	None	No
Agave arizonica	Arizona agave	FE, HS	None	No
Agave delamateri	Tonto Basin agave	FSC, HS	None	No
Agave murpheyi	Hohokam agave	FSC, BLM, HS	None	No
Agave toumeyana var. *bella*	Toumey agave	SR	None	No
Allium bigelovii	Bigelow onion	SR	None	No
Berberis harrisoniana	KOFA barberry	BLM	Low	No
Cirsium mohavense	Mojave thistle	BLM	Low	No
Ephedra funerea	Death Valley Mormon tea	BLM	Moderate	Yes
Erigeron piscaticus	Fish Creek fleabane	FSC, BLM, SR	None	No
Eriogonum ripleyi	Ripley wild buckwheat	FSC, SR	None	No
Fremontodendron californicum	Flannel bush	BLM, SR	Low	No
Mammillaria viridiflora	Varied fishhook cactus	SR	None	No
Opuntia echinocarpa	Straw-top cholla	SR	High	No
Opuntia engelmannii var. *flavispina*	Engelmann prickly pear	SR	Low	No
Peniocereus greggii var. *transmontanus*	Night-blooming cereus	SR	High	No
Perityle saxicola	Fish Creek rock daisy	FSC	None	No
Pholisma arenarium	Scaly sandplant	BLM, HS	Low	No
Purshia subintegra	Arizona cliffrose	FE, HS	None	No
Tumamoca macdougalii	Tumamoc globeberry	BLM, SR	None	No
Vauquelinia californica ssp. *Sonorensis*	Arizona rosewood	BLM	Low	No

Status Codes:
BLM - BLM (Arizona) Sensitive species.
FE – Federally Endangered
FSC – Federal Species of Concern
HS - Highly Safeguarded (ANPL, 1993)
SR - Salvage Restricted (ANPL, 1993)

Probability of Presence:
High – Route passes through suitable habitat with confirmed presence of species.
Moderate – Route passes through suitable habitat, but no confirmed presence, or outside known distribution.
Low – Route passes through marginal habitat, little potential presence of species, or outside known distribution.
None – No suitable habitat, or far from known distribution.

Survey Results of the 2003 Special Status Plant Survey within the Proposed Devers-Harquahala Study Corridor in Arizona

In Arizona, 19 plant species that receive protection under the Arizona Native Plant Law (ANPL) were found on tower sites and access roads within the proposed DPV2 corridor. These species were recorded during field surveys in 2002 and 2003 (see Table 4-32 for the total number of individuals of each species found). It is quite likely that many of these individuals could be avoided during construction of the proposed transmission line.

TABLE 4-32
TOTAL NUMBER OF ANPL-LISTED PLANTS, BY SPECIES, FOUND ALONG THE ARIZONA PORTION OF THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Number of Individuals
Agave deserti	Desert agave	10
Carnegiea gigantea	Saguaro	360
Castela emoryi	Crucifixion thorn	1
Coryphantha sp.	Beehive cactus	12
Echinocereus engelmannii	Engelmann’s hedgehog cactus	51
Ferocactus cylindraceus	California barrel cactus	47
Fouquieria splendens	Ocotillo	1,044
Hesperocallis undulata	Desert lily	5
Mammillaria grahamii var. *grahamii*	Fishhook pincushion	27
Olneya tesota	Ironwood	529
Opuntia basilaris	Beavertail prickly pear	14
Opuntia bigelovii	Teddy bear cholla	1,289
Opuntia echinocarpa	Straw-top cholla	1,544
Opuntia leptocaulis	Christmas cactus	30
Opuntia ramosissima	Diamond cholla	342
Opuntia sp.	Cholla	2
Parkinsonia florida	Blue paloverde	11
Parkinsonia microphylla	Foothill paloverde	853
Prosopis velutina	Velvet mesquite	1,122
Source: EPG 2003		

In addition to the special status plant species, other significant resources were also recorded. Existing DPV1 towers were noted when either raptors or ravens (*Corvuscorax*) had built stick nests in them. If any additional detail was observed, such as which species of bird was nesting or the number of individuals present, this was recorded as well. Sonoran desert tortoise sign was also noted when found.

Wildlife

Vertebrate wildlife that is present within the Devers-Harquahla study corridor in Arizona consists of mammals, birds, amphibians, and reptiles that are characteristic of arid Sonoran Desert lowland and low mountain range plant communities and soil types.

Mammals

The mammalian fauna of the Devers-Harquahala study corridor in Arizona is composed primarily of small, nocturnal species of bats and rodents, including the highly desert-adapted Heteromyid pocket mice (*Perognathus* sp. and *Chaetodipus* sp.) and kangaroo rats (*Dipodomys* sp.). Owing to the presence of many mine shafts, adits, other prospects, natural caves, cliffs, and clefts in rock walls, it is likely that several species of bats are residents of portions of the study corridor. Bats certainly forage throughout the length of the corridor in Arizona. Diurnal species present include black-tailed jack rabbit (*Lepus californicus*), Harris antelope ground squirrel (A*mmospermophilus harrisii*) and rock squirrel (*Spermophilus variegatus*). Desert mule deer (*Odocoileus hemionus*) are present sparingly in foothills and along major washes. Desert bighorn sheep (*Ovis canadensis mexicana*) are fairly common in the KOFA, New Water, and Plomosa Mountains. Smaller populations occupy the Livingston Hills and the Dome Rock Mountains. The ubiquitous coyote (*Canis latrans*) is likely to be encountered almost anywhere within the Arizona portion of the study corridor.

Birds

It is likely that more than 75 species of birds could be found in the Sonoran Desert portions of the study corridor over the course of a year's time including vultures, hawks, quail, doves, roadrunner, owls, goatsuckers, swifts, hummingbirds, woodpeckers, and a fairly diverse array of songbirds (flycatchers, larks, swallows, wrens, gnatcatchers, mockingbird, thrashers, shrike, vireos, warblers, orioles, tanagers, grosbeaks, finches, and sparrows). The presence of the Colorado River with its associated aquatic, wetland, and riparian habitats adds tremendously to the overall diversity of the avifauna of the Arizona portion of the study corridor. Many species of waterfowl, shorebirds, wading birds, and piscivores are present because of the river.

Amphibians

Away from the Colorado River, the only amphibians likely to be present in the Devers-Harquahala study corridor are the highly adapted toads and spadefoot toads that appear on the desert floor in response to summer monsoon rainfall. These species spend most of the year sequestered in rodent burrows or well dug into the soil awaiting the summer rains. When rainfall is sufficient, the toads emerge to breed in temporary rainfall pools and stock tanks. Species likely to be present include Couch's spadefoot (*Scaphiopus couchii*), Great Plains toad (*Bufo cognatus*), Sonoran Desert toad (*B. alvarius*), and red-spotted toad (*B. punctatus*). Owing to the presence of the Colorado River, very aquatic species such as the introduced bullfrog (*Rana catesbiana*) occur in the project area.

Reptiles

Depending on substrate, a fairly diverse group of lizards and snakes may be found in habitats traversed by the Devers-Harquahala study corridor. Fine, sandy soils are likely to host such species as banded sand snake (*Chilomeniscus cinctus*), sidewinder (*Crotalus cerastes*), and desert iguana (*Dipsosaurus dorsalis*). Rocky slopes, outcrops, and washes support a different herpetofauna that includes such species as long-tailed brush lizard (*Urosaurus graciosus*), chuckwalla (*Sauromalus obsesus*), desert spiny lizard (*Sceloporus magister*), desert horned lizard (*Phrynosoma platyrhinos*), western whiptail (*Cnemidophorus tigris*), desert glossy snake (*Arizona elegans*), and many more. The aquatic habitats associated with the Colorado River make possible the presence of introduced aquatic species such as the spiny softshell (*Trionyx spinifera*).

Special Status Wildlife – Arizona

A number of wildlife species that have been accorded special status, highlighting concern for their continued existence in the state and/or nation, are known to occur within the Arizona portion of the Devers-Harquahala study corridor. In addition to the federal lists of threatened, endangered, and status review species, the AGFD maintains a list of threatened native wildlife in Arizona. Formerly, this list included several different categories reflecting varying degrees of concern, but the current list recognizes only a single category, wildlife of special concern.

Wildlife species currently listed as threatened, endangered, or sensitive and known to occur in Maricopa or La Paz counties are listed in Table 4-33 (AGFD 2003). This list includes state and federally listed threatened and endangered species, species of concern, and BLM sensitive species. This list includes numerous species that were not listed in 1985, and several species from that time are no longer listed. Species accounts for wildlife that have some probability of presence within the study corridor are found in Appendix H. Species for which pre-construction surveys are recommended, or may be required, are noted in the table.

TABLE 4-33 SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO EXIST IN MARICOPA OR LA PAZ COUNTIES, ARIZONA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR				
Scientific Name	**Common Name**	**Status**	**Probability of Presence**	**Pre-construction Survey Recommended**
INVERTEBRATES				
Sonorella allynsmithi	Squaw peak talussnail	FSC	None	No
Cicindela oregona maricopa	Maricopa tiger beetle	FSC, BLM	None	No
FISH				
Gila robusta	Roundtail chub	FSC, WSC	None	No
Gila elegans	Bonytail chub	FE, WSC	Low	No
Agosia chrysogaster	Longfin dace	FSC, BLM	None	No
Rhinichthys osculus	Speckled dace	FSC, BLM	None	No
Catostomus insignis	Sonora sucker	FSC, BLM	None	No
Catostomus clarki	Desert sucker	FSC, BLM	None	No
Xyrauchen texanus	Razorback sucker	FE, WSC	Low	No
Poeciliopsis occidentalis occidentalis	Gila topminnow	FE, WSC	None	No
AMPHIBIANS				
Bufo microscaphus microscaphus	Arizona toad	FSC	None	No
Pternohyla fodiens	Lowland burrowing treefrog	WSC	None	No
Rana yavapaiensis	Lowland leopard frog	FSC, WSC	Low	No
Gastrophryne olivacea	Great Plains narrowmouth toad	WSC	None	No
REPTILES				
Gopherus agassizii	Desert tortoise (Sonoran population)	FSC, WSC	High	No[1]
Sauromalus ater	Arizona chuckwalla	FSC, BLM	Moderate	No
Uma scoparia	Mojave fringe-toed lizard	WSC	Moderate	No
Eumeces gilberti arizonensis	Arizona skink	FSC, WSC, BLM	Low	No
Cnemidophorus xanthonotus	Red-backed whiptail	FSC, BLM	Low	No
Heloderma suspectum cinctum	Banded Gila monster	FSC, P	Moderate	No
Charina trivirgata gracia	Desert rosy boa	FSC, BLM	Moderate	No
Thamnophis eques megalops	Mexican garter snake	FSC, WSC	None	No
BIRDS				
Ixobrychus exilis hesperis	Western least bittern	FSC, WSC	Moderate	No
Ardea alba	Great egret	WSC	High	No
Egretta thula	Snowy egret	FSC, WSC	Moderate	No
Plegadis chihi	White-faced ibis	FSC	Moderate	No

TABLE 4-33 SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO EXIST IN MARICOPA OR LA PAZ COUNTIES, ARIZONA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR				
Scientific Name	**Common Name**	**Status**	**Probability of Presence**	**Pre-construction Survey Recommended**
Dendrocygna autumnalis	Black-bellied whistling duck	WSC	None	No
Ictinia mississippiensis	Mississippi kite	WSC	None	No
Haliaeetus leucocephalus	Bald eagle	FT, WSC	Moderate	No
Buteogallus anthracinus	Common black hawk	WSC	None	No
Falco peregrinus anatum	Peregrine falcon	FSC, WSC	Low	No
Laterallus jamaicensis coturniculus	California black rail	FSC, WSC	None	No
Rallus longirostris yumanensis	Yuma clapper rail	FE, WSC	Low	No
Charadrius alexandrinus nivosus	Western snowy plover	FT, WSC	Low	No
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	FC, WSC	Low	No
Glaucidium brasilianum cactorum	Cactus ferruginous pygmy-owl	FE, WSC	Low	Yes
Athene cunicularia hypugaea	Western burrowing owl	FSC, BLM	Low	No
Strix occidentalis lucida	Mexican spotted owl	FT, WSC	None	No
Empidonax traillii extimus	Southwestern willow flycatcher	FE, WSC	Low	No
Lanius ludovicianus	Loggerhead shrike	FSC, BLM	Moderate	No
MAMMALS				
Macrotus californicus	California leaf-nosed bat	FSC, WSC, BLM	Moderate	No
Leptonycteris curasoae yerbabuenae	Lesser long-nosed bat	FE, WSC	None	No
Myotis yumanensis	Yuma myotis	FSC	Low	No
Myotis velifer	Cave myotis	FSC, BLM	Low	No
Myotis lucifugus occultus	Occult little brown bat	FSC, BLM	Low	No
Lasiurus borealis	Red bat	WSC	Low	No
Lasiurus xanthinus	Western yellow bat	WSC	Moderate	No
Euderma maculatum	Spotted Bat	FSC, WSC, BLM	Low	No
Plecotus townsendii pallescens	Pale big-eared bat	FSC, BLM	Moderate	No
Nyctinomops femorosaccus	Pocketed free-tailed bat	BLM	Low	No
Eumops perotis californicus	Greater western mastiff bat	FSC, BLM	None	No
Lontra canadensis sonora	Southwestern river otter	FSC, WSC	Low	No
Puma concolor browni	Yuma puma	FSC, WSC	Low	No
Antilocapra americana sonoriensis	Sonoran pronghorn	FE, WSC	None	No

TABLE 4-33 SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO EXIST IN MARICOPA OR LA PAZ COUNTIES, ARIZONA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR				
Scientific Name	**Common Name**	**Status**	**Probability of Presence**	**Pre-construction Survey Recommended**
Ovis canadensis mexicana	Desert bighorn sheep	None	High	No[2]

Status Codes:
BLM - BLM Sensitive Species
FE – Federally Endangered
FT – Federally Threatened
FSC – Federal Species of Concern
WSC – Wildlife of Special Concern in Arizona
P – Proposed BLM Sensitive Species

Probability of Presence:
High – Route passes through suitable habitat with confirmed presence of species.
Moderate – Route passes through suitable habitat, but no confirmed presence, or outside known distribution.
Low – Route passes through marginal habitat, little potential presence of species, or outside known distribution.
None – No suitable or potential habitat, or far from known distribution.
[1] Pre-construction surveys for tortoises would not be required since tortoises are known to be present along the corridor, and a biological monitor will be present during construction within tortoise habitat. All project personnel will attend a pre-construction tortoise training class.
[2]Bighorn currently have no listed status in Arizona, but are a managed big game animal species.

4.1.8.2 California

Vegetation

Within the California study area, the primary native vegetation type is creosote bush scrub, which is present along the entire length of the preferred route. On rocky hills and mountain slopes, creosote bush is also a dominant species, but it is frequently replaced by aspect-dominant species such as white brittlebush on south-facing slopes and white bursage on north-facing slopes. Common associates of creosote bush are white bursage on coarse soils and big galleta grass on finer soils.

Ocotillo is common on stony bajadas, which are present from the Little San Bernardino Mountains eastward through the Chuckwalla Mountains. On the finer soils of the Coachella Valley, desert croton (*Croton californicus*), Palmer coldenia (*Tiquilia palmeri*), plicate coldenia (*Tiquilia plicata*), indigo bush (*Psorothamnus schottii*), and Emory dalea (*Psorothamnus emoryi*) are co-dominants with creosote bush. Tall dunes of windblown sand, dominated by mesquite, occur locally southeast and northwest of the Indio Hills and just west of Myoma.

Washes that dissect creosote bush scrub habitat in the western part of the California study area, (e.g., west of Cactus City) are dominated by white burrobrush and desert lavender (*Hyptis emoryi*) on rocky soils and by white burrobrush and smoketree on finer soils. In the eastern portions of the California study area, the same species occur in washes, but there tends to be a much greater presence of arborescent species (blue paloverde, ironwood, and some mesquite). This setting often creates the impression that valley bottoms are wholly dominated by woodlands of such species as at Shavers Valley near Chiriaco Summit, Desert Center turnoff at I-10, and in the eastern Chuckwalla Valley north of the Little Chuckwalla Mountains. However, examination of such woodlands shows that the trees are largely restricted to washes, including the numerous, anastomosing minor washes and runnels that drain into larger washes. Creosote bush and its associates generally dominate interwash portions of these areas. In areas where washes are particularly abundant, such as portions of the eastern Chuckwalla Valley, major wash complexes dominated by paloverde and ironwood are present.

In the Palo Verde Valley, where the proposed route crosses the Colorado River, riparian habitats dominated by salt cedar (*Tamarix ramosissima*) and honey mesquite (*Prosopis glandulosa*) are present in areas that have not been developed for agricultural uses. Saltbush (*Atriplex* spp.) communities also occur locally in the Palo Verde Valley, but most of these have been removed as the land was converted to agricultural use. Local wetlands, mostly created by irrigation water and other agriculturally related activities, also exist in the Palo Verde Valley. Such wetlands often take the form of small ponds, sloughs, and ditches, and they often support stands of southern cattail (*Typha domingensis*) and/or bulrush (*Scirpus* spp.).

Vegetation along the Colorado River at the crossing of the proposed route is generally dominated either by mesquite or salt cedar. There are local occurrences of Fremont cottonwood (*Populus fremontii*) and willow (*Salix* sp.) along the river in the general vicinity. Honey mesquite is the most common mesquite along the river, but screwbean mesquite (*Prosopis pubescens*) is present locally. Common associates of salt cedar and mesquite are arrowweed (*Pluchea sericea*) and saltbush.

Accompanying the short tree to shrub-dominated salt cedar and mesquite communities, there are some local occurrences of emergent plant communities associated with sloughs, ponds, and isolated oxbows of the Colorado River. These emergent communities are dominated by cattail (*Typha* sp.) and bulrush. There are no major emergent or marshland communities within 1 mile of the proposed Devers-Harquahala 500kV transmission line crossing of the Colorado River.

In addition to perennial plant species, both the California and Arizona portions of the study area are hosts to a large number of annual or ephemeral species of plants. Most of these species appear in the late winter and early spring following periods of suitable rainfall. Shreve and Wiggins (1964) list 109 ephemeral species that occur in the Arizona Upland Subdivision of the Sonoran Desert and 44 that are characteristic of the Lower Colorado River Valley Subdivision. There is some overlap in these two lists, which include members of the families Poaceae, Polygonaceae, Papaveraceae, Crassulaceae, Fabaceae, Onagraceae, Polemoniaceae, Hydrophyllaceae, Boraginaceae, and Asteraceae. During particularly favorable years, spectacular blooms of ephemeral species may occur locally in the study area. In years of little rainfall, the bloom may not occur at all.

<u>Special Status Plant Species – California</u>

Special status plant species in the California portion of the Devers-Harquahala study corridor fall into the following categories:

- species listed by the federal government as threatened, endangered, or under review for inclusion on lists as threatened or endangered species

- species listed by the State of California as rare, threatened, or endangered under the California Endangered Species Act

- species considered species of concern by the CDFG

- species included on one or more of the lists published by the CNPS and CDFG

- species included for protection under the CDNPA

In addition to state and federal listings of sensitive plant species, the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) includes five species of plants all of which are included in Table 3-34. Of these plants, only the Mecca aster has status under the CVMSHCP only; all others have state and/or federal status as well. The Western Riverside County MSHCP addresses nearly 120 species of plants many of which also appear in Table 3-34.

The CNPS maintains lists of extant plant species of different degrees of sensitivity. List 1B includes plant species that are rare and endangered in California, and they also are rare elsewhere. Plant species in List 2 are rare or endangered in California, but they are more common elsewhere. Plants species for which more information is needed are included in List 3. List 4 includes those plant species with limited distribution.

The CDNPA was enacted in 1981 with the intent of protecting native desert plants from unlawful harvesting on both public and private land, and to provide the people of California with the necessary information to legally harvest native plants so as to ultimately transplant such plants with the greatest possibility of success. The CDNPA specifically extends protection to ironwood, mesquite, and paloverde trees, most Cactaceae, all Burseraceae, Agavaceae, Fouquieriaceae, and the following species not included in one of the preceding families: crucifixion thorn, Panamint dudleya (*Dudleya saxosa*), fan palm (*Washingtonia filifera*), catclaw acacia (*Acacia greggii*), desert holly, and smoketree.

As with the ANPL, the CDNPA is aimed primarily at preventing the commercial exploitation of native plants. It is expressly stated that the provisions of the CDNPA are not intended to prevent public or private utility companies from acting in the performance of their obligations to provide services to the public (California State Food and Agriculture Code, Division 23, Chapters 1-8).

Following literature reviews and consultation with the BLM, USFWS, National Park Service, and Rancho Santa Ana Botanical Gardens, initial field surveys for sensitive plants were conducted in 1985 within the California portions of the proposed and alternate transmission line corridors. Five of the species considered sensitive at that time were found during field surveys conducted in 1985 within 500 feet on either side of the centerline of the existing DPV1 transmission line in California. These species were cushion foxtail cactus, California barrel cactus (*Ferocactus cylindraceus*), Coachella Valley milkvetch (*Astragalus lentiginosus coachellae*), California silverbush (*Argythamnia californica*), and desert unicorn plant (*Proboscidea althaeifolia*). Of these species, only the Coachella Valley milkvetch is on the current list of sensitive species in Riverside County (CDFG 2003).

Plant species currently listed as threatened, endangered, or sensitive and known to occur in Riverside County are listed in Table 4-34 (CDFG 2003). This table includes state and federally listed threatened and endangered species, species of concern, and BLM sensitive species. This table includes numerous species that were not listed as sensitive in 1985. Species accounts for plants that have some probability of presence within the study corridor are found in Appendix H. Species for which pre-construction surveys are recommended, or may be required, are noted on the table.

TABLE 4-34
SENSITIVE PLANT SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Allium munzii	Munz's onion	FE, CT, WR	None	No
Ambrosia pumila	San Diego ambrosia	FE, BLM, WR	None	No
Arenaria paludicola	Marsh sandwort	FE, CE,	None	No
Astragalus lentiginosus var. *coachellae*	Coachella Valley milk-vetch	FE, CEQA, CV	High	Yes
Astragalus pachypus var. *jaegeri*	Jaeger's milk-vetch	CEQA, WR	None	No
Astragalus tricarinatus	Triple-ribbed milk-vetch	FE, CEQA, CV	Low	Yes
Atriplex coronata var. *notatior*	San Jacinto Valley crownscale	FE, WR	None	No
Brodiaea filifolia	Thread-leaved brodiaea	FT, CE	None	No
Brodiaea orcuttii	Orcutt's brodiaea	BLM, WR	None	No
Calochortus palmeri var. *palmeri*	Palmer's mariposa lily	FSC, WR	None	No
Calochortus plummerae	Plummer's mariposa	CEQA, WR	None	No
Ceanothus ophiochilus	Vail Lake ceanothus	FT, CE, WR	None	No
Chamaesyce platysperma	Flat-seed sandmat	BLM	Low	No
Chorizanthe parryi var. *parryi*	Parry's spineflower	CEQA, WR	None	No
Chorizanthe polygonoides var. *longispina*	Long-spined spineflower	CEQA, WR	None	No
Chorzanthe xantii var. *leucotheca*	White-bracted spineflower	CEQA, WR	Low	No
Delphinium hesperium ssp. *cuyamacae*	Cuyamaca larkspur	CR	None	No
Dodecahema leptoceras	Slender-horned spineflower	FE, CE, WR	None	No
Dudleya multicaulis	Many stem live-forever	CEQA, BLM, WR	None	No
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	FE, CE, WR	None	No
Erigeron parishii	Parish's daisy	FT, WR	None	No
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE, CE, WR	None	No
Escobaria alversonii	Cushion foxtail cactus	FSC	High	Yes[1]
Euphorbia misera	Cliff spurge	CEQA, WR	None	No
Galium californicum ssp. *primum*	California bedstraw	BLM, WR	None	No
Gilia maculata	Little San Bernardino Mts. linanthus	CEQA, BLM, CV	Low	Yes
Hemizonia mohavensis	Mojave tarplant	FSC, CE, WR	None	No
Ivesia callida	Tahquitz ivesia	CR, WR	None	No
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	CEQA, WR	None	no
Limnanthes gracilis ssp. *parishii*	Parish's meadowfoam	FSC, CE, WR	None	No
Linanthus orcuttii	Orcutt's linanthus	BLM, WR	None	No
Mahonia nevinii	Nevin's barberry	FE, CE, WR	None	No
Mondardella pringlei	Pringle's coyote-mint	CEQA, WR	None (Extinct?)	No
Monardella robisonii	Robison monardella	BLM	None	No

TABLE 4-34 SENSITIVE PLANT SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR				
Scientific Name	**Common Name**	**Status**	**Probability of Presence**	**Pre-construction Survey Recommended**
Myosurus minimus ssp. *apus*	Little mousetail	FSC, WR	None	No
Navarretia fossalis	Spreading navarretia	FT, WR	None	No
Navarretia prostrata	Prostrate navarretia	FSC	None	No
Nemacaulis denudata var. *gracilis*	Slender woollyheads	CEQA	None	No
Opuntia munzii	Munz cholla	BLM	None	No
Orcuttia californica	California Orcutt grass	FE, CE, WR	None	No
Salvia greatae	Orocopia sage	CEQA, CV	None	No
Sidalcea neomexicana	Salt-spring checkerbloom	CEQA, WR	None	No
Tetracoccus dioicus	Parry's tetracoccus	BLM, WR	None	No
Trichocoronis wrightii var. *wrightii*	Wright's button	CEQA, WR	None	No
Trichostema austromontanum ssp. *Compactum*	Hidden Lake bluecurls	FT, WR	None	No
Xylorhiza cognata	Mecca Aster	CVMSHCP	None	No

Status Codes:
FE – Federally Endangered
FT – Federally Threatened
FSC – Federal Species of Concern
CE – California Endangered
CT – California Threatened
CR – California Rare
CVMSHCP – Coachella Valley Multiple Species Habitat Conservation Plan listing only
CV – Coachella Valley Multiple Species Habitat Conservation Plan
WR – Western Riverside County Multiple Species Habitat Conservation Plan

Probability of Presence:
High – Route passes through suitable habitat with confirmed presence of species.
Moderate – Route passes through suitable habitat, but no confirmed presence, or outside known distribution.
Low – Route passes through marginal habitat, little potential presence of species, or outside known distribution.
None – No suitable habitat, or far from known distribution.

[1]A pre-construction survey for this species is recommended since its presence along the corridor is known, and locating individual plants would allow for adjustment of tower foundations to avoid the plants. Alternatively, plants could be moved.

Survey Results of 2003 Special Status Plant Survey within the Proposed Devers-Harquahala Study Corridor in California

In California, 14 species of plants protected under the California Desert Native Plant Act (CDNPA) were found in surveys of tower sites and access roads along the proposed Devers-

Harquahala study corridor in 2002 and 2003. See Table 4-35 for the total number of individuals of each species found.

TABLE 4-35
TOTAL NUMBER OF CDNPA-LISTED PLANTS, BY SPECIES, FOUND ALONG THE CALIFORNIA PORTION OF THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Number of Individuals
Acacia greggii	Catclaw acacia	97
Echinocereus engelmannii	Engelmann's hedgehog cactus	10
Echinocactus polycephalus	Cottontop barrel cactus	4
Ferocactus cylindraceus	California barrel cactus	40
Fouquieria splendens	Ocotillo	128
Mammillaria grahamii var. *grahamii*	Fishhook pincushion	2
Olneya tesota	Ironwood	230
Opuntia basilaris	Beavertail prickly pear	103
Opuntia bigelovii	Teddybear cholla	81
Opuntia echinocarpa	Straw-top cholla	279
Opuntia ramosissima	Diamond cholla	547
Opuntia wigginsii	Wiggins' cholla	66
Parkinsonia florida	Blue paloverde	394
Psorothamnus spinosus	Smoketree	127

In addition to CDNPA-listed plants, the survey also included a search for federal and state protected plant species. Four individuals of Coachella Valley milkvetch, a federally listed endangered species, were found in areas of aeolian sands in Coachella Valley. Twenty-nine individuals of the cushion foxtail cactus (*Escobaria alversonii*), a federal species of concern, were found in cobbly rocky areas near the Cottonwood and Chuckwalla mountains. Burrows, sign, and live sightings of Mojave desert tortoise were recorded as well. Also, all existing DPV1 towers were noted when either raptors or ravens had built stick nests in them. When the status of the nest could be determined, this information was collected as well.

Wildlife

The California portion of the Devers-Harquahala study corridor begins on the west bank of the Colorado River. The wildlife of this portion of the study corridor is composed of mammals, birds, amphibians, and reptiles that are adapted to life in the harsh, arid deserts that characterize eastern and southern California.

Mammals

The mammalian fauna of the California portion of the Devers-Harquahala study corridor is dominated by small, nocturnal species of rodents and bats. As in the Arizona portion of the corridor, the Heteromyid pocket mice and kangaroo rats are the most common rodents. Owing to an absence of caves, mines, or other structures that would provide nursery or roost sites within the study corridor, it is likely that most bats occurring there would be foraging individuals. Black-tailed jack rabbit, desert cottontail (*Sylvilagus audubonі*), white-tailed antelope squirrel (*Ammospermophilus leucurus*), and round-tailed ground squirrel (*Spermophilus tereticaudus*) are the most common, small, diurnal species. Mule deer (*Odocoileus hemionus*) occur sparingly in larger wash woodland complexes. There is no suitable habitat for desert bighorn along the corridor in California. As in Arizona, the coyote is a common predator, but it is probably outnumbered in California by kit foxes (*Vulpes macrotis*).

Birds

The avifauna of the California portion of the study corridor is likely dominated by small, diurnal songbirds including classic desert species such as black-tailed gnatcatcher (*Polioptila melanura*), cactus wren (*Campylorhynchus brunniecapillus*), LeConte's thrasher (*Toxoxtome lecontei*), verdin (*Auriparus flaviceps*), and black-throated sparrow (*Amphispiza bilineata*). Larger, more conspicuous species are turkey vulture (*Cathartes aura*) and red-tailed hawk (*Buteo jamaicensis*).

Reptiles

The reptile fauna of the California portion of the study corridor is quite diverse and varies locally depending on substrate. Ammophilus species such as western shovel-nosed snake (*Chionactis occipitalis*), sidewinder, Mohave fringe-toed lizard (*Uma scoparia*), and Coachella Valley fringe-toed lizard are found in areas of Aeolian or semi-consolidated sand dunes. Species like chuckwalla, collared lizard (*Crotaphytus collaris*), lyre snake (*Trimorphodon biscutatus*), and speckled rattlesnake (*Crotalus mitchellii*) are more likely to be found in rocky areas. Species that are more habitat generalists and likely to be found nearly anywhere in the study corridor include side-blotched lizard (*Uta stansburiana*), desert spiny lizard (*Sceloporus magister*), western whiptail *(Cnemidophorus tigris*), gopher snake (*Pituophis catenifer*), and western diamond-backed rattlesnake (*Crotalus atrox*).

Amphibians

The amphibian fauna of the California portion of the study corridor is very limited owing to the extreme aridity of the area. Summer monsoon rains only occasionally reach eastern and southern California and this is reflected in the paucity of amphibian species. The red-spotted toad is probably the most common amphibian in rocky canyons and arroyos. The Sonoran Desert toad barely extends into California. Couch's spadefoot and Great Plains toad also reach eastern and southern California, but just barely.

Special Status Wildlife – California

In addition to the special status categories previously defined for federally listed species and species listed by the California Natural Diversity Database (CNDDB), the State of California and the CDFG declare wildlife species to be endangered under the following sets of criteria.

Endangered

- when mortality rates consistently exceed birth rates
- when the species is incapable of adapting to environmental change
- when habitat is threatened by destruction or serious disturbance
- when the survival of a species is threatened by the unwanted introduction of other species through predation, competition, or disease
- when environmental pollution threatens the survival of a species

Threatened

- when a species is confined to a relatively small and specialized habitat and is incapable of adapting to different environmental conditions
- when a species is nowhere abundant, although it may be found in other parts of the world
- when a species is so limited that any appreciable reduction in range, numbers, or habitat could cause it to become endangered
- when a species may become endangered if current management and protection programs were diminished in any degree

Wildlife species currently listed as threatened, endangered, or sensitive and known to occur in Riverside County are listed in Table 4-36 (CDFG 2003). This list includes state and federally listed threatened and endangered species, species of concern, and BLM sensitive species. Species afforded status under the CVMSHCP are also included in this table. Many of the 120 wildife species included in the Western Riverside County MSHCP are also included in Table 4-36. This list includes numerous species that were not listed as sensitive species in 1985. Species for which pre-construction surveys are recommended, or may be required, are noted in the table.

TABLE 4-36
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
INVERTEBRATES				
Macrobaenetes valgum	Coachella giant sand treader cricket	FSC, CV	High	No
Stenopelmatus cahuilaensis	Coachella Valley jerusalem cricket	FSC, CV	High	No
Branchinecta lynchi	Vernal pool fairy shrimp	FT, WR	None	No
Streptocephalus woottoni	Riverside fairy shrimp	FE, WR	None	No
Euphydryas editha quino	Quino checkerspot butterfly	FE, WR	None	No
Raphiomidas terminatus abdominalis	Delhi sands flower-loving fly	FE, WR	None	No
FISH				
Oncorhynchus mykiss irideus	Coastal rainbow trout	FE, CSC	None	No
Catostomus santaanae	Santa Ana sucker	FT, CSC	None	No
Xyrauchen texanus	Razorback sucker	FE, CE	Low	No
Cyprinodon macularius	Desert pupfish	FE, CE, CV	None	No
AMPHIBIANS				
Ambystoma californiense	California tiger salamander	FE, CSC	None	No
Batrachoseps aridus	Desert slender salamander	FE, CE, CV	None	No
Spea hammondii	Western spadefoot	FSC, CSC, WR BLM	Low	No
Scaphiopus couchii	Couch's spadefoot	CSC, BLM	Low	No
Bufo californicus	Arroyo toad	FE,CSC, WR	None	No
Rana aurora draytonii	California red-legged frog	FT, CSC, WR	None	No
Rana muscosa (DPS)	Mountain yellow-legged frog	FE, CSC, WR	None	No
REPTILES				
Clemmys marmorata pallida	Southwestern pond turtle	FSC, CSC, BLM, WR	None	No
Gopherus agassizii	Desert tortoise (Mojave population)	FT, CT, CV	High	Yes[1]
Sauromalus ater	Chuckwalla	BLM	Moderate	No
Uma inornata	Coachella Valley fringe-toed lizard	FT, CE, CV	High	Yes[2]
Uma scoparia	Mojave fringe-toed lizard	BLM	Moderate	No
Phrynosoma coronatum blainvillei	San Diego horned lizard	CSC	None	No

TABLE 4-36 SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR				
Scientific Name	**Common Name**	**Status**	**Probability of Presence**	**Pre-construction Survey Recommended**
Phrynosoma mcallii	Flat-tailed horned lizard	FPT, CSC, BLM, CV	Low	Yes
Eumeces skiltonianus interparietalis	Coronado skink	CSC, BLM	None	No
Anniella pulchra pulchra	Silvery legless lizard	FSC, CSC	None	No
Charina bottae umbratica	Southern rubber boa	FSC, CT, WR	None	No
Charina trivirgata	Desert rosy boa	FSC, BLM	Moderate	No
Thamnophis hammondii	Two-striped garter snake	CSC, BLM, WR	None	No
BIRDS				
Ixobrychus exilis hesperis	Western least bittern	FSC, CSC, WR	Moderate	No
Egretta thula	Snowy egret	FSC	Moderate	No
Plegadis chihi	White-faced ibis	FSC, CSC, WR	Moderate	No
Elanus leucurus	White-tailed kite	FSC, WR	None	No
Haliaeetus leucocephalus	Bald eagle	FT, CE, WR	Moderate	No
Buteo regalis	Ferruginous hawk	FSC, CSC, WR	Moderate	No
Buteo swainsonii	Swainson's hawk	FSC, WR	Moderate	No
Laterallus jamaicensis coturniculus	California black rail	FSC, CT, WR	Moderate	Yes[2]
Rallus longirostris yumanensis	Yuma clapper rail	FE, CT, CV	Moderate	No
Charadrius alexandrinus nivosus	Western snowy plover	FT, CSC	Low	No
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	FC, CE, WR	Low	No
Micrathene whitneyi	Elf owl	CE	Low	No
Athene cunicularia hypugaea	Western burrowing owl	FSC, CSC, BLM, WR, CV	High	No
Cypseloides niger	Black swift	FSC, CSC	None	No
Melanerpes uropygialis	Gila woodpecker	CE	Moderate	No
Colaptes chrysoides	Gilded flicker	CE	Low	No
Empidonax traillii extimus	Southwestern willow flycatcher	FE, CE, WR, CV	Low	No
Lanius ludovicianus	Loggerhead shrike	FSC, CSC	Moderate	No
Vireo bellii pusillus	Least Bell's vireo	FE, CE, WR, CV	None	No
Vireo bellii arizonae	Arizona Bell's vireo	CE	Low	No
Vireo vicinior	Gray vireo	CSC, CV	Low	No
Polioptila californica californica	Coastal California gnatcatcher	FT, CSC	None	No

TABLE 4-36 SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR				
Scientific Name	**Common Name**	**Status**	**Probability of Presence**	**Pre-construction Survey Recommended**
Toxostoma lecontei	LeConte's thrasher	FSC, CSC, BLM, WR, CV	Moderate	No
Toxostoma crissale	Crissal thrasher	CSC, CV	Low	No
Icteria virens	Yellow-breasted chat	CSC, CV, WR	Moderate	No
Dendroica petechia brewsteri	Yellow warbler	CSC, CV, WR	Moderate	No
Piranga rubra cooperi	Summer tanager	CSC, CV	Low	No
Amphispiza belli belli	Bell's sage sparrow	FSC, CSC, WR	None	No
Agelaius tricolor	Tricolored blackbird	FSC, CSC, S, WR	None	No
MAMMALS				
Macrotus californicus	California leaf-nosed bat	FSC, CSC, BLM, WR	Moderate	No
Myotis velifer	Cave myotis	FSC, CSC, BLM	Low	No
Myotis thysanodes	Fringed myotis	FSC, BLM, WR	Low	No
Myotis leibii (*ciliolabrum*)	Western small-footed bat	FSC, BLM, WR	Low	No
Lasiurus ega	Southern yellow bat	SCS, CV	Low	No
Euderma maculatum	Spotted bat	FSC, CSC, BLM, WR	Low	No
Plecotus townsendii pallescens	Pale big-eared bat	FSC, CSC, BLM	Moderate	No
Antrozous pallidus	Pallid bat	CSC, BLM, WR	Moderate	No
Eumops perotis californicus	Greater western mastiff bat	FSC, CSC, BLM	None	No
Spermophilus tereticaudus chlorus	Palm Springs round-tailed ground squirrel	FC, CSC, CV	High	Yes
Perognathus longimembris bangsi	Palm Springs pocket mouse	CSC, CV	High	No
Dipodomys merriami parvus	San Bernardino kangaroo Rat	FE, CSC, WR	None	No
Dipodomys stephensi	Stephens' kangaroo rat	FE, CT, WR	None	No
Ovis canadensis nelsoni (DPS)	Peninsular bighorn sheep	FE, CT, BLM, WR	None	No

TABLE 4-36 SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR				
Scientific Name	**Common Name**	**Status**	**Probability of Presence**	**Pre-construction Survey Recommended**

Status Codes:

FE – Federally Endangered
FT – Federally Threatened
FC – Federal Candidate
FSC – Federal Species of Concern
FPT – Federally Proposed for Listing as Threatened

BLM - BLM (California) Sensitive species

CE – California Endangered
CT – California Threatened
CSC – CDFG Species of Concern
WR – Western Riverside County MSHCP
CV – Coachella Valley MSHCP

[1] Pre-construction surveys for tortoises will be performed, but protocol surveys would not be required in the general area of the transmission line since tortoises are known to be present along the corridor, and a biological monitor will be present during construction within tortoise habitat. All project personnel will attend a pre-construction tortoise training class.

[2] Surveys for this species should be conducted in areas of suitable habitat.

4.1.8.2 California

Existing Biological Conditions

Flora

Within California, the primary native vegetation type is creosote bush scrub, which is present along the entire length of the study corridor. On rocky hills and mountain slopes, creosote bush is also a dominant species, but it is frequently replaced by aspect-dominant species such as white brittlebush on south-facing slopes and white bursage on north-facing slopes. Common associates of creosote bush are white bursage on coarse soils and big galleta grass on finer soils.

Ocotillo is common on stony bajadas, which are present from the Little San Bernardino Mountains eastward through the Chuckwalla Mountains. On the finer soils of the Coachella Valley, desert croton (*Croton californicus*), Palmer coldenia (*Tiquilia palmeri*), plicate coldenia (*Tiquilia plicata*), indigo bush (*Psorothamnus schottii*), and Emory dalea (*Psorothamnus emoryi*) are co-dominants with creosote bush. Tall dunes of windblown sand, dominated by mesquite, occur locally southeast and northwest of the Indio Hills and just west of Myoma.

Washes that dissect creosote bush scrub habitat in the western part of the California study area, (e.g., west of Cactus City) are dominated by white burrobrush and desert lavender (*Hyptis emoryi*) on rocky soils and by white burrobrush and smoketree on finer soils. In the eastern portions of the California study area, the same species occur in washes, but there tends to be a much greater presence of arborescent species (blue paloverde, ironwood, and some mesquite). This setting often creates the impression that valley bottoms are wholly dominated by woodlands of such species as at Shavers Valley near Chiriaco Summit, Desert Center turnoff at I-10, and in the eastern Chuckwalla Valley north of the Little Chuckwalla Mountains. However, examination of such woodlands shows that the trees are largely restricted to washes, including the numerous, anastomosing minor washes and runnels that drain into larger washes. Creosote bush and its associates generally dominate interwash portions of these areas. In areas where washes are particularly abundant, such as portions of the eastern Chuckwalla Valley, major wash complexes dominated by paloverde and ironwood are present.

In the Palo Verde Valley, where the study corridor crosses the Colorado River, riparian habitats dominated by salt cedar (*Tamarix ramosissima*) and honey mesquite (*Prosopis glandulosa*) are present in areas that have not been developed for agricultural uses. Saltbush (*Atriplex* spp.) communities also occur locally in the Palo Verde Valley, but most of these have been removed as the land was converted to agricultural use. Local wetlands, mostly created by irrigation water and other agriculturally related activities, also exist in the Palo Verde Valley. Such wetlands often take the form of small ponds, sloughs, and ditches, and they often support stands of southern cattail (*Typha domingensis*) and/or bulrush (*Scirpus* spp.).

Vegetation along the Colorado River at the crossing of the study corridor is generally dominated either by mesquite or salt cedar. There are local occurrences of Fremont cottonwood (*Populus fremontii*) and willow (*Salix* sp.) along the river in the general vicinity. Honey mesquite is the most common mesquite along the river, but screwbean mesquite (*Prosopis pubescens*) is present locally. Common associates of salt cedar and mesquite are arrowweed (*Pluchea sericea*) and saltbush.

Accompanying the short tree to shrub-dominated salt cedar and mesquite communities, there are some local occurrences of emergent plant communities associated with sloughs, ponds, and isolated oxbows of the Colorado River. These emergent communities are dominated by cattail (*Typha* sp.) and bulrush. There are no major emergent or marshland communities within 1 mile of the proposed Devers-Harquahala 500kV transmission line crossing of the Colorado River.

In addition to perennial plant species, both the California and Arizona portions of the study corridor are hosts to a large number of annual or ephemeral species of plants. Most of these species appear in the late winter and early spring following periods of suitable rainfall. Shreve and Wiggins (1964) list 109 ephemeral species that occur in the Arizona Upland Subdivision of the Sonoran Desert and 44 that are characteristic of the Lower Colorado River Valley Subdivision. There is some overlap in these two lists, which include members of the families Poaceae, Polygonaceae, Papaveraceae, Crassulaceae, Fabaceae, Onagraceae, Polemoniaceae, Hydrophyllaceae, Boraginaceae, and Asteraceae. During particularly favorable years, spectacular blooms of ephemeral species may occur locally in the study area. In years of little rainfall, the bloom may not occur at all.

<u>Special Status Plant Species – California</u>

Special status plant species in the California portion of the Devers-Harquahala study corridor fall into the following categories:

- species listed by the federal government as threatened, endangered, or under review for inclusion on lists as threatened or endangered species

- species listed by the State of California as rare, threatened, or endangered under the California Endangered Species Act

- species considered species of concern by the CDFG

- species included on one or more of the lists published by the California Native Plant Society (CNPS) and CDFG

- species included for protection under the California Desert Native Plant Act (CDNPA)

In addition to state and federal listings of sensitive plant species, the Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP) includes five species of plants, all of which are included in Table 3-37. Of these plants, only the Mecca aster has status under the CVMSHCP alone; all others have state and/or federal status as well. The Western Riverside County MSHCP addresses nearly 120 species of plants, many of which also appear in Table 3-34.

The CNPS maintains lists of extant plant species of different degrees of sensitivity. List 1B includes plant species that are rare and endangered in California, and they also are rare elsewhere. Plant species in List 2 are rare or endangered in California, but they are more common elsewhere. Plants species for which more information is needed are included in List 3. List 4 includes those plant species with limited distribution.

The CDNPA was enacted in 1981 with the intent of protecting native desert plants from unlawful harvesting on both public and private land, and to provide the people of California with the necessary information to legally harvest native plants so as to ultimately transplant such plants with the greatest possibility of success. The CDNPA specifically extends protection to ironwood, mesquite, and paloverde trees, most Cactaceae, all Burseraceae, Agavaceae, Fouquieriaceae, and the following species not included in one of the preceding families: crucifixion thorn, Panamint dudleya (*Dudleya saxosa*), fan palm (*Washingtonia filifera*), catclaw acacia (*Acacia greggii*), desert holly, and smoketree.

As with the ANPL, the CDNPA is aimed primarily at preventing the commercial exploitation of native plants. It is expressly stated that the provisions of the CDNPA are not intended to prevent public or private utility companies from acting in the performance of their obligations to provide services to the public (California State Food and Agriculture Code, Division 23, Chapters 1-8).

Following literature reviews and consultation with the BLM, USFWS, National Park Service, and Rancho Santa Ana Botanical Gardens, initial field surveys for sensitive plants were conducted in 1985 within the California portions of the proposed Devers-Harquahala study corridor. Five of the species considered sensitive at that time were found during field surveys conducted in 1985 within 500 feet on either side of the centerline of the existing DPV1 transmission line in California. These species were cushion foxtail cactus, California barrel cactus (*Ferocactus cylindraceus*), Coachella Valley milkvetch (*Astragalus lentiginosus coachellae*), California silverbush (*Argythamnia californica*), and desert unicorn plant (*Proboscidea althaeifolia*). Of these species, only the Coachella Valley milkvetch is on the current list of sensitive species in Riverside County (CDFG 2003).

Plant species currently listed as threatened, endangered, or sensitive and known to occur in Riverside County are listed in Table 4-37 (CDFG 2003). This table includes state and federally listed threatened and endangered species, species of concern, and BLM sensitive species. This table includes numerous species that were not listed as sensitive in 1985. Species accounts for plants that have some probability of presence within the study corridor are found in Appendix H. Species for which pre-construction surveys are recommended, or may be required, are noted on the table.

TABLE 4-37
SENSITIVE PLANT SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Allium munzii	Munz's onion	FE, CT, WR	None	No
Ambrosia pumila	San Diego ambrosia	FE, BLM, WR	None	No
Arenaria paludicola	Marsh sandwort	FE, CE,	None	No
Astragalus lentiginosus var. *coachellae*	Coachella Valley milk-vetch	FE, CEQA, CV	High	Yes
Astragalus pachypus var. *jaegeri*	Jaeger's milk-vetch	CEQA, WR	None	No
Astragalus tricarinatus	Triple-ribbed milk-vetch	FE, CEQA, CV	Low	Yes
Atriplex coronata var. *notatior*	San Jacinto Valley crownscale	FE, WR	None	No
Brodiaea filifolia	Thread-leaved brodiaea	FT, CE	None	No
Brodiaea orcuttii	Orcutt's brodiaea	BLM, WR	None	No
Calochortus palmeri var. *palmeri*	Palmer's mariposa lily	FSC, WR	None	No
Calochortus plummerae	Plummer's mariposa	CEQA, WR	None	No
Ceanothus ophiochilus	Vail Lake ceanothus	FT, CE, WR	None	No
Chamaesyce platysperma	Flat-seed sandmat	BLM	Low	No
Chorizanthe parryi var. *parryi*	Parry's spineflower	CEQA, WR	None	No
Chorizanthe polygonoides var. *longispina*	Long-spined spineflower	CEQA, WR	None	No
Chorzanthe xantii var. *leucotheca*	White-bracted spineflower	CEQA, WR	Low	No
Delphinium hesperium ssp. *cuyamacae*	Cuyamaca larkspur	CR	None	No
Dodecahema leptoceras	Slender-horned spineflower	FE, CE, WR	None	No
Dudleya multicaulis	Many stem live-forever	CEQA, BLM, WR	None	No
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	FE, CE, WR	None	No
Erigeron parishii	Parish's daisy	FT, WR	None	No
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE, CE, WR	None	No
Escobaria alversonii	Cushion foxtail cactus	FSC	High	Yes[1]
Euphorbia misera	Cliff spurge	CEQA, WR	None	No
Galium californicum ssp. *primum*	California bedstraw	BLM, WR	None	No
Gilia maculata	Little San Bernardino Mts. linanthus	CEQA, BLM, CV	Low	Yes
Hemizonia mohavensis	Mojave tarplant	FSC, CE, WR	None	No
Ivesia callida	Tahquitz ivesia	CR, WR	None	No
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	CEQA, WR	None	no
Limnanthes gracilis ssp. *parishii*	Parish's meadowfoam	FSC, CE, WR	None	No
Linanthus orcuttii	Orcutt's linanthus	BLM, WR	None	No
Mahonia nevinii	Nevin's barberry	FE, CE, WR	None	No
Mondardella pringlei	Pringle's coyote-mint	CEQA, WR	None (Extinct?)	No
Monardella robisonii	Robison monardella	BLM	None	No

TABLE 4-37 SENSITIVE PLANT SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR				
Scientific Name	**Common Name**	**Status**	**Probability of Presence**	**Pre-construction Survey Recommended**
Myosurus minimus ssp. *apus*	Little mousetail	FSC, WR	None	No
Navarretia fossalis	Spreading navarretia	FT, WR	None	No
Navarretia prostrata	Prostrate navarretia	FSC	None	No
Nemacaulis denudata var. *gracilis*	Slender woollyheads	CEQA	None	No
Opuntia munzii	Munz cholla	BLM	None	No
Orcuttia californica	California Orcutt grass	FE, CE, WR	None	No
Salvia greatae	Orocopia sage	CEQA, CV	None	No
Sidalcea neomexicana	Salt-spring checkerbloom	CEQA, WR	None	No
Tetracoccus dioicus	Parry's tetracoccus	BLM, WR	None	No
Trichocoronis wrightii var. *wrightii*	Wright's button	CEQA, WR	None	No
Trichostema austromontanum ssp. *Compactum*	Hidden Lake bluecurls	FT, WR	None	No
Xylorhiza cognata	Mecca Aster	CVMSHCP	None	No

Status Codes:
FE – Federally Endangered
CE – California Endangered
FT – Federally Threatened
CT – California Threatened
FSC – Federal Species of Concern
CR – California Rare
CVMSHCP – Coachella Valley Multiple Species Habitat Conservation Plan listing only
CV – Coachella Valley Multiple Species Habitat Conservation Plan
WR – Western Riverside County Multiple Species Habitat Conservation Plan

Probability of Presence:
High – Route passes through suitable habitat with confirmed presence of species.
Moderate – Route passes through suitable habitat, but no confirmed presence, or outside known distribution.
Low – Route passes through marginal habitat, little potential presence of species, or outside known distribution.
None – No suitable habitat, or far from known distribution.

[1]A pre-construction survey for this species is recommended since its presence along the corridor is known, and locating individual plants would allow for adjustment of tower foundations to avoid the plants. Alternatively, plants could be moved.

Survey Results of 2003 Special Status Plant Survey within the Proposed Devers-Harquahala Study Corridor in California

In California, 14 species of plants protected under the California Desert Native Plant Act (CDNPA) were found in surveys of tower sites and access roads along the proposed Devers-

Harquahala study corridor in 2002 and 2003. See Table 4-38 for the total number of individuals of each species found.

TABLE 4-38
TOTAL NUMBER OF CDNPA-LISTED PLANTS, BY SPECIES, FOUND WITHIN THE CALIFORNIA PORTION OF THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Number of Individuals
Acacia greggii	Catclaw acacia	97
Echinocereus engelmannii	Engelmann's hedgehog cactus	10
Echinocactus polycephalus	Cottontop barrel cactus	4
Ferocactus cylindraceus	California barrel cactus	40
Fouquieria splendens	Ocotillo	128
Mammillaria grahamii var. *grahamii*	Fishhook pincushion	2
Olneya tesota	Ironwood	230
Opuntia basilaris	Beavertail prickly pear	103
Opuntia bigelovii	Teddybear cholla	81
Opuntia echinocarpa	Straw-top cholla	279
Opuntia ramosissima	Diamond cholla	547
Opuntia wigginsii	Wiggins' cholla	66
Parkinsonia florida	Blue paloverde	394
Psorothamnus spinosus	Smoketree	127

In addition to CDNPA-listed plants, the survey also included a search for federal and state protected plant species. Four individuals of Coachella Valley milkvetch (*Astragalus lentiginosus* var. *coachellae*), a federally listed endangered species, were found in areas of aeolian sands in Coachella Valley. Twenty-nine individuals of the cushion foxtail cactus (*Escobaria alversonii*), a federal species of concern, were found in cobbly rocky areas near the Cottonwood and Chuckwalla mountains. Burrows, sign, and live sightings of Mojave desert tortoise were recorded as well. Also, all existing DPV1 towers were noted when either raptors or ravens had built stick nests in them. When the status of the nest could be determined, this information was collected as well.

Wildlife

Special Status Wildlife – California

In addition to the special status categories previously defined for federally listed species and species listed by the California Natural Diversity Database (CNDDB), the State of California and the CDFG declare wildlife species to be endangered under the following sets of criteria.

Endangered

- when mortality rates consistently exceed birth rates
- when the species is incapable of adapting to environmental change
- when habitat is threatened by destruction or serious disturbance
- when the survival of a species is threatened by the unwanted introduction of other species through predation, competition, or disease
- when environmental pollution threatens the survival of a species

Threatened

- when a species is confined to a relatively small and specialized habitat and is incapable of adapting to different environmental conditions
- when a species is nowhere abundant, although it may be found in other parts of the world
- when a species is so limited that any appreciable reduction in range, numbers, or habitat could cause it to become endangered

- when a species may become endangered if current management and protection programs were diminished in any degree

Wildlife species currently listed as threatened, endangered, or sensitive and known to occur in Riverside County are listed in Table 4-39 (CDFG 2003). This list includes state and federally listed threatened and endangered species, species of concern, and BLM sensitive species. Species afforded status under the CVMSHCP are also included in this table. Many of the 120 wildife species included in the Western Riverside County MSHCP are also included in Table 4-39. This list includes numerous species that were not listed as sensitive species in 1985. Species accounts for wildlife that have some probability of presence within the study corridor are found in Appendix H. Species for which pre-construction surveys are recommended, or may be required, are noted in the table.

TABLE 4-39
SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE WITHIN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
INVERTEBRATES				
Macrobaenetes valgum	Coachella giant sand treader cricket	FSC, CV	High	No
Stenopelmatus cahuilaensis	Coachella Valley jerusalem cricket	FSC, CV	High	No
Branchinecta lynchi	Vernal pool fairy shrimp	FT, WR	None	No
Streptocephalus woottoni	Riverside fairy shrimp	FE, WR	None	No
Euphydryas editha quino	Quino checkerspot butterfly	FE, WR	None	No
Raphiomidas terminatus abdominalis	Delhi sands flower-loving fly	FE, WR	None	No
FISH				
Oncorhynchus mykiss irideus	Coastal rainbow trout	FE, CSC	None	No
Catostomus santaanae	Santa Ana sucker	FT, CSC	None	No
Xyrauchen texanus	Razorback sucker	FE, CE	Low	No
Cyprinodon macularius	Desert pupfish	FE, CE, CV	None	No
AMPHIBIANS				
Ambystoma californiense	California tiger salamander	FE, CSC	None	No
Batrachoseps aridus	Desert slender salamander	FE, CE, CV	None	No
Spea hammondii	Western spadefoot	FSC, CSC, WR BLM	Low	No

TABLE 4-39 SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE WITHIN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR				
Scientific Name	**Common Name**	**Status**	**Probability of Presence**	**Pre-construction Survey Recommended**
Scaphiopus couchii	Couch's spadefoot	CSC, BLM	Low	No
Bufo californicus	Arroyo toad	FE,CSC, WR	None	No
Rana aurora draytonii	California red-legged frog	FT, CSC, WR	None	No
Rana muscosa (DPS)	Mountain yellow-legged frog	FE, CSC, WR	None	No
REPTILES				
Clemmys marmorata pallida	Southwestern pond turtle	FSC, CSC, BLM, WR	None	No
Gopherus agassizii	Desert tortoise (Mojave population)	FT, CT, CV	High	Yes[1]
Sauromalus ater	Chuckwalla	BLM	Moderate	No
Uma inornata	Coachella Valley fringe-toed lizard	FT, CE, CV	High	Yes[2]
Uma scoparia	Mojave fringe-toed lizard	BLM	Moderate	No
Phrynosoma coronatum blainvillei	San Diego horned lizard	CSC	None	No
Phrynosoma mcallii	Flat-tailed horned lizard	FPT, CSC, BLM, CV	Low	Yes
Eumeces skiltonianus interparietalis	Coronado skink	CSC, BLM	None	No
Anniella pulchra pulchra	Silvery legless lizard	FSC, CSC	None	No
Charina bottae umbratica	Southern rubber boa	FSC, CT, WR	None	No
Charina trivirgata	Desert rosy boa	FSC, BLM	Moderate	No
Thamnophis hammondii	Two-striped garter snake	CSC, BLM, WR	None	No
BIRDS				
Ixobrychus exilis hesperis	Western least bittern	FSC, CSC, WR	Moderate	No
Egretta thula	Snowy egret	FSC	Moderate	No
Plegadis chihi	White-faced ibis	FSC, CSC, WR	Moderate	No
Elanus leucurus	White-tailed kite	FSC, WR	None	No
Haliaeetus leucocephalus	Bald eagle	FT, CE, WR	Moderate	No
Buteo regalis	Ferruginous hawk	FSC, CSC, WR	Moderate	No
Buteo swainsonii	Swainson's hawk	FSC, WR	Moderate	No
Laterallus jamaicensis coturniculus	California black rail	FSC, CT, WR	Moderate	Yes[2]
Rallus longirostris yumanensis	Yuma clapper rail	FE, CT, CV	Moderate	No
Charadrius alexandrinus nivosus	Western snowy plover	FT, CSC	Low	No
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	FC, CE, WR	Low	No

TABLE 4-39 SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE WITHIN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR				
Scientific Name	**Common Name**	**Status**	**Probability of Presence**	**Pre-construction Survey Recommended**
Micrathene whitneyi	Elf owl	CE	Low	No
Athene cunicularia hypugaea	Western burrowing owl	FSC, CSC, BLM, WR, CV	High	No
Cypseloides niger	Black swift	FSC, CSC	None	No
Melanerpes uropygialis	Gila woodpecker	CE	Moderate	No
Colaptes chrysoides	Gilded flicker	CE	Low	No
Empidonax traillii extimus	Southwestern willow flycatcher	FE, CE, WR, CV	Low	No
Lanius ludovicianus	Loggerhead shrike	FSC, CSC	Moderate	No
Vireo bellii pusillus	Least Bell's vireo	FE, CE, WR, CV	None	No
Vireo bellii arizonae	Arizona Bell's vireo	CE	Low	No
Vireo vicinior	Gray vireo	CSC, CV	Low	No
Polioptila californica californica	Coastal California gnatcatcher	FT, CSC	None	No
Toxostoma lecontei	LeConte's thrasher	FSC, CSC, BLM, WR, CV	Moderate	No
Toxostoma crissale	Crissal thrasher	CSC, CV	Low	No
Icteria virens	Yellow-breasted chat	CSC, CV, WR	Moderate	No
Dendroica petechia brewsteri	Yellow warbler	CSC, CV, WR	Moderate	No
Piranga rubra cooperi	Summer tanager	CSC, CV	Low	No
Amphispiza belli belli	Bell's sage sparrow	FSC, CSC, WR	None	No
Agelaius tricolor	Tricolored blackbird	FSC, CSC, S, WR	None	No
MAMMALS				
Macrotus californicus	California leaf-nosed bat	FSC, CSC, BLM, WR	Moderate	No
Myotis velifer	Cave myotis	FSC, CSC, BLM	Low	No
Myotis thysanodes	Fringed myotis	FSC, BLM, WR	Low	No
Myotis leibii (*ciliolabrum*)	Western small-footed bat	FSC, BLM, WR	Low	No
Lasiurus ega	Southern yellow bat	SCS, CV	Low	No
Euderma maculatum	Spotted bat	FSC, CSC, BLM, WR	Low	No
Plecotus townsendii pallescens	Pale big-eared bat	FSC, CSC, BLM	Moderate	No
Antrozous pallidus	Pallid bat	CSC, BLM, WR	Moderate	No

TABLE 4-39 SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO OCCUR IN RIVERSIDE COUNTY, CALIFORNIA AND PROBABILITY OF PRESENCE WITHIN THE PROPOSED DEVERS-HARQUAHALA STUDY CORRIDOR				
Scientific Name	**Common Name**	**Status**	**Probability of Presence**	**Pre-construction Survey Recommended**
Eumops perotis californicus	Greater western mastiff bat	FSC, CSC, BLM	None	No
Spermophilus tereticaudus chlorus	Palm Springs round-tailed ground squirrel	FC, CSC, CV	High	Yes
Perognathus longimembris bangsi	Palm Springs pocket mouse	CSC, CV	High	No
Dipodomys merriami parvus	San Bernardino kangaroo Rat	FE, CSC, WR	None	No
Dipodomys stephensi	Stephens' kangaroo rat	FE, CT, WR	None	No
Ovis canadensis nelsoni (DPS)	Peninsular bighorn sheep	FE, CT, BLM, WR	None	No

Status Codes:

FE – Federally Endangered
FT – Federally Threatened
FC – Federal Candidate
FSC – Federal Species of Concern
FPT – Federally Proposed for Listing as Threatened

BLM - BLM (California) Sensitive species

CE – California Endangered
CT – California Threatened
CSC – CDFG Species of Concern
WR – Western Riverside County MSHCP
CV – Coachella Valley MSHCP

[1] Pre-construction surveys for tortoises will be performed, but protocol surveys would not be required in the general area of the transmission line since tortoises are known to be present along the corridor, and a biological monitor will be present during construction within tortoise habitat. All project personnel will attend a pre-construction tortoise training class.

[2] Surveys for this species should be conducted in areas of suitable habitat.

4.1.9 Noise

Noise can be interpreted as an unwanted or disagreeable sound. Sound travels as waves of slight fluctuations in air pressure. Generally, sound waves travel in a spherical pattern and diminish in intensity in a logarithmic fashion away from the source. Noise, therefore, decreases as the distance from the source increases.

An electrical field is produced in the air surrounding conductors as electricity flows through them. As the electrical field increases, the air surrounding the conductors becomes ionized. The dielectric breakdown point of air is 15 kilovolts per centimeter (kV/cm). In other words, when a conductor is charged with more than 15kV/cm a high-voltage phenomenon known as corona discharge occurs. Corona formation factors depend on both the surrounding environment and the electrical components themselves. The breakdown strength of air is dependent on air pressure, electrode material, presence of water vapor, incident photoionization, and voltage level. The intensity of the electric field also depends on conductor surface conditions, the number of conductors and spacing per phase, and the shape of the hardware. The presence of dust particles or water on conductors also will cause corona discharge. Corona discharge is the main cause of audible noise associated with transmission and substation operation.

The audible noise consists mainly of two components. The first component is broadband or random noise that has a crackling characteristic. The second component is pure-tone or noise found at frequencies of 120-hertz intervals. The combination of the broadband and pure-tone produces the audible noise with the most noticeable tone being the 120-hertz hum. Varying weather conditions produce different audible results.

When studying the effects of audible noise on humans, it is important to consider the range of response of the human ear. The human ear does not respond equally to all sound frequencies. Sound is measured in decibels (dB) and is a measure of sound pressure on a logarithmic scale. When measuring sound and the effects on humans the frequency scale is A-weighted. A-weighting is intended to duplicate the human response by reducing low-frequency sounds and slightly increasing high-frequency sounds. When a study is done using A-weighted decibels the measurements are expressed as dBA. Table 4-40 shows noise sources along with corresponding sound levels.

Weather also plays a role in the audible noise that conductors produce. Inclement weather such as rain, fog, or snow will all substantially increase audible noise levels. However, during heavy rain the actual audible noise from conductors is masked by the ambient noise produced by the wind and rain. Ambient noise produced during heavy rain is generally 6 dBA above that produced during fog, drizzling rain, or snow. The lower production of weather-induced ambient noise in combination with the wet-conductor conditions produces a more noticeable audible level due to corona discharge. Under foggy conditions, the maximum levels of audible noises are not attained for a number of hours as water accumulates on the conductors.

TABLE 4-40
WEIGHTED SOUND LEVELS OF COMMON SOURCES

dB(A)	Overall Level	dB(A)	Relative Level
140	Threshold of pain	140	Jet engine (50 ft)
120	Uncomfortably loud	120	Jet take off (200 ft)
		114	Rock concert
100	Very loud		
		96	Power mower
		88	Heavy truck (40 mph at 50 ft)
		80	Garbage disposal
		75	Freeway traffic (50 ft)
70	Moderately loud		
		65	Business office
		60	Normal conversation
50	Quiet		
		43	Bird calls
		32	Library
20	Almost silent		
0	Threshold of hearing		

Source: Federal Interagency Committee on Noise, August 1992

4.1.9.1 Proposed Devers-Harquahala Study Corridor in Arizona and California

The proposed Devers-Harquahala study corridor crosses sparsely populated desert land; however, occasional residential area crossings do occur. It is anticipated that construction activities will comply with local noise ordinances. Typical municipal ordinances stipulate that activities should not produce ambient noise exceeding 55-50 dBA during nighttime hours (10 p.m. to 7 a.m.) and 60-55 dBA during daytime hours (7 a.m. to 10 p.m.) at receiving residential property lines or sensitive areas.

Major sources of ambient noise at and near the existing corridor include I-10, which would parallel the proposed Devers-Harquahala transmission line, within 2 miles, for most of its length. The area has a desert climate and is subject to inclement weather only 9 percent of the time.

4.1.10 <u>Public Services and Utilities</u>

4.1.10.1 Arizona

Within Maricopa County, the unincorporated community of Tonopah is nearest to the proposed Devers-Harquahala study corridor. Tonopah has a fire station, the Harquahala Valley Fire District, located within 10 miles of the route at 51501 W. Tonto Street. Police presence in the area is provided by the Maricopa County Sheriff's Office through a District II substation located in the town of Buckeye at 100 North Apache Road. Tonopah is served by medical facilities in the town of Buckeye (two clinics are available) and the city of Goodyear, which has numerous medical facilities.

In La Paz County, the nearest community to the transmission line would be the town of Quartzsite, located about 8 miles north of the study corridor. The town of Quartzsite has three medical centers, two with seasonal staff and one with a year-round staff of four. Full medical facilities are available in Blythe, California and Parker, Arizona. Year-round ambulance, medivac heliport, and emergency medical technician service is available through the local fire department. Quartzsite also has a city police department with 10 full-time police officers.

4.1.10.2 California

The Coachella Valley and Blythe areas are large enough to provide adequate public services and housing accommodations. However, public services are limited along the central portion of the proposed route, which traverses sparsely populated desert land. The easternmost California city near the study corridor is the city of Blythe, situated on the California/Arizona border. The cities of Coachella, Indio, Cathedral City, Palm Springs, and Desert Hot Springs are located at the western end of the proposed Devers-Harquahala study corridor, and are part of the Coachella Valley, which is 50 miles long and runs from Desert Hot Springs to the Salton Sea. There are numerous hotels and recreational vehicle resorts in each community, as well as several small airports and the Palm Springs International Airport. Available public services in these communities are described below.

Blythe – Blythe has one hospital with a 55 total bed capacity and a 24-hour-a-day staffed emergency room. The police department has 28 sworn personnel and 12 non-sworn personnel, with support service available from Riverside County Sheriff's Department. The fire department has a part-time chief, 33 trained paid volunteers, 1 full-time fire marshal, and a mutual aid agreement with the Riverside County Fire Department.

Coachella – Coachella is served by hospitals in the nearby communities of Rancho Mirage, Indio, La Quinta, and Palm Springs. The police department operates out of a single facility staffed by 25 sworn officers. The Riverside County Sheriff's Department provides limited services to local unincorporated areas out of its Indio Station. The city contracts with the Riverside County Fire Department for fire protection and emergency medical services. Fire Station #79 is located within the city of Coachella, and is staffed by about six firefighters (General Plan 1997).

Indio – Indio's fire department has three fire stations staffed by 30 professional firefighters and 22 volunteer firefighters. The project would likely be served by North Indio Fire Station #87, located about 4 miles south of the study corridor. The police department has more than 50 officers available, not including the community service and animal control officers. The John F. Kennedy Memorial Hospital is located in Indio and contains 162 beds.

Cathedral City – Cathedral City's fire station has 33 full-time firefighters and 2 medical ambulances. The Police Department has 47 full-time officers. The city is served by two general hospitals, which have a total of 659 beds.

Palm Springs – The Palm Springs police department consists of one police station and one substation, which are staffed by more than 125 full-time personnel. Both police stations are roughly the same distance (approximately 5 miles) from the study corridor. The fire department contains five stations. The project would likely be served by Station # 445, located about 1 mile north of CA 111. Medical services are provided by the Desert Regional Medical Center, a full-service hospital with 393 beds.

Desert Hot Springs – Police service is provided by the local city police department. Fire protection services are provided by the Riverside County Fire Department, Station # 37, located in the city and about 2 miles north of the study corridor. Medical services are provided in the adjacent cities of Palm Springs and Indio.

4.1.11 Visual Resources Inventory

This section describes the visual resource inventory for the proposed Devers-Harquahala 500kV transmission line. The methodology used to inventory visual resources and analyze visual impacts in response to CEQA environmental criteria for aesthetics is consistent with the BLM Visual Resources Management (VRM) 8400 Series Manual (BLM 1986). This study also tiers off of previous environmental studies including the 1988 DPV2 PEA (SCE) and Final SEIS (BLM 1988). The visual resource studies were conducted by reviewing aerial photographs, maps, and planning documents; contacting agencies; and conducting field reconnaissance within the proposed study corridor. The visual resource inventory includes the consideration of visual quality, scenic vistas, and agency management objectives as described below.

4.1.11.1 Inventory Elements

<u>Visual Quality</u>

Landscape Setting

The Devers-Harquahala study corridor is located primarily in the Basin and Range Province, including sections of the Sonoran Desert and Salton Trough (Fennemen 1951). This area is characterized by widely separated short mountain ranges in desert plains, often consisting of desert alluvial slopes, locally known as bajadas. Vegetation varies depending on landforms, ranging from creosote flats to saguaro forests. The Colorado River, the only perennial river crossed by the proposed Devers-Harquahala study corridor, separates the states of Arizona and California.

The landscape in Arizona is primarily natural, with areas of agricultural use near the eastern terminus of the study corridor at Harquahala. In California, similar to Arizona, a majority of the study area is natural; however, there also are areas of agricultural use associated with the Colorado River near Blythe. Mixed use (including a large windmill farm) and residential developments have modified the natural landscape in the Desert Hot Springs and Palm Springs areas.

The inventory of visual quality within a natural setting was based on the premise that each landscape character type (e.g., desert mountains, foothills, bajadas) exhibits its own type of scenic quality and encompasses a variety of sensitive viewers. Within rural and suburban settings visual quality is based primarily on the image of the built environment and associated sensitive viewers. The inventory includes landscape settings that are both natural and developed (built). Existing conditions (e.g., the presence of existing transmission lines) that may affect the scenic quality or visual image of an area also were considered in the evaluation of landscape scenery.

Natural Setting - Scenic Quality

In a natural setting, landscape character types are defined by areas of land that have similar characteristics of landform, water related features, vegetative communities, and patterns of these landscape elements. In the natural setting, scenic quality was determined by evaluating landscape character type based upon the uniqueness and diversity of landform, water, vegetation, cultural features, and influence of adjacent scenery. Landscapes with greater diversity of features are typically considered to have higher scenic value. For purposes of this study, landscape character types were assigned one of the following scenic quality classifications:

Class A – lands of outstanding or distinctive diversity or interest
Class B – lands of common or average diversity or interest
Class C – lands of minimal diversity or interest

Developed Settings – Visual Image Types

The purpose of characterizing existing and planned visual image types within the study corridor was to determine potential visual quality impacts. This is especially important in portions of the area crossed by the study corridor that include suburban and rural community development.

In developed rural and suburban settings, landscape scenery consists of the visual features of the built environment and is defined by visual image types. Visual image types consist of development patterns that are defined by existing and planned land use, planning concepts (circulation and building types) and visual character (landscape design and architecture). Three major image types were identified in the study area: (1) residential, (2) industrial, and (3) agricultural areas.

Existing Visual Conditions

The scenic quality of natural settings and the visual image of rural and suburban settings may be modified locally by the presence of facilities including transmission lines, distribution lines, overhead lighting, signs, pipelines, highways, railroads, canals, and other features that affect visual quality. The existing condition within the study corridor was evaluated through mapping and field review in order to determine those locations where modifications would influence scenery and views. In this regard, the presence of the existing DPV1 500kV transmission line, parallel to the proposed Devers-Harquahala 500kV line, has created an existing utility corridor that has modified the local landscape setting along the entire length of the study corridor.

Visual Quality

Views

The inventory of views included three components: (1) the identification of key viewpoints and visual sensitivity, (2) distance zones, and (3) viewing conditions.

Key Viewpoints and Sensitive Viewers

Numerous key viewpoints associated with sensitive viewers were identified including individual residential, community, recreation area, and travelway viewpoints. Of particular importance are those locations where viewers have undisturbed open, permanent views.

Visual sensitivity reflects the degree of concern for change in the scenic quality of the natural landscape, or to the visual image of the rural (agricultural areas) and suburban setting (residential, commercial, and industrial areas). Visual sensitivity levels (high, moderate, or low) reflect the type of viewpoint/viewer (residential, recreational, or travel) and viewer concern for change, volume of use, public and agency concerns, influence of adjacent land use, and viewing duration.

Distance Zones

The distance from the viewer to the proposed transmission line also was considered in the analysis. Typically, individual objects are seen in greater detail in the foreground (0 to 0.5 mile) , whereas the middleground (0.5 to 1 mile) is an area where objects are typically viewed in relationship to patterns rather than an emphasis on individual features. In background areas (3 to 15 miles) landscapes are viewed as horizon lines and tones where atmospheric conditions often dominate.

Viewing Conditions

Viewing conditions address viewer orientation (parallel, perpendicular, elevated, or depressed), the potential for screening from sensitive view locations, and the potential for skylining of facilities. Three levels of screening were identified during the inventory including open viewing conditions that exhibit minimal to no screening; partially screened views including areas where viewing opportunities are intermittent; and screened views including areas where terrain, vegetation, buildings, or other built elements (walls and fences) obscure views. Skyline conditions may range from fully or partially skylined to back-dropped by adjacent terrain, vegetation, or structures.

Scenic Vistas

Scenic vistas are designated viewpoints associated with scenic views that typically occur along highways or other travel routes.

Agency Management Objectives

There are no formal guidelines for managing visual resources on state, county, city or private land within the study corridor. Visual resources on land administered by the BLM are managed based on established RMPs, including VRM classes. In this regard, the RMP establishes acceptable uses, and the VRM classes assist in defining the acceptable degree of visual change in the natural landscape on public land. There are four VRM classes (I, II, III, and IV). Class I areas are afforded the highest level of protection and Class IV the lowest.

4.1.11.2 Arizona

This section describes the results of the visual resource inventory for the proposed project in Arizona including visual quality, scenic vistas, and agency management objectives.

Visual Quality

For purposes of this study, visual quality is a term used to describe the setting and the viewers that may be affected by the proposed project.

Landscape Character Types – Natural Setting

The study area in Arizona predominantly consists of a natural setting represented by five distinct landscape character types: desert mountains, desert foothills, bajadas, desert plains, and riparian areas. For examples of these landscape types refer to Figure 4-1.

FIGURE 4-1

Proposed Devers-Harquahala 500kV Study Corridor in Arizona

Landscape Character and Image Types

4-1 cont.

Desert mountains are generally north and northwest trending ridges that are steep, rugged, rocky, and surrounded by alluvial fans at their base. These alluvial fans coalesce to form the bajada, a gentle rolling terrain dissected by arroyos with a rocky soil including a greater diversity in vegetation as opposed to the sparsely vegetated desert plains. Foothills typically occur adjacent to or within the bajada, exhibiting rolling forms and a variety of vegetation and color.

Between the mountain ridges and foothills lies the contrasting landscape of the broad, relatively flat alluvial basins. Ephemeral streams or arroyos with their xeroriparian vegetation often traverse these plains, providing texture, color, and interest in the sparsely vegetated plain.

The Colorado River, located on the Arizona/California border, is a unique and distinct visual feature in the desert landscape, exhibiting a diversity of associated riparian vegetation in an otherwise arid setting.

Scenic Quality - Scenic quality was inventoried within a 2-mile-wide study corridor centered on the proposed Devers-Harquahala transmission line, as shown on Map 4-6a-b (end of Chapter 4). Scenic Quality Rating Forms were developed for the landscape types previously described, consistent with BLM methods, and used to determine levels of scenic quality within the corridor as described below.

The majority of land crossed by the proposed Devers-Harquahala 500kV transmission line have been designated as Class C landscapes. These areas are generally associated with low, isolated desert hills and desert plains (typically with a low diversity of vegetation). Examples of Class C scenery include the Ranegras, Harquahala, and La Posa plains.

Class B scenery is associated with landscapes having average visual variety (e.g., portions of the New Water, Eagletail, Big Horn, and Saddle mountains), and the foothills of the KOFA NWR, where terrain features are more subtle; however, special vegetation features such as saguaros are present.

Areas designated as Class A scenery, while limited, include mountainous terrain containing a variety of distinctive rock formations including Burnt Mountain, and the Dome Rock Mountains. The Colorado River with its flowing waters, associated riparian vegetation, and tamarisk flora also received an A ranking.

Visual Image Types – Developed Settings

In Arizona, only a limited amount of the area has been developed within or adjacent to the study corridor. In general, these changes are associated with rural agricultural land that is located within the study corridor, primarily in the Harquahala Valley. Landscapes characterized by agricultural image types have been modified for crop production and display patterns that are organized and predominantly based on a grid. Variations in landform are extremely limited and vegetation is seasonal, consisting primarily of cultivated crops. Cultural modifications, especially irrigation canals, have introduced water to the landscape in these areas. An example of the agricultural image type is shown on Figure 4-1, and the location of these image types within the study area are illustrated on Map 4-6a.

Existing Conditions

All land adjacent to the proposed Devers-Harquahala study corridor, in Arizona, exhibit visual conditions that have been locally modified by the presence of the existing DPV1 and Harquahala-Hassayampa 500kV transmission lines, access roads, and other forms of disturbance associated with the existing transmission line. The existing transmission lines would be adjacent to the proposed Devers-Harquahala 500kV line as it crosses Arizona, from the Harquahala switchyard to the Colorado River.

Views

The following discussion addresses viewer sensitivity and viewing conditions specific to sensitive viewpoints including residential, recreational, and travelway viewers within the Devers-Harquahala study corridor.

Residential Viewers - Isolated dispersed residences are limited and located along Links 1a, 1b, and 2 (Map 4-3a). Views from these residences to the proposed Devers-Harquahala study corridor would have mostly middleground to background views that are primarily open, with conditions that range from skylined to views that are partially skylined and backdropped by adjacent or intermediate terrain.

Recreational Viewers - In Arizona, high sensitivity recreational viewers include dispersed views that occur in wilderness areas including Hummingbird Springs (Link 1b), Big Horn Mountains (Link 1b), Eagletail Mountains (Link 1b), KOFA National Wildlife Refuge (Link 2), and New Water Mountains (Link 2). Additionally, the La Posa Recreation Area (Link 2) and Colorado River (Link 8) are identified as high sensitivity areas. Views from these locations range from foreground to background and may be open to screened and skylined, to backdropped, depending upon specific viewer location. Views from recreational users on the Colorado River are primarily limited to the foreground to middleground area and range from open and partially skylined, at the transmission line crossing of the river, to partially and fully screened from more distant views. Viewers on the proposed recreation trail along the CAP (Link 1b) would have foreground and open views.

Travelway Viewers - Areas of moderate sensitivity include I-10, where views range from foreground to background. In many cases, these views to the proposed and existing 500kV transmission line, while open, are often either back-dropped or partially backdropped by distant terrain (e.g., areas located within the Harquahala, Rangeras, and La Posa plains). In areas where the proposed Devers-Harquahala study corridor crosses the New Water and Dome Rock mountains, views may often be partially, if not wholly screened from I-10.

Scenic Vistas

There are no designated scenic vistas within the Devers-Harquahala study corridor in Arizona.

Agency Management Objectives

The majority of the proposed Devers-Harquahala transmission line is located within designated BLM utility corridors in the Lower Gila Resource Management Plan and the Yuma District RMP areas. Within these corridors, the majority of BLM land has been designated as either Class II, Class III, or Class IV areas. The proposed Devers-Harquahala study corridor does not cross any Class I lands (i.e., WAs). The KOFA WA, New Water Mountains WA, Eagletail Mountains WA, Big Horn Mountains WA, and Hummingbird Springs WA were identified as Class I. Areas designated as Class II include the KOFA Mountains and the Colorado River.

The majority of land crossed by the study corridor has been designated as Class III including portions of the La Posa, Ranegras, and Harquahala plains; Tonopah Desert; Dome Rock and Plomosa mountains; and Plomosa Pass. In addition, Class III areas are interspersed among the agricultural plains near Harquahala, Plomosa and Saddle mountains, and in a small portion of the Dome Rock Mountains. The remainder of the study corridor crosses land designated as Class IV.

4.1.11.3 California

This section describes the results of the visual resource inventory for the proposed Devers-Harquahala 500kV transmission line study corridor in California including visual quality, scenic vistas, and agency management objectives.

Visual Quality

Landscape Character Types – Natural Setting

The study area in California is characterized by seven landscape types: desert mountains, desert foothills, bajadas, desert plains, riparian areas, playas, and sand dunes. For examples of these landscape character types, refer to Figure 4-2.

Desert mountains are generally north and northwest trending ridges that are steep, rugged, rocky, with alluvial fans and/or foothills located at their base and at lower elevations. The alluvial fans coalesce to form the bajada, which is gentle rolling terrain dissected by arroyos with rocky soil and greater diversity in vegetation, as opposed to the sparsely vegetated mountains at lower elevations, with gentle slopes and finer soil texture. These foothills are generally associated with adjacent mountains, although the Indio Hills occur as a separate landscape feature.

Between the mountain ridges and foothills lies the landscape of the broad, relatively flat, alluvial basins. Ephemeral streams or arroyos traverse the plains, providing texture, color, and interest in the sparsely vegetated plain. Many of the basins are closed drainage systems that contain broad, flat, dry lakebeds or playas, often identified by colorful alkali soil. These playas are normally dry, becoming large shallow lakes during brief, wet periods. Sand dunes are a rare physiographic feature located in the Chuckwalla Valley. Their light color provides contrast to the predominantly dark olive colored desert plains.

The Colorado River, located on the Arizona/California border, provides a unique and distinct visual feature in the desert landscape. Associated with the river are the vegetated riparian zones and the barren, light-colored bluffs bordering the floodplain to the west. The area west of the Colorado River has been developed for agriculture.

Scenic Quality - Scenic quality was inventoried for the study area within a 2-mile-wide study corridor centered on the proposed Devers-Harquahala transmission line as shown on Map 4-6 c-e (end of Chapter 4). Scenic Quality Rating Forms were developed for the landscape types described above, consistent with BLM methods, and used to characterize scenic quality within the corridor as desribed below.

The only Class A landscape occurring in the study corridor is associated with the Colorado River, its flowing waters and associated vegetation making it a distinctive feature in the otherwise arid landscape.

Mountain ranges in the study area identified as Class B scenery include the Little San Bernardino, Cottonwood, Orocopia, and Chuckwalla mountains. Other areas identified as Class B scenery include sand dunes and the Indio and Mecca hills. The characteristics of these areas exhibit diversity in color, contributing to the scenic quality. Native palm oases located on the San Andreas fault, both north and south of the Indio Hills, also were considered Class B scenery.

Class C landscapes including other foothills, bajadas, and plains are considered to be common to the area. Class C scenery includes the Chuckwalla and Shaver valleys, and the Coachella Valley Preserve.

Visual Image Types – Developed Areas

Developed areas crossed by the study corridor include land within the incorporated boundaries of Coachella and Cathedral City. Other developed areas in the vicinity include Palm Springs, North Palm Springs, Desert Hot Springs, Thousand Palms, Indio, and Blythe. These developed landscapes include agricultural, residential, and industrial image types within the proposed Devers-Harquahala study corridor. Examples of these image types are shown on Figure 4-2, and their locations are depicted on Map 4-6c-e (end of Chapter 4).

Agricultural Image Types – These include lands that are crossed immediately to the west of the Colorado River, in the Palo Verde Valley south of Blythe. These areas have been modified for

Figure 4-2

4-2 (cont.1)

4-2 (cont.2)

crop production and display patterns that are organized and predominantly based on a grid, including dispersed rural residences and farmsteads. Other cultural modifications include facilities in support of agricultural production including canals and irrigation systems. Variations in landform are extremely limited and vegetation is seasonal, consisting primarily of alfalfa and cotton.

Residential Image Types – These consist of low- to medium-density, single-family detached units ranging from scattered to regularly ordered patterns. The development patterns for medium-density residential image types tend to display a strong sense of continuity in housing and street patterns, which are repeated throughout the development. These patterns are often arranged on an internal geometric grid with a loop road system, providing a perimeter of housing which serves as a separation or seam to surrounding uses. Low-density residential image types exhibit large individual lots and curvilinear circulation patterns with no centralized focus. In these areas housing character is non-unified, with random building orientations generating inward and outward views. Pockets of low- to medium-density residential areas are located adjacent to the study corridor west of Indio, and in the vicinity of the north Cathedral City and Palm Springs area**.**

Industrial Image Types – These include developments, which have active industrial uses including resource extraction and are found south of the Indio Hills along the western portion of the study corridor. Facilities, buildings and land modifications in this image type are centralized, often large, and may dominate the local setting in terms of complexity, scale, and layout concept. Landscape treatment (often limited) may include screening used on the perimeter of the industrial development to block views.

Existing Conditions

All of the land crossed by the proposed Devers-Harquahala study corridor in California has been locally modified by the presence of the existing DPV1 500kV and other transmission lines, access roads, and other forms of associated disturbance. This DPV1 transmission line will be adjacent to the proposed Devers-Harquahala transmission line as it crosses California from the Palo Verde and Chuckwalla valleys, west through Coachella Valley, and into Devers. In the vicinity of Devers, two additional 230kV lines and up to two 115kV lines, and several hundred large windmills, further modify the existing landscape setting.

Views

The following discussion addresses viewer sensitivity and viewing conditions specific to sensitive viewpoints including residential, recreational, and travelway viewers within the Devers-Harquahala study corridor.

Residential Viewers - Residences in the vicinity of North Palm Springs, Desert Hot Springs, North Palm Desert, Thousand Palms, Indio, Cathedral City and dispersed residences near Indio Hills and Blythe were considered high sensitivity viewpoints (Links 10, 14, and 16). In medium- to high-density areas, views may range from open to screened depending upon the amount and type of landscaping, location of other residences, and fences and walls. In low-density residential areas, views tend to be more open. A majority of the views from residences range from middleground to background; however, in select locations including south of Blythe, and between the Indio area and North Palm Springs (Map 4-3c-e), residences will have foreground views ranging from sky-lined to back-dropped.

Recreational Viewers - High sensitivity viewers were identified for the area along the Colorado River due to the intensive water-based recreational uses found in county parks along and on the river (Link 10). Other dispersed recreational areas with high sensitivity include the Edmund C. Jaeger Preserve (Link 13), Indio Hills Palms Park (Link 14), Joshua Tree National Park (Link 13), and all WAs including the Chuckwalla Mountains WA (Link 13), Joshua Tree National Park WA (Links 13 and 14), Orocopia Mountains WA (Link 13), and Mecca Hills WA (Link 13). Moderate sensitivity viewpoints include Riverside County's proposed and existing hiking trails along the Whitewater and Colorado rivers (Links 10 and 14). Potential views from these areas range primarily from middleground and beyond and are open to partially or fully screened, based on the location of the viewer.

Travelway Viewers - Scenic highways with high visual sensitivity include CA 62, a state designated scenic highway located west of Devers Hill and the Devers Substation (Link 16). CA 111, from SR 74 near Palm Desert to I-10, which is eligible for State Scenic Highway designation, also provides views to the study corridor (Link 16).

Several eligible Riverside County scenic highways are also found in the study area including I-10, Indian Avenue from its junction with CA 62 to Pierson Boulevard, Pierson Boulevard from Indian Avenue east to Palm Drive, Palm Drive south to Dillon Road, Dillon Road east to I-10, and CA 95 from I-10 north (Links 13, 14, and 16). Portions of I-10 that are not eligible for scenic designation were assigned a moderate sensitivity level.

Agency Management Objectives

The BLM land in California within the proposed Devers-Harquahala study corridor are managed through the CDCA Plan Amendment (USDI 2002) for the Coachella Valley, and the NECO plan (USDI 2002). These two documents provide direction on visual resources (the proposed Devers-Harquahala study corridor would be within a designated utility corridor). In the study corridor, land within the NECO planning area has not been assigned VRM classifications. This includes the eastern portion of the corridor from the vicinity of Blythe, to the eastern edge of the Chuckwalla Mountains, and the central portion of the corridor from the Chuckwalla Mountains to the CVPA Planning Area boundary in the eastern Coachella Valley. Interim VRM classifications were established as reported in the Draft Desert Southwest Transmission Line Project EIS/EIR (Foote 2003). These interim classifications were developed using the guidelines in BLM VRM Manual Section 8410 and 8411 and conform to the land use allocations set forth in the RMP, which includes the Devers-Harquahala study corridor. In this regard, the eastern end of the corridor to the Chuckwalla Mountains was designated Class IV. The central corridor, from the Chuckwalla Mountains to the CVPA Planning Area, was designated Class III.

The remaining BLM land within the study corridor have been designated as either Class II, III, or IV . Class II areas were designated in parts of the following mountain ranges: Cottonwood, Little San Bernardino, and Alligator Rock in the Chuckwallas. Class III includes portions of the Coachella, Shavers, and Chuckwalla valleys; Palo Verde Mesa; and Indio Hills. The palm oases in the Indio Hills and the riparian zone surrounding the Colorado River were also identified as Class III. The remainder of the proposed transmission line would cross land designated as Class IV.

All WAs were identified as Class I including Paulen/McCoy WA, Joshua Tree National Park WA, Chuckwalla Mountains WA, Orocopia Mountains WA, and the Mecca Hills WA. Class I land, however, would not be crossed by the study corridor.

4.1.12 Cultural Resources

Cultural resources are defined herein as all evidence of past human activity. Included within this category are geographic places and tangible resources studied in the disciplines of archaeology (both prehistoric and historic), ethnography, and history. Although sometimes referred to as natural resources, values pertaining to the field of paleontology (i.e., the study of plant and animal fossil remains) also are included under the cultural resources heading.

Cultural resource discussion in this section is limited to information concerning (1) resource discovery methods, and (2) delineation of the area of potential effect (APE) for the proposed project, Historic Properties (i.e., resources eligible for or listed on the National Register of Historic Places [NRHP] within the APE). Potential project effects on historic properties, and proposed measures to mitigate adverse effects to historic properties associated with the proposed project are discussed in Chapters 5 and 6. Precise location of cultural resource sites will not be disclosed in this document in accordance with provisions of the federal Archaeological Resources Protection Act of 1979 (16 U.S.C., Secs. 470aa to 47011, inclusive) regarding confidentiality. If additional information is desired, the reader is encouraged to contact the California and Arizona offices of the BLM and Office of Historic Preservation.

The cultural resource files of the California Historical Resources Inventory System, BLM California Palm Springs/South Coast Field Office, BLM Arizona State Office, Arizona State Historic Preservation Officer, AZSITE electronic database, and Arizona State Museum (ASM) were consulted for this assessment. Recent cultural resource studies of the DPV2 APE and Arizona alternatives were conducted by EPG (Dobschuetz et al. 2004; Luhnow 2004; Luhnow and Dickinson 2004), San Bernardino County Museum (Scott 2003), and Mooney-Hayes, LLP (Eckhardt and Walker 2004a; 2004b). These studies built upon numerous previous studies for the original DPV1 that included the design for a second line (Carrico et al. 1980; Carrico and Quillan 1982) and subsequent resurveys of the DPV2 tower sites and access roads for later regulatory re-filings (Swartz and Dongoske 1987). The result of this work is an extraordinarily detailed knowledge-base of cultural resources within the project APE that meets all state and federal criteria for a thorough, accurate, and intensive class III-type inventory.

Archaeological surveys within the proposed Devers-Harquahala 500kV transmission line corridor were facilitated by staked tower locations and access roads, which focused assessment work on areas of direct project effect.

<u>Archaeology</u> – Evidence of human presence in the study area extends from the Late Pleistocene/Early Holocene to present times. As used here, archaeology refers to the study of evidence of past human activity dating from the earliest prehistoric period to the latest historic period. Archaeologists have organized this evidence into cultural chronologies reflecting perceived cultural and occasionally environmental changes and site typologies. These typologies reflect the subsistence/settlement and cultural diversity practiced by aboriginal and historic era peoples. Synthesis of these chronologies are contained in technical documents prepared for the present analysis (Dobschuetz et al. 2004:8-13; Eckhardt and Walker 2004a, 2004b), as well as

published resources (e.g., the BLM Cultural Resource Overview of the Colorado Desert Planning Units [von Till Warren and Roske 1981] and Handbook of North American Indians, Volumes 8 and 9 [Sturtevant and Heizer 1978; Sturtevant and Ortiz 1979]). This information will not be repeated here.

Ethnography – As used here, ethnography refers to the description of aboriginal Native American peoples and incorporates aspects of ethnology dealing not only with human demographics at the time of European contact but changes that have occurred between then and the present time. The study area encompasses two major native language families and nine representative groups (Kroeber 1925).

Data presented here regarding ethnographic resources are drawn from the landmark study titled Persistence and Power (Bean and Vane 1978), which was prepared in support of the DPV1 transmission line project. This study is still considered to reflect an accurate assessment of traditional Native American values in the study corridor. The ethnographic work documented in Persistence and Power included (1) archival research and review of secondary sources to identify Native American groups associated with the study area, (2) ethnographic fieldwork among the identified Native American groups to ascertain traditional and contemporary attitudes and values associated with the study area, (3) data interpretation and an assessment of project effects on traditional Native American values associated with the study area, and (4) development of a set of suggestions to mitigate potential adverse effects to traditional values as a result of construction and operation of the project.

In Arizona, protohistoric groups in the study area were primarily Yuman speakers. Within that language family, four groups were more prominent than any other. The Mojave seem to have reflected an agricultural tradition established within the Colorado Basin by early Patayans. At the time of initial European contact, the Mojave were principally floodwater farmers, more densely settled in the Mojave Valley to the north of the study area, but extending south into the area around Parker, Arizona. An extension of that tradition may be witnessed in spring planting patterns of the Havasupai. However, this latter group was of a more arid upland adaptation similar to the nomadic Walapai and Yavapai. Unlike the Mojave, the Walapai, Yavapai, and to some extent the Havasupai, were an extension of the very seasonal earlier Desert Archaic patterns.

Prior to having been assimilated by the Maricopa in California, the Halchidhoma occupied portions of the Colorado and Gila River basins. Along with occasional Mojave inroads, they were the only full Yuman speakers that may represent a direct historic tie with river Patayans within the study area.

West of the primary basin of the Colorado River in California, regions of largely internal drainage were the domain of inland Shoshonean speakers. Yuman speakers occupied the Colorado Desert west to Coachella Valley.

In the Transverse Range west of the Mojave Desert, the Serrano represented a mountain adaptation within the San Bernardino Mountains. Though much more oriented to higher elevations and timbered valleys, the Serrano are known to have extended their range to lower fertile valleys in the western end of the study area.

South of the Serrano, two of three Cahuilla groups were associated with the study area. The more northerly Pass Cahuilla were principally associated with the San Gorgonio Pass area. Within the Coachella Valley area, the Desert Cahuilla were found.

West of the Serrano and Cahuilla, the Gabrielino occupied the greater Los Angeles Basin. Although primarily associated with the coastal areas and Channel Islands, Gabrielino utilized territory that extended as far east as the vicinity of San Bernardino and Mount Rubidoux.

<u>History</u> – As used here, the term history refers to documentation of primarily non-Native American use of the study area. It is reflective of the period dating from initial European exploration of this region to approximately 50 years before present.

Spanish explorers were the first Europeans to enter the study area. Padre Marcos de Niza entered what is now Arizona from Mexico in 1539, but did not travel into the study area. De Niza was followed by Hernando de Alarcon in 1540. De Alarcon explored the lower portions of the Colorado River, but did not get very far north of Yuma, Arizona.

Juan de Oñate was probably the first white man to enter the study area. In 1604-1605 he traveled up the Colorado River as far as the Rio Azul (the Bill Williams River). In 1691 Padre Esubio Kino began missionary work in southern Arizona and founded the Mission San Xavier del Bac near Tucson in 1700. Padre Kino may have entered the study area, but most of his activities were to the south, and he probably had little effect on the Native Americans inhabiting the study area.

The first real impact of white culture on the study area came in the mid 1800s with the advent of mining in the mountains of the central portion of the study area. The towns of La Paz and Ehrenberg sprang up as a result of the mining activity. This was followed by the opening of the Bradshaw Trail through the study area in 1862. Steamer traffic on the Colorado River developed as a means of transportation and a method of getting supplies to the mines. This traffic remained high until 1909 when construction of Laguna Dam closed the river to navigation for all practical purposes.

Mining in the study area continued into the 1900s, but was almost completely phased out by World War I. Ranching and agriculture gradually developed beginning in the mid 1800s. Agriculture is presently well developed along the Colorado River, in some eastern portions of the study area, and in the Coachella Valley in the western end of the study area.

The traditional Native American cultures were gradually overwhelmed by these activities, and by the early 1900s the original inhabitants had been largely driven from the area and confined on reservations.

Some of the most recent historic resources in the study area are the result of the establishment of Camp Young (also known as the Desert Training Center and the California/Arizona Maneuver

Area). This training camp was the largest ever established by the U.S. Army, and covered 55,000 square miles in California and Arizona. Camp Young acquired much of its fame by association with General George S. Patton, who selected the area as the training center for his World War II North Africa campaign. Several Camp Young headquarters were established; the best preserved is near the northern portion of the study area in the vicinity of the Iron Mountains in California. Another headquarters location is near Desert Center, California, in the vicinity of the existing DPV1 transmission line. Roads and rock alignments with associated discarded materials can still be seen there.

Another military maneuver, Operation Desert Strike, took place within the study area in 1964. Remnants of Operation Desert Strike, including tank tracks, discarded military materials, and temporary camps, can be found scattered throughout the study area. Several well preserved rock alignments and camp areas left from Operation Desert Strike are located near Quartzsite, Arizona.

<u>Paleontology</u> – The paleontological resource inventory presented here is derived from a paleontological literature and records review for both the California and Arizona sections of the proposed Devers-Harquahala 500kV transmission line study corridor, prepared by the Division of Geological Sciences of the San Bernardino County Museum, California (Scott 2003). That study was based on previous geologic mapping (Jennings 1967; Richard, et al. 2000; Rogers 1965). A variety of geologic rock units are traversed by the project alignment that range in age from Proterozoic metamorphic rocks to Holocene alluvium and sand dune deposits. Potentially fossiliferous sedimentary and metasedimentary rock units located within the study area range in age from Late Jurassic–Cretaceous nonmarine sedimentary rocks to Late Pleistocene deposits. Appendix L and Appendix M provide a brief description of these rock units in order from oldest to youngest.

4.1.12.1 Arizona

Archaeology

The Class I records review of the Arizona study corridor identified 56 documented archaeological studies and 221 previously recorded sites located within 1 mile of the study corridor. Locations of those sites identified through the records review to be within the project APE (defined as within 100 feet of the proposed tower and access road locations) were revisited in the field for this project (Dobschuetz et al. 2004). A total of 15 archaeological site locations were visited in this attempt. Many of the revisited sites were recorded by Carrico and Quillan (1982) as part of the original DPV1 project.

Site definition and recordation standards have evolved over the 20+ years since the Carrico and Quillan (1982) assessment. It was discovered during the Class III survey (Dobschuetz et al. 2004) that some of the 15 sites revisited did not meet the criteria for site definition as currently defined by the ASM (AZ R:7:49 [ASM], AZ R:8:60 [ASM], AZ S:5:15 [ASM], and AZ S:7:15 [ASM]). Some were erroneously mapped as within the APE when they were not in the APE (AZ S:5:15 [ASM], AZ S:5:18 [ASM, AZ S:6:12 [ASM], AZ S:8:12 [ASU]/AZ S:8:10 [ASM], and AZ S:8:17 [ASM]), and one (AZ S:10:14 [ASM]) was recorded apparently outside the APE but was found to be in the APE. Four other sites (AZ R:8:37 [ASM], AZ R:8:44 [ASM], AZ S:6:21 [ASM], AZ S:7:1 [ASM]/AZ S:7:1 [ASU]) could not be relocated and documentation indicates they were collected as part of earlier projects and no longer exist within the APE. Of the 15 previously recorded sites in or near the APE, only five were relocated (AZ R:7:66 [ASM], AZ-S:5:18 [ASM], AZ S:6:12 [ASM], AZ S:8:1 [ASM], and AZ S:8:14 [ASM]), and of these only two (AZ S:8:1 [ASM] and AZ S:8:14 [ASM]) were found to be within the APE.

Of the two prehistoric archaeological sites confirmed by way of the Class III survey to be located within the project APE (AZ S:8:1 [ASM] and AZ S:8:14 [ASM]), only one (AZ S:8:1 [ASM]) has been assessed eligible to the NRHP. AZ S:8:1 (ASM) was confirmed by Carrico and Quillan (1982) and Stone (1979) to have no subsurface component. Artifacts from this site were collected and analyzed as part of the original DPV1 project (Carrico and Quillan 1982) and the site artifacts identified during the Class III survey (Dobschuetz et al. 2004) were similar to those previously collected and analyzed. Thus, the data potential for the portion of AZ S:8:1 (ASM) located within the project APE now appears exhausted.

During the Class III archaeological survey of the project tower pads and access roads, 29 isolated archaeological occurrences were recorded (Dobschuetz et al. 2004). Of these occurrences, 13 were prehistoric and 5 were indeterminate features. Of the prehistoric isolated occurrences, 11 were chipped stone artifacts and 2 were ceramic sherds. Distribution of these artifacts across the landscape indicates that they increase in frequency with proximity to the bajada slopes of the mountains in the study area, and likely represent limited use of these areas during prehistory. Isolated artifacts do not meet criteria for listing on the NRHP.

Ethnography

Previous ethnographic research conducted for the DPV1 project resulted in the identification of several areas of ethnographic concern in the vicinity of the project area (Bean and Vane 1978). Some of these places may meet criteria for designation as traditional cultural properties (TCPs). These places are the Dome Rock Mountains, Tyson Wash, Dripping Spring, La Posa Plain, Kofa Mountains, Little Horn Mountains, Gunsight Notch Ridge, Ranegras Plain, Eagletail Mountains, and the Harquahala Plain (ibid). In addition, Native Americans have interest in prehistoric archaeological sites that represent evidence of the presence of their ancestors.

Native American groups such as the Chemehuevi, Mojave, Yavapai, Tohono O’odham, Hia-Ced O’odham, and Cocopah may have affiliation with these areas. BLM staff have indicated that they will consult with appropriate Native American groups in the context of the BLM’s government-to-government responsibility with Native American tribes for input to the federal NEPA document for the DPV2 project (personal communication, Wanda Raschkow 2004).

History

The Class I research identified 16 historic-era sites within the 1-mile-wide study area. None of these sites are located in the project APE. One new archaeological site, AZ R:7:113 (ASM), was recorded during the Class III survey (Dobschuetz et al. 2004). This site is described as a historic-era artifact scatter, and was not deemed NRHP eligible.

During the Class III archaeological survey of the project tower pads and access roads, 16 historic-era isolated archaeological occurrences were recorded (Dobschuetz et al. 2004). Of these resources, 7 were historic artifacts, 4 were historic GLO survey markers, and 5 were indeterminate features. Isolated artifacts do not meet criteria for listing on the NRHP.

Paleontology

Between the Harquahala Switchyard and the Arizona/California border (Links 1A, 1B, 2, 6, and 8) the study corridor crosses approximately 88.7 miles of high or undetermined areas of paleontological sensitivity. The remainder of the area is low paleontological sensitivity. The undetermined or high sensitivity areas include Pleistocene older alluvium and Holocene alluvium in Links 1A, 1B, and 2, Proterozoic metamorphics (overlain intermittently by Pleistocene and/or Holocene sediments) occur in Link 1B, Cretaceous nonmarine and undivided Quaternary sedimentary rocks in Link 2, and undivided Jurassic and Cretaceous nonmarine sedimentary rocks and Plio-Pleistocene alluvium in Link 6 (Scott 2003).

4.1.12.2 California

Archaeology

A records search identified 31 previously recorded archaeological resources and 34 isolated occurrences within the project APE (defined as within 100 feet of the project tower pads and access roads). Many of these resources were recorded as part of the original DPV1 project in 1980 (Carrico et al. 1980). Of these resources, five archaeological sites (RIV-183T, RIV-772T, RIV-893T, RIV-1808 and RIV-1812) could not be relocated during the Class III survey (Eckhardt and Walker 2004b).

In addition to the 26 previously recorded archaeological sites relocated during the Class III survey (RIV-53T(b), RIV-53T(c), RIV-53T(d), RIV-164T, RIV-250T, RIV-343T(b), RIV-343T(c), RIV-650T, RIV-673T, RIV-1018, RIV-1115T, RIV-1118, RIV-1119, RIV-1383, RIV-1811, RIV-1813, RIV-1814, RIV-1815, RIV-1816, RIV-1817, RIV-1818, RIV-1819, RIV-1820, RIV-1821, RIV-1822, and RIV-1823), another 11 archaeological sites and 8 isolated occurrences were identified. Of these resources, 18 are listed on or potentially eligible for listing on the NRHP. These NRHP eligible or potentially eligible resources include previously recorded RIV-53T(c), RIV-53T(d), RIV-250T, RIV-343T(b), RIV-343T(c), RIV-650T, RIV-673T, RIV-1119, RIV-1383, RIV-1813, RIV-1814, RIV-1815, RIV-1816, RIV-1819, RIV-1821, RIV-1822, P33-13574 and P33-13576.

The 8 isolated prehistoric archaeological occurrences consist of 1 flake, 2 lithic flake or tool occurrences, and 5 ceramic sherd occurrences. Isolated artifacts do not meet criteria for listing on the NRHP (Eckhardt and Walker 2004a).

Ethnography

Previous ethnographic research conducted for the DPV1 project resulted in the identification of areas of cultural concern to contemporary Cahuilla, Chemehuevi, and Mojave Native American groups between Devers and the Colorado River. These are archaeological sites and aboriginal trails in the north Palm Springs/Whitewater River areas; Edom Hill; the extensive complex of archaeological sites, trails, and Native plant and animal resources associated with the numerous palm oasis in the Indio Hills; archaeological sites and aboriginal trails in the Cottonwood Springs/Desert Center areas; archaeological sites and aboriginal trails in the Chuckwalla Valley area; and archaeological sites and aboriginal trails in the Colorado River area. With the exception of Edom Hill, none of the areas with direct Native American cultural association are located within the project APE. Edom Hill may qualify as a NRHP eligible traditional cultural property. In addition, Native Americans have interest in prehistoric archaeological sites that represent evidence of the presence of their ancestors (Bean and Vane 1978).

BLM staff have indicated that they will consult with appropriate Native American groups in the context of the BLM's government-to-government responsibility with Native American tribes for input to the federal NEPA document for the DPV2 project (personal communication, Wanda Raschkow 2004).

History

A records search identified five previously recorded historic-era resources within the project APE (defined as within 100 feet of the project tower pads and access roads). Many of these resources were recorded as part of the original DPV1 project in 1980 (Carrico et al. 1980). All were relocated during the Class III survey (Eckhardt and Walker 2004a).

In addition to the five previously recorded sites relocated during the Class III survey (RIV-1117H(a), RIV-1117H(b), RIV-1635H, RIV-1809H, and RIV-1810H), another 18 historic-era sites and 12 isolated occurrence were identified. Of these sites, 13 are listed on or potentially eligible for listing on the NRHP. These NRHP eligible or potentially eligible resources are RIV-1117H(a), RIV-1117H(b),RIV-1809H, RIV-1810H, RIV-7489H, RIV-7490, P33-13588, P33-13596, P33-13598, P33-13600, P33-13601, P33-13602, and P33-13603.

The single historic-era isolated occurrence is a historic glass bottle. Isolated artifacts do not meet criteria for listing on the NRHP (Eckhardt and Walker 2004a).

Paleontology

Between the California border and Devers (Links 10, 12, 13, 14, and 16) the study corridor traverses approximately 30.9 miles of high or undetermined areas of paleontological sensitivity. The remainder of the area is low paleontological sensitivity. The undetermined or high sensitivity areas include Pleistocene older alluvium in Links 10, 13, and 14; Eocene Maniobra Formation rocks in Link 13; and Ocotillo Conglomerate and Pliocene nonmarine sediments in Link 14 (Scott 2003).

4.1.13 Public Health and Safety

4.1.13.1 Arizona

School Facilities

Within Arizona, there are no existing or proposed schools located within the study corridor.

Airport and Airstrip Operations

The Mauldin Airstrip is located approximately 1.6 miles east of the existing DPV1 transmission line within the study corridor , near I-10 north of Saddle Mountain. There are no other airports or airstrips located within 2 miles of the study corridor.

4.1.13.2 California

School Facilities

Within California there are no existing schools located within ¼ mile of the existing DPV1 transmission line within the study corridor. Contacts with the Desert Sands and Palm Springs Unified School Districts indicate that no schools are planned for construction within the corridor.

Airport and Airstrip Operations

The Chiriaco Summit Airport is located about 1 mile north of the existing DPV1 transmission line within the study corridor, between the Orocopia and Cottonwood mountains.

4.2 WEST OF DEVERS 230KV TRANSMISSION UPGRADE

4.2.1 Introduction

The proposed 230kV transmission line upgrade route includes approximately 48 lineal miles of existing right-of-way between the Devers Substation, located north of Palm Springs, California and the Vista Substation located in Grand Terrace, California, with an interconnection at the San Bernardino Substation in unincorporated San Bernardino County. The following sections present information about the proposed study corridor pertaining to land use, socioeconomics, population and housing, geology and soils, hydrology, air quality, traffic and transportation, biology, noise, mineral resources/energy, hazards and hazardous materials, public services and utilities, visual resources, cultural resources, and recreation.

4.2.2 Land Use

For the purposes of the land use study, a 2-mile-wide study corridor, centered on the proposed transmission line upgrade right-of-way, was inventoried.

The majority of the west of Devers study corridor is composed of private land. A small amount of BLM land is crossed to the west of Devers. Additionally, a small portion of BLM land is located within the corridor to the west of the city of Beaumont. The Morongo Indian Reservation also is within the west of Devers study corridor.

Incorporated cities within the west of Devers study corridor include Palm Springs, Desert Hot Springs, Banning, Beaumont, Calimesa, Redlands, Loma Linda, San Bernardino, Colton, and Grand Terrace. Other population centers include unincorporated communities (White Water, Cabazon, and Cherry Valley), and large-lot rural residential areas.

Other land uses within the study corridor not associated with incorporated population centers include energy facilities, mining operations, farms, ranches, rural residences, communication sites, and agriculture.

4.2.2.1 Methodology

The inventory was compiled through interpretation of existing maps and aerial photographs within and adjacent to the west of Devers right-of-way comprising a 2-mile-wide study corridor.

The mapped information was then field verified by air and ground reconnaissance. In addition, key federal, state, county, and local land resource agencies were contacted to update official information and identify planned land uses.

Land use inventory results are described in the following sections and displayed on the following maps (at the end of Chapter 4):

- Map 4-1c: Land Ownership
- Map 4-2e: Land Jurisdiction
- Map 4-3e: Land Use – Existing
- Map 4-4e: Land Use – Future

4.2.2.2 Land Ownership/Jurisdiction

Land ownership and jurisdiction status were identified and mapped within the west of Devers study corridor, primarily from secondary data sources. Descriptions of the major data categories follow, and the information is listed in Table 4-41 and 4-42 and shown on Maps 4-1c, and 4-2e.

TABLE 4-41
LAND OWNERSHIP CROSSED BY THE PROPOSED WEST OF DEVERS STUDY CORRIDOR

Ownership	Total Miles Crossed
Bureau of Land Management	1.0
Bureau of Indian Affairs (Morongo)	4.4
Private Land	42.7
Total	**48.1**
Note: Totals may not check due to rounding.	

TABLE 4-42 LAND JURISDICTION CROSSED BY THE PROPOSED WEST OF DEVERS STUDY CORRIDOR	
Jurisdiction	**Total Miles Crossed**
Morongo Reservation	4.4
Unincorporated Riverside County	19.9
Unincorporated San Bernardino County	2.9
City of Banning	5.0
City of Beaumont	3.8
City of Calimesa	2.9
City of Colton	1.8
City of Grand Terrace	0.8
City of Loma Linda	3.8
City of Redlands	2.9
Total	**48.2**
Note: Totals may not check due to rounding.	

Bureau of Land Management

A small portion of the west of Devers study corridor contains BLM-managed land. BLM land is primarily found in the eastern portions of the San Gorgonio Pass near Palm Springs. The proposed west of Devers 230kV upgrade right-of-way crosses 1 mile of BLM land in the northern half of Section 10, Township 3S Range 3E, along Link 100 near Milepost 4. Another portion of BLM land is within and adjacent to the study corridor south of Calimesa, south of Link 102 at Milepost 12.5.

Native American Lands

The Morongo Indian Reservation is located west of Palm Springs within the San Gorgonio Pass and is crossed by Link 100.

Incorporated Areas

Ten incorporated areas are located within the west of Devers study corridor—Palm Springs, Desert Hot Springs, Banning, Beaumont, Calimesa, Redlands, Loma Linda, San Bernardino, Colton, and Grand Terrace. The proposed west of devers upgrade corridor would cross through the cities of Banning, Beaumont, Calimesa, Redlands, Loma Linda, Colton, and Grand Terrace.

Private Land

Private land is found throughout the study corridor, and is the primary ownership category.

4.2.2.3 Existing Land Use

The following categories of existing land uses within the west of Devers study corridor were identified and mapped based on aerial photographs, existing maps, public documents, and field reconnaissance. Results are shown in Map 4-3e. A summary of land uses crossed by the study corridor is presented in Table 4-43.

TABLE 4-43
EXISTING LAND USES CROSSED
BY THE PROPOSED WEST OF DEVERS STUDY CORRIDOR

Land Use Category	Link	Milepost	Miles Crossed
Extraction Mining	100	3.5	0.2
Extraction Mining	101	8	0.4
Cemetery	102	1	0.1
Regional Park (Noble Creek)	102	7	0.1
Community Park	102	7.2	0.3
Golf Course (Oak Valley)	102	7.5 and 8	0.2
Orchard	102	9.5	0.2
Various Rural Residential	102	15 to 20	0.2
Orchard	102	18.5	0.1
Residential	103	3 to 5	1.0
Agriculture	104	1.5	0.3
Orchard	104	2	0.7
Agriculture	104	3	0.8

Note: Mileposts which depict ranges indicate a portion of corridor along which small sections of a land use category are crossed. The sum of these sections is shown under the column titled miles crossed.

Residential

Residential land uses are primarily associated with the developed communities located within and adjacent to the west of Devers study corridor. Developed areas include the incorporated cities of Palm Springs, Desert Hot Springs, Banning, Beaumont, Calimesa, Redlands, Loma Linda, San Bernardino, Colton, and Grand Terrace, and the unincorporated rural communities of Whitewater, Cabazon, and Cherry Valley. In addition, trailer/mobile home parks and large-lot residential subdivisions found throughout the study corridor have been classified as residential use.

Numerous areas of low-density residential use are found in the vicinity of Link 100, north of Mileposts 1.5 and 6.5, associated with Whitewater, and also near Link 101, north of Mileposts 4.5 to 6, on the Morongo Reservation. Medium-density residential areas are located near Link 102, Milepost 0.5 near Banning and Link 102, Milepost 6 near Beaumont. The medium-density residential community of Oak View is crossed by Link 102 from Milepost 7 to 8 and is in the western portion of Beaumont. Generally, along Link 102 north of Mileposts 18 to 21 in the San Timoteo Canyon, is low-density rural residential housing. Link 104 crosses Loma Linda through low-, medium-, and high-density residential areas from Milepost 0.5 to 2.5. Link 103 crosses Reche Canyon to the south of a low- to medium-density residential area from Milepost 2 to 3. Finally, Link 103 passes through a low- and medium-density residential area in Grand Terrace from Milepost 4 to 5.

Commercial and Industrial

Commercial uses correlate with urbanized areas and are associated with the major transportation routes found in rural areas throughout the west of Devers study corridor. Link 101 passes to the north of a Cabazon Morongo outlet mall near Milepost 5. Link 104 passes through a commercial area in Loma Linda south of I-10 near Milepost 2. Link 103 passes to the south of a commercial center in Grand Terrace near Milepost 4.5.

Light and heavy industrial uses are situated throughout the study corridor. Heavy industrial sites are primarily located in the urbanized areas such as in the city of Colton, west of the Vista Substation. Large-scale commercial wind energy facilities are located in the vicinity of the Devers (Link 100 from Milepost 2 to 3). Light industrial warehousing is located on county land to the east of Link 104 near Milepost 3. Sand and gravel operations also are found throughout the study corridor and are crossed by Link 100 at Milepost 3.5 and 7.5. Communication sites within the west of Devers study corridor mainly consist of microwave, radio, and cellular towers and are usually located atop mountain peaks and hillsides. Cellular equipment also is located on SCE's existing transmission lines.

Public/Quasi-Public

SCE's existing right-of-way and the proposed west of Devers 230kV upgrade corridor crosses through the Summit Cemetery, located on San Gorgonio Avenue in Banning, at Milepost 1 of Link 102. There are three other cemeteries within the study corridor in varying proximity to the existing right-of-way as follows: (1) in Colton City, about ½ mile north; (2) in Beaumont, about ⅓ mile south; and (3) in an unincorporated area near Beaumont, about 1/10 mile south of the right-of-way.

Agriculture

Agriculture within the west of Devers study corridor is located within the San Gorgonio Pass, within San Timoteo Canyon, and north of I-10 near Loma Linda. Agricultural production includes citrus and field crops in most agricultural areas.

Agricultural land located in southern California consists of the following four classifications, as established by federal and state agencies: Prime Irrigated Farmland, Statewide Important Farmland, Unique Farmland, and Local Important Farmland. A total of 0.3 mile of agricultural land is crossed by Link 102, and includes all four of the farmland classifications. Link 104 crosses about 1.8 miles of Prime Irrigated Farmland that includes both cropland and orchards.

Air Facilities

Air facilities with FAA recognized airspace were identified. Other such facilities may exist in the vicinity of the study corridor as agricultural operations, and may utilize sparsely traveled roads as take-off and landing strips.

There are two airports located in the west of Devers study corridor. San Bernardino International Airport is situated 1 mile north of the San Bernardino Substation corresponding to Link 104. The Banning Airport is 1 mile south of Link 101 Milepost 7. FAA designated interference zones were identified around airports and airstrips within the study corridor, although the proposed transmission upgrade right-of-way would not be located within any of these zones.

Vacant/Undeveloped and Grazing Land

The vacant land use category includes all of the land within the west of Devers study corridor that does not contain a specific land use. Limited livestock grazing occurs on undeveloped land within the west of Devers study corridor.

Linear Features

Numerous utilities cross the study corridor and include pipelines, transmission lines, aqueducts, canals, transportation routes, and railroads. The proposed west of Devers transmission upgrade would include the Devers-San Bernardino No. 1 and No. 2 230kV, and the Devers-Vista No. 1 and No. 2 230kV transmission lines. The four lines cross and parallel one another at varying distances throughout the study corridor. Other existing linear utility features, such as pipelines and transmission lines, parallel and cross the study corridor, as presented in Table 4-44.

TABLE 4-44
SUMMARY OF TRANSMISSION LINES THAT PARALLEL OR CROSS THE PROPOSED WEST OF DEVERS STUDY CORRIDOR

Transmission Line Name
Devers-Banning-Garnet Wind Park to Zanja 115kV
Devers-Capwind to Concho to Mirage 115kV
Devers-Carodean to Hi Desert to Yucca 115kV
Devers-Eisenhower 115kV
Devers-Farrell to Windland 115kV
Devers-Garnet to Indigo 115kV
Devers-Hi Desert to Terawind to Yucca 115kV
Devers-Mirage 230kV
Devers-Valley 500kV
Banning-Garnet to Marachino Wind Farm 115kV
Coachella Valley-Devers 230kV
Coachella Valley-Mirage 230kV
Etiwanda-Vista 230kV
Etiwanda-San Bernardino 230kV
Garnet-Santa Rosa 115kV
Julian Hinds-Mirage 230kV
Maraschino-San Bernardino 115kV
Mira Loma-Vista #1 230kV
Mira Loma-Vista #2 230kV
Mirage-Tamarisk 115kV
San Bernardino-Vista 230kV
Valley-Mayberry-Moreno-Vista 115kV
Valley-Moreno-Vista 115kV
Vista-Highgrove #2 115kV
Vista-Highgrove #1 115kV
Vista-Calelectric 115kV

Major transportation routes in the west of Devers study corridor include I-10, I-215, CA 62, and San Timoteo Canyon Road, and are shown in Table 4-45.

TABLE 4-45 SUMMARY OF MAJOR TRANSPORTATION ROUTES CROSSED BY PROPOSED WEST OF DEVERS STUDY CORRIDOR		
Transportation Routes Crossed by Study Corridor	**Link**	**Milepost**
I-10	102 104	9.0 2.5
I-215	103	4.5
CA 62	100	1.0
San Timoteo Canyon Road	102	12.0

4.2.2.4 Future Land Use

General Comprehensive and Land Management Plans

General comprehensive and land-management planning documents were reviewed to identify future land uses within the west of Devers study corridor. Table 4-46 lists these documents by jurisdiction with their adoption status. The future land uses identified in the west of Devers study corridor is shown on Map 4-4e.

TABLE 4-46 LAND MANAGEMENT AND GENERAL PLANS FOR PROPOSED WEST OF DEVERS STUDY CORRIDOR			
	General Plan Title/Location of Information	**Managing District**	**Date of Adoption**
County	Riverside County Comprehensive General Plan	Riverside County	Oct 2003
	San Bernardino County General Plan	San Bernardino County	Aug 1999 (revised)
Local	City of Grand Terrace General Plan Map of General Land Use	City of Grand Terrace	1997 Mar 2003
	City of Colton General Plan	City of Colton	Feb 2005
	City of Loma Linda Draft General Plan	City of Loma Linda	Oct 2004
	City of San Bernardino Draft General Plan	City of San Bernardino	Jan 2005
	City of Redlands General Plan	City of Redlands	Aug 1995 as amended
	City of Calimesa General Plan	City of Calimesa	Apr 1994
	City of Beaumont General Plan Map of General Land Use	City of Beaumont	1995 Oct 2000
	City of Banning Draft General Plan	City of Banning	Apr 2004
	City of Desert Hot Springs Comprehensive General Plan	City of Desert Hot Springs	Sept 2000
	City of Palm Springs General Plan	City of Palm Springs	Mar 2003

Riverside County

The Riverside County Comprehensive General Plan policy format provides a means for meeting State General Plan requirements and county needs for long-range direction, while providing the County with sufficient flexibility to respond to future changes. Riverside County has established land use categories that define the intensities and extent of future land uses. These categories are agricultural, rural, open space, and community development. Each of these is subdivided into more detailed land use designations at the area plan level. riverside county has been divided into 19 Land Use Planning Areas, and 3 of the 19 encompass the proposed transmission line corridor: Western Coachella Valley, The Pass, and Reche Canyon/Badlands.

Palm Springs

The proposed study corridor begins at Devers, north of the city limits of Palm Springs. The west of Devers corridor crosses through the Palm Springs sphere of influence as it passes to the west. The land use designations within the study corridor include low-density residential, open space, and energy-related industrial. Link 100 passes north of Palm Springs from Milepost 0 to 7.

Desert Hot Springs

The southwestern corner of the city falls within the west of Devers study corridor and is planned for industrial use and mountain reserve (preservation). The corridor crosses through a portion of the city’s sphere of influence. The land use designations crossed include low-density residential and energy-related industrial. Link 100 passes south of Desert Hot Springs to the south from Milepost 1 to 3.

Banning

The west of Devers study corridor passes within the city limits of Banning, through the northern portion of the city. The land uses within the corridor are designated as low-density residential, agricultural, industrial, recreation, and open space. Link 101 at Milepost 6 and Link 102 from approximately Milepost 0 to 5, for a total of 5 miles, crosses through the city of Banning.

There are two active proposed developments in the city of Banning along the proposed west of Devers corridor and existing 230kV transmission line right-of-way. The Loma Linda Property specific plan and Draft EIR are in the review process for a 600-acre project at Milepost 2 of Link 102. The Deutsch Property is a 1,552-acre proposed development with an approved specific plan, located along Link 102 at Milepost 4.

Beaumont

The west of Devers study corridor crosses through approximately 4 miles of the northern portion of the city of Beaumont, from Milepost 6 to 9, along Link 102 . The land use designation for the existing 230kV transmission line right-of-way identifies a recreational greenbelt through which the proposed transmission upgrade would cross. Other land use elements identified by the city within the study corridor are low-, medium-, and high-density residential, commercial, business park industrial, and public facilities.

Four proposed project developments are located within the city of Beaumont along the 230kV transmission line right-of-way. The Sundance residential development is approximately 1,200 acres and located at Milepost 5 of Link 102. The Sundance Specific Plan was approved in June 2004 and the development is now under construction. The planned 330-acre Noble Creek residential development, located at Milepost 7 of Link 102, is pending city approval. The 76-acre Corman Leigh residential development, located at Milepost 9 of Link 102, is is under construction. SunCal Corporation's 1,556-acre Oak Valley Champions residential development is also under construction, located along Link 102 from Milepost 10 to Milepost 12.

Calimesa

The Calimesa General Plan is a long-range comprehensive plan designated to regulate growth in the area and maintain environmental quality. The general plan indicates that a recognized utility easement runs along the southern portion of the city and sphere of influence. The proposed west of Devers upgrade would be located within the recognized utility easement. Other land use elements within the study corridor include low- and high-density residential, public/quasi-public, agricultural/ranching, and vacant/undeveloped. Link 102 crosses about 3 miles of the city of Calimesa from Mileposts 9 to 12. The Oak Valley Development is located in the southern portion of Calimesa, north of the existing right-of-way at Milepost 10 to Milepost 12.

San Bernardino County

The San Bernardino County General Plan represents the county's official position on future development and provides guidance in the form of goals and policies that span from 5 to 20 years.

The plan divides the region into subregional planning areas that focus on natural and man-made resources. The proposed west of Devers study corridor crosses subregion RSA-29, which is located in the eastern portion of the Valley Region of the San Bernardino County General Plan. The unincorporated land within the study corridor falls within the spheres of influence of those nearby cities located in San Bernardino County.

Redlands

The Redlands General Plan is a set of policies that guide development regulations and decisions. The plan has designated much of the southern portion of the city as resource preservation. The west of Devers study corridor crosses through Redlands within this resource preservation area. Other land use designations within the study corridor include low-density residential and public. The San Bernardino Substation is located within the city of Redlands. Link 102 crosses within Redlands for 2 miles from Milepost 19 to 21, and Link 104 also crosses within the City for 1 mile from Milepost 2.5 to 3.5.

Loma Linda

The Loma Linda General Plan contains a comprehensive plan for managing the community's future. The west of Devers study corridor crosses through the southern portion of the city. Links 103 and 104 cross Loma Linda. The land use designations for that portion include low-density residential and preservation. Link 103 proceeds west through Loma Linda for 1.5 miles.

San Bernardino Junction is located east of the Loma Linda city limits. Link 104 proceeds north for 2 miles through a public open space designated as a riding and hiking trail to the San Bernardino Substation. The other land uses within the study corridor for the proposed line include low-, medium-, and high-density residential, commercial, business park industrial, industrial, and public.

Colton

The west of Devers study corridor crosses through approximately 2 miles of the eastern portion of Colton along Link 103. The designated land uses within the study corridor include low- and high-density residential, commercial, planned community development, and public.

Grand Terrace

The west of Devers study corridor passes through 1 mile of the city of Grand Terrace along Link 103 and terminates at the Vista Substation. The proposed line crosses low-density residential and industrial. The other categories within the study corridor include medium-density residential, commercial, industrial, public, and open space.

4.2.2.5 Park, Recreation, and Preservation Land Uses

Park, recreation, and preservation land uses within the west of Devers study corridor are presented on the Existing Land Use Map (Map 4-3e) and summarized in this section.

BLM Areas of Critical Environmental Concern

The Whitewater Canyon Area of Critical Environmental Concern (ACEC) is located ½ mile north of Milepost 5 of Link 100 within the west of Devers study corridor. The 16,400-acre Whitewater Canyon ACEC was designated by the BLM in September 1980 for fish and wildlife, botanical, and cultural value.

State and County Parks

The state has acquired land within San Timoteo Canyon in Riverside County for future recreation use. The property may not be available for public use until the necessary planning, staffing, and facility development occurs.

There are four Riverside County parks within the west of Devers study corridor. Of these, only the Noble Creek Regional Park would be crossed by the proposed west of Devers transmission upgrade, along Link 102 at Milepost 7 (approximately 0.1 mile). Noble Creek provides athletic and outdoor opportunities.

Three other parks are located within the study corridor, but would not be crossed by the west of Devers upgrade. Bogart Park is located north of Beaumont in Cherry Valley and supports horseback riding, camping, hiking, and picnicking. Bogart Park is north of Milepost 25 on Link 102. The Gilman Historic Ranch and Wagon Museum is located in Banning on Wilson and 16th Street and has historical interpretive programs. The Gilman Historic Ranch and Wagon Museum is south of Milepost 1 on Link 102. Norton Younglove Reserve is located 5 miles east of Moreno Valley off Highway 60 and Theodore Street and is designated as an off-road vehicle park. The Norton Younglove Reserve is south of Milepost 30 of Link 102.

San Bernardino County does not have any parks within the study corridor.

Scenic Roads

There are two scenic highways designated by the California Department of Transportation within the west of Devers study corridor. They are CA 62, between I-10 and the San Bernardino County line, and CA 243 between CA 74 and the city limits of Banning. The study corridor near Milepost 1 on Link 100 crosses CA 62. CA 243 has a view of the study corridor to the south from the junction between Links 101 and 102.

In addition to the state-designated scenic highways, highways eligible for scenic designation include CA 111 between CA 74 and I-10 near Whitewater, and I-10 between CA 38 near Redlands and CA 62 near Whitewater. CA 111 is located near Milepost 5 on Link 100. I-10 is parallel to the study corridor for approximately 30 miles along Links 100, 101 and 102 and crosses the study corridor near Milepost 20 of Link 102.

Recreational Areas

Hiking and Riding Trails

The California State Parks department developed the 2002 California Recreational Trails Plan. Appendix B of the plan contains a map of the proposed and developed California Trail Corridors up to the year 2000. The west of Devers study corridor contains two trails listed in the plan. The Pacific Crest National Scenic Trail passes through the study corridor crossing Link 100 at Milepost 7. The Santa Ana River Trail corridor was proposed for establishment in 2002. The Santa Ana River Trail connects Huntington Beach to the Pacific Crest Trail. The trail is approximately 110 miles in length and is partially complete. The Santa Ana River Trail passes within the study corridor to the north of Links 103 and 104.

Campgrounds

Bogart Park is located north of Beaumont in Cherry Valley and supports camping, horseback riding, hiking, and picnicking. Fisherman's Retreat is located within San Timoteo Canyon and provides opportunities for camping and fishing. Fisherman's Retreat is located north of Milepost 14 of Link 102.

Golf Courses

Four golf courses are within the west of Devers study corridor and include Calimesa Country Club, PGA Southern California Golf Club, Oak Valley Golf Club, and the Palm Meadows Golf Course. The corridor crosses the Oak Valley Golf Club at Milepost 7.5 and 8.0 at Link 102 (approximately 0.2 mile).

Roadside Rest Areas

Two roadside rest areas are located within the west of Devers study corridor. The Whitewater Rest Area is located on I-10, 1 mile west of Whitewater and located approximately at Milepost 4 on Link 100. The Brookside Rest Area is located 3 miles west of Beaumont and is only accessible in the westward direction. The Brookside Rest Area is located near Milepost 9 on Link 102.

4.2.3 Socioeconomics, Population, and Housing

From the Devers Substation, the study corridor travels west through the Riverside County communities of Banning, Beaumont, and Calimesa. The corridor then proceeds northwest into San Bernardino County and the communities of Redlands, Loma Linda, Colton, and Grand Terrace enroute to the Vista Substation.

4.2.3.1 Riverside County

Riverside County encompasses 7,200 square miles with a population density of 214 persons per square mile. Riverside County has experienced a high growth rate for the past 20 years, increasing 76.5 percent between 1980 and 1990. Between 1990 and 2000, Riverside County experienced a 32 percent growth rate in county population, the fifth highest of all 58 California counties (SCAG 2000). The County’s aggregate household income was $28 billion in 1999, comprising about 3.8 percent of the state aggregate household income (U.S. Census Bureau 2000).

The area through which the proposed west of Devers study corridor passes, including Banning, Beaumont, and Calimesa, is primarily rural, agricultural, and light urban in nature. Banning covers 22 square miles and has 11 hotels and 15 mobile home/recreational vehicle parks with a total of 1,007 spaces. Because it is situated on I-10, the area receives a large amount of traffic, and the city estimates that on a normal day (excluding holidays and weekends), over 110,000 cars pass through the community. The city of Beaumont encompasses 26 square miles and has six motels and four mobile home/recreational vehicle parks. The city of Calimesa encompasses 16 square miles and was incorporated in 1990 (COC 2003). Calimesa has one hotel and eight mobile home/recreational vehicle parks.

The proposed 230kV upgrade also would pass through a portion of the Morongo Indian Reservation, which encompasses 32,000 acres (www.morongonation.org 2003) and has a population of 960 and a median household income of $51,071 for the 234 households (U.S. Census Bureau 2000). The unemployment rate for 2000 was 10 percent (U.S. Census Bureau 2000).

4.2.3.2 San Bernardino County

San Bernardino County encompasses 20,052 square miles with a population density of 85.2 persons per square mile. Between 1990 and 2000, San Bernardino County experienced the fifteenth highest county population growth rate in California at 20.5 percent (SCAG 2000). This growth rate is less than half that experienced between 1980 and 1990, when the County grew by 56 percent. The aggregate household income in 1999 was $28.1 billion, comprising about 3.7 percent of the state aggregate household income of $755.5 billion (U.S. Census Bureau 2000).

In San Bernardino County, the proposed west of Devers corridor crosses through the communities of Redlands, Loma Linda, Colton, and Grand Terrace enroute to the Vista Substation. There are numerous hotels, mobile home parks, and recreational vehicle parks in these communities. The city of Redlands is the largest city traversed by the proposed upgrade corridor, with a population of 63,590 and a geographic area of 36 square miles. Loma Linda is a small university town and covers 8 square miles, with a population density of 2,700 people per square mile. The backbone of the local economy is healthcare, provided largely by the Loma

Linda University Medical Center, a combination of medical, research, and educational facilities that draws patients and students from around the country. The city of Colton encompasses approximately 18 square miles. The city of Grand Terrace is 3.6 square miles, and has the highest median household income of any community through which the proposed study corridor crosses. Grand Terrace also has a low crime rate, with only 321 incidents reported in 2001.

Tables 4-47 through 4-50 present current and future population, housing data, and labor force statistics for Riverside and San Bernardino counties, as well as for the communities traversed by the west of Devers study corridor.

TABLE 4-47 YEAR 2000 POPULATION AND DEMOGRAPHICS									
	Riverside County	**Banning**	**Beaumont**	**Calimesa**	**San Bernardino County**	**Loma Linda**	**Redlands**	**Colton**	**Grand Terrace**
Total Population	1,545,387	23,562	11,384	7,139	1,709,434	18,681	63,591	47,662	11,626
Gender:									
Male	769,384	11,220	5,443	3,354	853,024	8,659	30,024	23,492	5,479
Female	776,003	12,342	5,941	3,785	856,410	10,022	33,567	24,170	6,147
Race:									
White	65.6%	64.2%	68.1%	89.1%	58.9%	54.2%	73.7%	42.7%	73.8%
African American	6.2%	8.5%	2.9%	.6%	9.1%	7.2%	4.3%	11.0%	4.6%
Native American	1.2%	2.5%	2.3%	.7%	1.2%	.5%	.9%	1.3%	.7%
Asian or Pacific Islander	4%	5.5%	1.7%	1.2%	5.0%	24.6%	5.4%	5.5%	5.9%
Other	23%	19.3%	25.0%	8.4%	25.8%	13.5%	15.7%	39.5%	15.0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Hispanic Heritage	36.2%	30.2%	36.2%	14.1%	39.2%	16.3%	24.1%	60.7%	25.4%
Source: U.S. Census Bureau 2000 Census; SCAG 2001									

TABLE 4-48 HISTORIC AND ESTIMATED FUTURE POPULATION GROWTH									
Year	**Population**								
	Riverside County	**Banning**	**Beaumont**	**Calimesa**	**San Bernardino County**	**Loma Linda**	**Redlands**	**Colton**	**Grand Terrace**
1980	663,172	14,020	6,818	NA*	895,016	10,694	43,619	21,310	8,498
1990	1,170,413	20,570	9,685	4,647	1,396,600	17,400	60,394	40,213	10,946
2000	1,545,387	23,562	11,384	7,139	1,709,434	18,681	63,591	47,662	11,626
2002	1,645,300	25,736	12,212	7,276	1,788,479	19,735	66,313	49,330	11,975
2005	1,864,700	31,401	18,115	8,663	1,980,000	25,415	69,229	51,575	13,768
2010	2,159,700	34,658	26,074	12,473	2,231,600	28,281	70,817	56,425	14,237
2015	2,459,600	37,723	33,573	16,073	2,487,700	31,529	72,642	61,626	15,142
2020	2,817,600	42,027	44,103	21,144	2,800,900	35,378	74,804	67,770	16,213
Source: U.S. Census Bureau, 2000 Census; California Department of Finance 2000, 2001; SCAG 2001, 2003 *Calimesa was incorporated in 1990									

TABLE 4-49 YEAR 2000 HOUSING DATA									
	Riverside County	**Banning**	**Beaumont**	**Calimesa**	**San Bernardino County**	**Loma Linda**	**Redlands**	**Colton**	**Grand Terrace**
Total Housing Units	584,674	9,761	4,258	3,248	601,369	8,084	24,790	15,680	4,458
Occupied	506,218	8,923	3,881	2,982	528,594	7,536	23,593	14,520	4,221
Owner occupied	348,532	6,426	2,097	2,474	340,933	2,883	14,259	7,545	2,745
Rented	157,686	2,497	1,784	508	187,661	4,653	9,334	6,975	1,476
Vacant	78,456	838	377	266	72,775	548	1,197	1,160	237
Single unit	398,747	7,575	2,865	1,872	442,954	3,835	16,723	9,699	3,038
Multiple unit	103,066	1,030	1,046	121	116,581	3,687	7,162	5,166	1,170
Mobile	82,861	1,156	347	1,255	41,834	562	905	815	250
Median Value	$146,500	$110,000	$98,600	$131,900	$131,500	$165,200	$159,300	$105,200	$142,600
Source: U.S. Census Bureau, 2000 Census; SCAG 2001.									

TABLE 4-50 YEAR 2000 EMPLOYMENT BY OCCUPATION									
	Riverside County	**Banning**	**Beaumont**	**Calimesa**	**San Bernardino County**	**Loma Linda**	**Redlands**	**Colton**	**Grand Terrace**
Total Civilian Labor Force	651,952	8,248	4,843	3,071	721,185	8,644	31,985	20,758	6,192
Total Unemployment	49,096 7.5%	741 9%	449 9.3%	246 8%	59,913 8.3%	436 5%	2,043 6.4%	1,831 8.8%	275 4.4%
Total Employment	602,856	7,507	4,394	2,825	661,272	8,208	29,942	18,927	5,917
Management, professional, and related	167,739	1,551	825	884	186,096	4,512	13,719	4,194	2,261
Service	105,446	1,518	1,014	439	104,728	1,258	4,290	3,239	683
Sales and office	163,095	2,465	1,169	907	180,447	1,662	7,167	5,098	1,764
Farming, fishing, forestry	9,499	32	22	0	3,040	9	26	71	13
Construction, extraction, maintenance	70,974	818	590	217	74,519	264	2,097	2,159	545
Production, transportation, material moving	86,103	1,123	774	378	112,442	503	2,643	4,166	651
Median Household Income	$42,887	$32,076	$29,721	$37,849	$42,066	$38,204	$48,155	$35,777	$53,649
Source: US Census Bureau, 2000 Census									

4.2.4 Geology and Soils

4.2.4.1 Geology

The proposed west of Devers 230kV transmission upgrade would be located within an existing utility corridor from Devers west through San Gorgonio Pass, north of the San Jacinto Mountains and south of the San Bernardino Mountains. The study corridor continues northwest through the San Timoteo Canyon to the Vista Substation, with an interconnection to San Bernardino Substation.

San Gorgonio Pass is an east-trending lowland between the San Bernardino and San Jacinto mountains. The surface of this lowland is covered by multiple generations of alluvial-fan deposits that are mainly derived from the San Bernardino Mountains. The northern foothills are underlain by upper Cenozoic nonmarine and marine sedimentary deposits with basalt flows and small intrusive bodies occurring locally in the sedimentary sequence. The east-trending right-lateral Banning Fault separates the sedimentary section from crystalline rocks of the San Bernardino Mountains to the north. To the east, crystalline rocks of the San Bernardino Mountains block descend beneath the Coachella Valley (USGS 2004).

The San Bernardino Mountains consist of a high, east-trending block that has been uplifted to its present elevation during the last few million years. The southwestern and southeastern margins of the San Bernardino Mountains are traversed by several strands of the San Andreas Fault zone.

From Devers, the study corridor passes through alluvium in the San Gorgonio Pass to a point west of the Morongo Indian Reservation, where the corridor would pass through QPC in the foothills of the San Bernardino Mountains. The corridor then proceeds west into San Timoteo Canyon, crossing Plio-Pleistocene non-marine sedimentary rock and alluvium until it terminates at Vista Substation.

4.2.4.2 Seismic Activity

Eleven earthquakes of magnitudes raging from 4.0 to 4.9 were recorded through year 2000 in the west of Devers study corridor (California Geological Survey 2001). The proposed west of Devers study corridor falls with the San Jacinto Fault zone as well as the San Andreas Fault zone. The San Jacinto Fault zone separates the San Jacinto Mountains and San Timoteo Badlands from the Perris Block. The main strand of the San Andreas Fault in southern California consists of two segments: the Mojave Desert segment that mainly separates rocks of San Gabriel Mountains from rocks of San Bernardino Mountains, and the Coachella Valley segment that separates rocks of Peninsular Ranges from rocks of the San Bernardino and San Gabriel mountains.

4.2.4.3 Soils

Soils in the San Gorgonio Pass generally consist of very deep, well-drained to excessively drained, nearly level to moderately steep soils that have a surface layer of sand to sandy loam. Soils in the San Timoteo Canyon area consist of well-drained, rolling to very steep, moderately deep calcareous loam, and very shallow soils.

<u>Soil Collapse and Consolidation</u>

Soil collapse and consolidation result from hydrocompaction and loading of the surface. Hydrocompaction is a condition that occurs when water is introduced into some moisture deficient fine-grained soils (typically silts and clay) of arid environments. The introduction of water causes a collapse of the soils intergranular structure. This consolidates the soil and in turn results in a depression of the ground surface. Hydrocompaction is most commonly associated with projects that introduce large volumes of water to moisture deficient soils, such as canals, irrigation associated with agriculture, or landscaping of development projects.

The potential degree of hydrocompaction resulting from a transmission line is far less likely than potential soil compaction resulting from the loading and consolidation of the loose surface soil horizons by construction traffic. Such consolidation from vehicular traffic commonly produces a permanent rut or depression in the road surface. If water is channeled into the rut, and there is sufficient gradient to develop surface flow, the rut also may become a location for erosion.

Wind Erosion

Deflation or erosion of soils by wind is a common natural phenomenon in deserts and is governed by soil characteristics and the velocity of the wind. Fine-grained silt and clay particles are picked up by the wind and blown away as dust. Heavier sand particles usually do not become airborne but move in short leaps, referred to as saltation. These soils are most susceptible to wind erosion when recently disturbed by activities such as vehicular traffic. In some of the fine-grained soils, raindrops produce a thin film of clay to coat the surface. This crust, referred to as a carapace crust, provides a fragile shield against wind erosion until it is broken again by vehicular traffic or other activities.

Surface Water Erosion

The sensitivity of a particular site to erosion by surface runoff is a function of the soil type, and the degree of topographic relief, which governs the velocity of the surface water runoff.

Typical erosional features within the corridor consist of shallow gulleys and rills along localized areas of access road courses. Favorable factors that appear to have contributed to low erosion rates include the limited grading used along the existing transmission lines, the general conformance of access roads to topography, the utilization of existing roads where possible. Also, the majority of the existing line crosses terrain of low topographic relief.

4.2.5 Hydrology

The study corridor falls within the Coachella Valley Groundwater Basin. Within this basin, the study corridor falls within the San Gorgonio Pass Sub-basin. The sub-basin is bounded on the north by the San Bernardino Mountains and on the south by the San Jacinto Mountains. The San Gorgonio River flows over the sub-basin and is the main surface drainage feature for the sub-basin. Runoff from the San Bernardino Mountains contributes runoff to the river. The water bearing units in the region are alluvium and the San Timoteo Formation. The alluvium consists mostly of gravel and sand; however, they lie largely above the water table and therefore do not contribute much water to wells. The older, Pleistocene age alluvium contains sand and gravel and also large amounts of clay and silt. These deposits yield moderate amounts of water to wells (California Department of Water Resources 2004).

The storage capacity of the sub-basin was estimated by the California Department of Water Resources in 1987 to be 2,200,000 acre feet.

4.2.6 Air Quality

The proposed west of Devers study corridor is located in the northwestern end of San Jacinto Valley of southern California. The valley is defined by the San Bernardino Mountains to the north and the San Jacinto Mountains to the east. The meteorology found in this area can be described as a temperate climate, typically mild daytime temperatures, low humidity, and low amounts of precipitation. The seasons are marked by warm dry summers and cool wet winters.

Temperature, precipitation, and wind data for the region were developed from data collected in Redlands, California, and was provided by the Western Regional Climate Center. Maximum annual average temperature for the area is 78.2 degrees Fahrenheit with an absolute maximum of 115 degrees Fahrenheit. The minimum temperatures for the area on average are 49.4 degrees Fahrenheit with an absolute minimum temperature of 19 degrees Fahrenheit. Precipitation falls at about 13.3 inches per year. Finally, the average annual wind speeds are 5.6 miles per hour. These data are summarized in Table 4-51.

TABLE 4-51 PROPOSED WEST OF DEVERS STUDY CORRIDOR CLIMATOLOGY SUMMARY		
Temperature		**Redlands, California**
Annual Average	max (F)	78.2
	min (F)	49.4
January	max (F)	64.9
	min (F)	39.4
July	max (F)	94.5
	min (F)	60.6
Absolute	max (F)	115
	min (F)	19
Precipitation		
Annual Average		13.3
Summer Average		0.35
Winter Average		7.1
Wind (Riverside Municipal Air Park)		
Annual Average (mph)		5.6
Source: Western Regional Climate Center, web page (accessed July 22, 2003)		

The proposed west of Devers transmission upgrade is located in the SCAB and is governed by the SCAQMD. As was mentioned previously, in June 2003 the Riverside County portion of the SCAQMD was listed as non-attainment for ozone, carbon monoxide, and particulate matter. The non-attainment for ozone and carbon monoxide was redefined to the Los Angeles portion of the SCAB. However, the non-attainment status for particulate matter remained for the whole SCAB based on standards adopted by both federal (EPA 2003) and state management agencies (California Air Resources Board [CARB] 2003).

The proposed west of Devers transmission upgrade is located along an existing transmission line right-of-way; thus, there are virtually no air emissions directly generated due to on-site equipment. The proposed upgrade parallels existing transmission lines and access roads that have already been developed and are used for maintenance. The amount of land required for construction purposes includes 229.8 acres for equipment laydown areas and less than 1 mile of additional spur roads. The laydown areas may require some vegetative clearing or will be designated for overland access. During construction-related modifications to the site, particulate matter in the form of fugitive dust will be generated during periods of high winds or large equipment transportation on unpaved roads. After construction, there may continue to be particulate matter emissions in the form of fugitive dust due to maintenance activities.

4.2.7 Traffic and Transportation

The proposed 230kV upgrade corridor extends west from Devers along an existing 230kV transmission line right-of-way through the communities of Banning, Beaumont, and Calimesa in Riverside County, and the communities of Loma Linda, Redlands, Colton, and Grand Terrace in San Bernardino County. The corridor exits the Devers Substation on the northern side of I-10, crossing CA 62, then crosses to the western side of I-10 near the border between Calimesa and Beaumont, near the Cherry Valley Boulevard exit. The corridor then crosses San Timoteo Canyon Road, and generally follows on the western side of this road until crossing I-215 and turning west to enter Vista Substation. Table 4-52 below provides traffic counts in the areas where the corridor crosses major travel arterials.

TABLE 4-52
AVERAGE DAILY TRAFFIC COUNT (ADT)

	South or West Bound			North or East Bound		
Location	**Peak Hour**	**Peak Month ADT**	**Annual ADT**	**Peak Hour**	**Peak Month ADT**	**Annual ADT**
CA 62 – I-10 exit to Pierson Blvd.*	1,550	16,600	15,900	1,400	15,100	14,500
I-10 at Fields Road exit	10,200	110,000	103,000	9,700	104,000	97,000
I-10 at Cherry Valley Boulevard exit*	6,300	91,000	85,000	6,000	86,000	80,000
San Timoteo Canyon Road east of Redlands Boulevard*	8,007 (6/26/01)	NA	NA	NA	NA	NA
Redlands Boulevard south of San Timoteo Canyon Road*	8,657 (3/13/02)	NA	NA	NA	NA	NA
I-10 at California Street exit*	14,000	185,000	183,000	13,600	180,000	178,000
I-215 at Washington Avenue exit*	13,200	163,000	160,000	14,100	174,000	171,000

Source: CDOT Division of Traffic Operations 2003; Riverside County DOT, Engineering Services Division 2004
*Indicates locations where proposed west of Devers 230kV upgrade corridor crosses state or interstate highways.

4.2.8 **Biology**

4.2.8.1 West of Devers Upgrade

This section summarizes the results of biological resource surveys conducted for the proposed west of Devers upgrade along an existing SCE transmission line corridor right-of-way between Vista Substation near Terrace View in Riverside County, and Devers near Palm Springs in San Bernardino County. The purpose of these studies was to determine the potential and actual occurrence of any special-status plant and wildlife species, or sensitive habitats, along the proposed right-of-way.

Methods

The approach to this portion of the project involved two phases. In the first phase, background information was gathered and compiled in preparation for going into the field. Biologists compiled a list of candidate sensitive species (plants and wildlife), and areas of special concern, that are known or expected to occur along the right-of-way. Standard database searches were performed (e.g., CNDDB, and others). All of the information compiled formed the basis for a project-specific database and resource mapping effort for the right-of-way.

Prior to going into the field, a map atlas was compiled that depicted the entire right-of-way using USGS topographic base maps. A set of maps was provided to each of the field biologists for reference and to assist with data collection and navigation in the field. The maps included the pre-survey (known) locations of any sensitive species or their habitat, areas likely to require specific surveys along the right-of-way, tower locations, and any access roads.

Following this pre-field orientation, the second phase involved having qualified field biologists conduct field studies along the entire right-of-way. Fieldwork began in early April 2003 and was completed in September 2003. The majority of the field effort coincided with the time of year when sensitive species were most likely to be observed. For plants, several visits to the project area were required to address differing flowering seasons for each sensitive plant species.

Data collection was standardized for each site visited to the fullest extent possible. A field form designed specifically for the project was used to record the results of each survey. Digital photos of each site were taken for reference purposes.

The field biologists were equipped with handheld global positioning system (GPS) units. Specific locations of sensitive resources found in the field were digitized for later mapping and reporting purposes.

The field surveys were conducted usually by a team of two biologists traveling together. Additional, individual surveys were conducted on an as-needed basis by individual specialists. Wherever possible, the biologists drove to the existing tower locations using existing access roads. Elevation and location were recorded with a Magellan GPS unit. Where the access was closed (e.g., behind closed gates lacking SCE locks), the biologists either walked to each existing tower site, or (rarely) they observed them from a distance with binoculars.

At each existing tower site, the biologists compiled a list of representative plant species present and any sensitive plant or vertebrate species they observed. Habitat features such as hilltops, rock outcrops, and ridgelines were recorded also. The relative level of human disturbance in the area (i.e., trash, grading, vehicle tracks, etc.) was noted. A list of potential sensitive species was generated for each existing tower site or specialized habitat between existing tower sites. Any riparian or spring habitats were also noted and their distances from existing tower sites were estimated. The vegetation along the right-of-way between each existing tower site was also recorded and generally mapped, as were potential access problems (e.g., locked gates, washouts) for subsequent surveyors. The findings of the field surveys were compiled into a map atlas.

Vegetation

The project study area lies largely within the most inland and interior extension of South Coast Floristic Region of California (Hickman 1993). The interior valleys of southern coastal California in Los Angeles, western Riverside, and western San Bernardino and Orange counties are now heavily urbanized, but still retain large fragments of their original biotic elements.

The project study region, which lies at the piedmont of the convergence of the San Jacinto and San Bernardino mountains, is largely characterized by shrub vegetation known variously as chaparral or soft chaparral (coastal sage scrub). The characteristic climate on the western end of the project is Mediterranean arid (Raven and Axelrod 1978), the majority of the 10 inches of precipitation falls in the winter season from November to March. The climate of the eastern end is very arid, with as little as 5 inches of precipitation.

The project study area traverses one of the major biotic boundaries in North America: the transition from chaparral to desert. On the western end of the corridor, chaparral and sage scrub floristic elements characteristic of cismontane California, rich in endemic plants, predominate. On the eastern end of the corridor, the biota is fully characteristic of the Sonoran Desert.

Chaparral and related scrub communities in the Southern California region are variable in dominant plants, but share common structural characteristics: the vegetation is dense, often covering more than two-thirds or more of the ground, and is approximately the height of a person in canopy height. Annual plants and perennial plants are diverse and common, but are largely confined to the spaces between dense shrub canopies, or more commonly, annual plants and perennial plants dominate after fires, which are characteristic and important in chaparral.

Chaparral communities present include: scrub oak chaparral, Chamise chaparral, and Riversidean sage scrub/Chaparral mixed scrub. These habitats are found on the north-facing slopes and hilltops along the central and western portions of the right-of-way. Chaparral has been impacted by historical uses (e.g., agriculture, grazing) that resulted in the introduction of non-native grass species. These include the brome grasses (*Bromus* sp.) and wild oats (*Avena* sp.). These introductions also changed the fire regimes and resulted in a more open type of habitat.

Riversidean sage scrub does not occur along the right-of-way as a well-defined vegetation type; instead, it occurs as a mixed vegetation type with chaparral and/or grassland vegetation elements. These areas usually contain stands of California buckwheat (*Eriogonum fasciculatum*) mixed with non-native grasses or chamise (*Adenostoma fasciculatum*), or scrub oak (*Quercus berberidifolia*) mixed with brittlebush or black (*Salvia mellifera*) or white sage (*Salvia apiana*) and/or California sagebrush (*Artemisia californica*).

Upland sites with stony or alluvial soils are often largely chaparral, but scattered within the study area corridor are numerous washes and perennial streams, each with characteristic riparian vegetation depending on hydrology. The riparian vegetation types present include: desert willow/scalebroom scrub, willow scrub, seepwillow scrub, and willow forest. The distribution is limited for the riparian scrubs and forests along the right-of-way. They only occur in active channels (i.e., the Whitewater River) (desert willow [*Chilopsis linearis*]/scalebroom scrub [*Lepidospartum squmatum*]), the San Timoteo Canyon Forest (willow [*Salix* sp.], with California sycamore [*Platanus racemosa*], alder [*Alnus rhombifolia*], and coast live oak [*Quercus agrifolia*]), or in spring areas on slopes or hillsides (willow and seepwillow [*Baccharis salicifolia*] scrubs). Common riparian dominants of dry washes are scale broom and willows (principally *Salix exigua*).

Oak woodland vegetation, now scattered as isolated remnants, is also characteristic of portions of the study area corridor. Coast live oak (*Quercus agrifolia*) is the characteristic dominant, with Palmer's oak (*Quercus palmeri*) frequent, and rare stands can contain Mesa oak (*Quercus engelmanii*) and or California walnut (*Juglans californica*); the latter two species are special status rare plants (CNPS 2001). Larger drainages of the southerly slopes of the San Bernardino Mountains, such as the San Gorgonio River and adjacent drainages to the west, support this habitat type.

Grassland communities are characteristic of the study area corridor on deep soils of lower slopes and valley bottoms, which are now largely urbanized.

The grassland communities present include: grassland, grassland/chaparral, grassland/scrub mosaic, and catclaw/grassland/valley cholla. The grasslands are dominated by non-native grass species including the brome grasses, particularly ripgut (*Bromus diandrua*) and red brome (*B. rubens*), wild oats, and mustard (*Brassica nigra*). These support fires nearly annually, which in turn have brought about a conversion in some areas to where only these and other weedy annual species occur (Zedler et al. 1983). In general, there has been an overall reduction in the native perennial species present in the grasslands. On the Morongo Indian land, the catclaw/grassland/valley cholla (*Opuntia parryi*) vegetation type may occur as a result of past grazing.

The desert scrub communities present include: creosote bush scrub, brittlebush scrub, and catclaw scrub. They are dominated by creosote bush and burrobush at the eastern end of the right-of-way beginning at Devers and extending onto the Morongo Indian land. The Morongo lands are grazed by cattle and, over an extended period, have produced a transitional vegetation type between catclaw dominated scrub to grassland (see below). Along this transition area, the upper elevations are dominated by brittlebush) scrub.

Devers Substation is situated on the broad alluvial fans of the eastern San Bernardino Mountains. The vegetation locally is sparse, with much open ground, and with shrub cover on the order of one-third of the landscape or less comprised by creosote bush in association with white bursage on gravelly soils. Washes that dissect valley bottoms of creosote bush scrub may support shrubby species such as cheesebush (*Hymenoclea salsola*).

The habitat quality of much of the vegetation has been degraded as a result of various human activities. Much of the right-of-way includes: ruderal/degraded scrub, ruderal/non-native grassland, and ruderal chaparral mosaic. Ruderal vegetation is dominated by weedy species that often establish as a result of either previous agricultural activities or weed abatement plowing.

These can produce fields of non-native grasslands or star-thistle (*Centaurea melitensis*). Ruderal/degraded scrub and ruderal chaparral mosaic often results from agricultural/weed abatement activities or frequent fires that encourage the spread of non-native grasses. Non-native grasses are more easily involved in fires than some other vegetation types. As a result, shrub communities often gradually disappear.

Special Status Plant Species

Table 4-53 summarizes the sensitive plant species that may occur in or near the right-of-way and possibly be affected by the project. Studies confirmed the presence of suitable habitat in or near the right-of-way for 18 sensitive plant species. Nevin's barberry (*Mahonia nevinii*) is a federal and state listed endangered species that was confirmed in the right-of-way.

TABLE 4-53
SENSITIVE PLANT SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE OR SAN BERNARDINO COUNTIES, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED WEST OF DEVERS STUDY CORRIDOR

Scientific Name	Common Name	Status	Probability of Presence	Pre-construction Survey Recommended
Abronia villosa var. *aurita*	Chaparral sand-verbena	CEQA	Moderate	Yes
Allium marvinii	Yucipa onion	CEQA	Moderate	Yes
Arenaria plaudicola	Marsh sandwort	FE, CE	None	No
Astragalus lentiginosuus var. *coachellae*	Coachella Valley milk-vetch	FE, CEQA	None	Yes
Astragalus pachypus var. *jaegeri*	Jaeger's milk-vetch	CEQA	Moderate	Yes
Astragalus tricarinatus	Tripple-ribbed milk-vetch	CEQA	Moderate	Yes
Atriplex coronata var. notatior	San Jacinto Valley crownscale	CE	None	No
Calochortus plummerae	Plummer's mariposa	CEQA	Low	Yes
Carex comosa	Bristly sedge	CEQA	None	No
Chorizanthe parryi var. *parryi*	Parry's spineflower	CEQA	High	Yes
Chorizanthe polygonoides var. *longispina*	Long-spined spineflower	CEQA	Moderate	Yes
Chorizanthe xantii var. leucotheca	White-bracted spineflower	CEQA	High	Yes
Deinandra mohavensis	Mojave tarplant	CE	Moderate	Yes
Dodecahema leptoceras	Slender-horned spineflower	FE, CE	Moderate	Yes
Dudleya multicaulis	Many stem live-forever	CEQA	None	No

TABLE 4-53 SENSITIVE PLANT SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE OR SAN BERNARDINO COUNTIES, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED WEST OF DEVERS STUDY CORRIDOR				
Scientific Name	**Common Name**	**Status**	**Probability of Presence**	**Pre-construction Survey Recommended**
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woolly-star	FE, CE	Moderate	Yes
Erodium macrophyllum	Round leaf filaree	CEQA	Moderate	Yes
Euphorbia misera	Cliff spurge	CEQA	Moderate	Yes
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	CEQA	Moderate	Yes
Linanthus maculatus	Little San Bernardino Mtns.	CEQA	Moderate	Yes
Mahonia nevinii	Nevin's barberry	FE, CE	High	Yes
Navarretia fossilis	Spreading pincussion-plant	CT	None	No
Nemacaulis denudata var. *gracilis*	Slender woolly heads	CEQA	Moderate	Yes
Monardella pringlei	Pringle's coyote-mint	CEQA	None	No
Orcuttia californica	California orcutt grass	FE, CE	None	No
Sidalcea neomexicana	Salt-spring checkerbloom	CEQA	None	No
Trichocoronis wrightii	Wright's button	CEQA	None	No

Status Codes:
FE – Federally Endangered; CT – California Threatened
CE – California Endangered; CEQA – California Environmental Quality Act

Probability of Presence:
High – Route passes through suitable habitat with confirmed presence of species.
Moderate – Route passes through suitable habitat, but no confirmed presence, or outside known distribution.
Low – Route passes through marginal habitat, little potential presence of species, or outside known distribution.
None – No suitable habitat, or far from known distribution

Wildlife

The vertebrate fauna of the west of Devers portions of the study corridor is composed of species of mammals, birds, amphibians, and reptiles. While chaparral, coastal sage scrub and valley grassland habitats are composed of characteristic suites of plant species, the vertebrate fauna is not particularly unique and most species present may be found in a variety of other habitat types. Exceptions to this generalization include the coastal California gnatcatcher (*Polioptila californica*) and Belding’s orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*).

Mammals

The mammalian fauna of the west of Devers portion of the study corridor is dominated by species of small, nocturnal rodents that include the highly desert-adapted pocket mice and kangaroo rats that occupy Sonoran Desert and arid grassland portions of the western part of the corridor. Rodents also dominate the slightly more mesic California coastal sage scrub and chaparral habitats in the corridor. Small mammals likely to be present in sage scrub and chaparral include deer mouse (*Peromyscus maniculatus*), harvest mouse (*Reithrodontomys megalotis*), and desert cottontail (*Sylvilagus auduboni*). Mule deer, coyote, and bobcat (*Lynx rufus*) occur sparingly in the study corridor. Riparian areas such as San Timoteo Canyon likely host a variety of bat species including big brown bat (*Eptesicus fuscus*), California myotis (*Myotis californicus*), and Townsend's long-eared bat (*Plecotus townsendii*).

Birds

The avifauana of the west of Devers portion of the study corridor is dominated by small species of songbirds. In the western portions of the corridor, species like black-throated sparrow and LeConte's thrasher are present. In the slightly more mesic California coastal sage scrub, chaparral, and grassland species such as California towhee (*Pipilo crissalis*), Say's phoebe (*Sayornis saya*), sage sparrow (*Amphispiza belli*), and northern mockingbird (*Mimus polyglottos*) are likely to be encountered. Larger species that may be found at any location within the west of Devers study corridor include red-tailed hawk and turkey vulture. Similarly, the ubiquitous mourning dove (*Zenaida macroura*) is likely to occur anywhere in the corridor.

Reptiles

The reptile fauna of the west of Devers portion of the study corridor is fairly diverse and includes the desert forms such as Mohave desert tortoise and desert horned lizard (*Phrynosoma* *platyrhinos*) in the western part of the corridor. In the slightly more mesic California coastal sage scrub, chaparral, and grassland species such as Gilbert's skink (*Eumeces gilberti*), alligator lizard (*Elgaria multiarinata*), western fence lizard (*Scelopoorus occidentalis*), gopher snake, common kingsnake (*Lampropeltis getulus*), and California whipsnake (*Masticophis aurigulus*).

Amphibians

The amphibian fauna of the west of Devers portion of the study corridor is likely quite depauperate. The red-spotted toad likely occupies rocky canyons and arroyos in the corridor and Couch's spadefoot may be present in the more westerly portions of the corridor.

<u>Special Status Wildlife Species</u>

Table 4-54 summarizes the sensitive wildlife species that may be affected by the proposed project and their likelihood of occurrence along the right-of-way. The field surveys focused on determining whether suitable habitat exists in the right-of-way rather than detecting species to determine presence/absence.

TABLE 4-54 SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE OR SAN BERNARDINO COUNTIES, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED WEST OF DEVERS STUDY CORRIDOR					
Scientific Name	**Common Name**	**Status**	**Counties of Presence**	**Probability of Presence**	**Pre-construction Survey Recommended**
AMPHIBIANS					
Bufo californicus	Arroyo toad	FE, CSC	R	None	No
Spea hammondii	Western spadefoot toad	CSC	R, SB	Low	No
REPTILES					
Crotalus ruber ruber	Northern red-diamond rattlesnake	CSC	R, SB	High	No
Charina trivirgata	Rosy boa	FSC, S	R, SB	High	No
Cnemidophorus hyperythrus beldingi	Beldings orange-throated whiptail	CSC	R, SB	High	No
Phrynosoma coronatum blainvillei	San Diego horned lizard	CSC	R, SB	High	No
Gopherus agassizii	Desert tortoise	FT, CT	R	Low	Yes
BIRDS					
Accipiter cooperi	Cooper's hawk	CSC	R, SB	Moderate	No
Accipiter striatus	Sharp-shinned hawk	CSC	R, SB	Moderate	No
Aquilla chrysaetos	Golden eagle	CSC, S	R, SB	Moderate	No
Buteo regalis	Ferruginous hawk	CSC, S	R, SB	Moderate	No
Buteo swainsoni	Swainson's hawk	CT	R, SB	Low	No
Circus cyaneus	Northern harrier	CSC	R, SB	Moderate	No
Elanus leucurus	White-tailed kite	FP	R, SB	Low	No
Falco columbarius	Merlin	CSC	R, SB	Moderate	No
Falco mexicanus	Prairie falcon	CSC	R, SB	Moderate	No
Falco peregrinus anatum	Peregrine falcon	CE, FP	R, SB	Moderate	No
Athene cunicularia	Burrowing owl	CSC, S	R, SB	High	No
Empidonax traillii extimis	Southwestern willow flycatcher	FE, CE	R, SB	Low	Yes
Lanius ludovicianus	Loggerhead shrike	CSC	R, SB	High	No
Vireo bellii pusillus	Least Bell's vireo	FE, CE	R, SB	High	Yes
Eremophila alpestris actia	California horned lark	CSC	R, SB	High	No
Polioptila californica californica	Coastal California gnatcatcher	FT, CSC	R, SB	High	Yes
Toxostoma lecontei	Le Conte's thrasher	CSC, S	SB	Moderate	No
Dendroica petechia brewsteri	Yellow warbler	CSC	R, SB	High	No
Icteria virens	Yellow-breasted chat	CSC	R, SB	High	No
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	CSC	R, SB	High	No
Amphispiza belli belli	Bell's sage sparrow	CSC	R, SB	High	No

TABLE 4-54 SENSITIVE WILDLIFE SPECIES CURRENTLY KNOWN TO EXIST IN RIVERSIDE OR SAN BERNARDINO COUNTIES, CALIFORNIA AND PROBABILITY OF PRESENCE IN THE PROPOSED WEST OF DEVERS STUDY CORRIDOR					
Scientific Name	**Common Name**	**Status**	**Counties of Presence**	**Probability of Presence**	**Pre-construction Survey Recommended**
MAMMALS					
Dipodomys merriami parvus	San Bernardino kangaroo rat	FE, CSC	R, SB	Low	Yes
Dipodomys stephensii	Stephens' kangaroo rat	FE, CT	R, SB	Low	Yes
Perognathus longimembris brevinasus	Los Angeles pocket mouse	CSC	R, SB	High	No
Neotoma lepida intermedia	San Diego desert woodrat	CSC	R, SB	Moderate	No
Lepus californicus bennettii	San Diego black-tailed jackrabbit	CSC	R, SB	High	No

Status Codes:

FE – Federally Endangered
FT – Federally Threatened
FSC – Federal Species of Concern
CE – California Endangered
CT – California Threatened
CSC – California Species of Concern
S – BLM Sensitive
FP – Fully Protected
R – Riverside County
SB – San Bernardino County

Probability of Presence:

High – Route passes through suitable habitat with confirmed presence of species.
Moderate – Route passes through suitable habitat, but no confirmed presence, or outside known distribution.
Low – Route passes through marginal habitat, little potential presence of species, or outside known distribution.
None – No suitable or potential habitat, or far from known distribution.

4.2.9 Noise

The proposed 230kV transmission line upgrade corridor is located within the San Gorgonio Pass and the San Jacinto Valley. The corridor crosses mainly rural areas with large lot residential classifications; however, there are areas of medium density (2 – 15 residences per acre) through which the corridor either crosses or passes within 1 mile. Typical municipal ordinances stipulate that activities producing ambient noise should not exceed 55-50 dBA during nighttime hours (10 p.m. to 7 a.m.) and 60-55 dBA during daytime hours (7 a.m. to 10 p.m.) at receiving residential property lines or sensitive areas. For example, the city of Loma Linda noise ordinance 9.20.040 stipulates that 55 dBA for daytime hours and <50 dBA for nighttime hours is acceptable.

Roadways that contribute to ambient noise include I-10, Interstate 15 (I-15), and intermittent traffic on San Timoteo Canyon Road. The existing transmission lines within the corridor may also produce noise from corona discharge.

4.2.10 <u>Public Services and Utilities</u>

Banning – The Banning Police Department consists of 33 sworn personnel and 14 civilian personnel. Fire service is provided by the Riverside County Fire Department Station # 89, located less than 2 miles north of the proposed west of Devers upgrade right-of-way. The community is served by the San Gorgonio Memorial Hospital in Banning, which has a 68-bed capacity, and by the Redlands Community Hospital, which has a 175-bed capacity. Two trauma centers located in Palm Springs and Loma Linda are also available (ECOPAC 2003).

Beaumont – Beaumont has a local police department located about 2 miles north of the proposed route. Fire service is provided by the Riverside County Fire Department Station # 20 and # 66. The project would likely be served by Station No. 20, located less than 1 mile north of the right-of-way. Hospital services are available in Banning, Redlands, and Palm Springs.

Calimesa - Police service is provided by the Riverside County Sheriff's Office Cabazon Station, located a few miles east of Banning. Under the city's contract with Riverside County, deputies are on duty in the city at all times. Fire service is provided by the Riverside County Fire Department Station # 21, located in Calimesa about 2 miles east of the right-of-way. Hospital services are available in Banning, Redlands, and Palm Springs.

Loma Linda – Police service is provided through a contract with the San Bernardino County Sheriff's Department. The Loma Linda Police Department is located in the nearby town of San

Bernardino, about 5 miles north of the Vista Substation. Fire service is provided by the local fire department, which consists of a full-time staff of 14 in addition to 30 part-time firefighters. Medical services are provided by the Loma Linda University Medical Center and Children's Hospital, which have 528 and 250 beds, respectively, and the Loma Linda Community Hospital with 120 beds. Loma Linda also has the Jerry L. Pettis Memorial Veterans Medical Center with a 434-bed capacity (SBC 2002).

Redlands - The Redlands Police Department employs 81 officers in four stations, the nearest of which is about 2 miles north of the right-of-way. The Redlands Fire Department operates and maintains three separate fully staffed fire stations. The fire department also provides emergency medical services. The Redlands Community Hospital has a 203-bed capacity (SBC 2002). Hospital services are also available in the near-by community of Loma Linda.

Colton – The Colton police department is located about 4 miles north of the Vista Substation. Colton has four fire stations. Service to the project would likely be provided by Fire Station # 4, located about 1 mile north of the right-of-way just east of I-215. Colton has three medical centers; hospital services are provided in the cities of Redlands and Loma Linda.

Grand Terrace – Police services are provided through a contract with the San Bernardino County Sheriff's Department out of the San Bernardino police station that also provides service to Loma Linda. Fire services are also provided by San Bernardino County through Fire Station # 23, located about 2 miles south of the right-of-way. Hospital services are provided 10 minutes away in Loma Linda.

4.2.11 <u>Visual Resource Inventory</u>

This section describes the visual resource inventory for the proposed west of Devers 230kV transmission line upgrade. The inventory has been conducted in a manner that is consistent with accepted practices, in response to CEQA Criteria for Aesthetics and the BLM, VRM 8400 Series

Manual (BLM 1986). The visual resource studies were conducted by reviewing aerial photographs, maps, and planning documents; contacting agencies; and field reconnaissance within the proposed study corridor. The visual resource inventory includes the consideration of visual quality, scenic vistas, and agency management objectives as described below.

4.2.11.1 Inventory Elements

Visual Quality

For purposes of this study, visual quality is a term used to describe the setting and the viewers that may be affected by the proposed project.

Landscape Setting

The study area is located in the Pacific Border Province in the Angeles Range Section (Fennemen 1951). The landscape within the study corridor is primarily rural to suburban with gently rolling terrain largely surrounded by mountain ranges in the eastern portion of the corridor, becoming more urban near the Vista and San Bernardino substations. There are several notable land features that contribute to the landscape setting, including the San Bernardino, San Jacinto, and San Gabriel mountain ranges and San Gorgonio Pass. The study corridor falls between the San Bernardino and San Gabriel mountains to the north and the San Jacinto and Santa Ana mountains to the south. The extensive east-west trending lowlands at the base of the mountain ranges are referred to as the “Valley of Southern California” and consist of generally smooth valleys or basins. Throughout the valleys, isolated hills or groups of hills rise above the valley floor. Natural vegetation within the study area includes desert scrub (creosote), coastal scrub (sumac and buckwheat), mixed chaparral (scrub oak), and suburban agriculture.

Throughout much of the study corridor, this natural setting has been modified to a large extent by previous and ongoing suburban development. In this regard, mixed use development (residential, commercial, industrial) often dominates the setting in locations where the proposed west of Devers 230kV transmission line upgrade crosses developed areas in Riverside and San Bernardino counties, and through the suburban areas of Banning, Beaumont, Calimesa, Redlands, Loma Linda, Colton, and Grand Terrace before terminating at Vista Substation.

The inventory of visual quality within non-developed, natural settings was based on the premise that each landscape character type (e.g., mountain foothills, valley chapparal) exhibits its own type of scenic quality and encompasses a variety of sensitive viewers. Within suburban settings visual quality is primarily based on the viewers and the visual image of the built environment. The west of Devers 230kV transmission line upgrade corridor includes landscapes that are both natural and developed (built). Existing conditions (e.g., the presence of existing transmission lines) that may affect the scenic quality or visual image of an area were also considered in the evaluation of landscape scenery.

Natural Setting - Scenic Quality

In a natural setting, landscape character types are defined by areas of land that have similar characteristics of landform, water related features, vegetative communities, and patterns of these landscape elements. In the natural setting, scenic quality was determined by evaluating landscape character type based upon the uniqueness and diversity of landform, water, vegetation, cultural features, and influence of adjacent scenery. Landscapes with greater diversity of features are typically considered to have higher scenic value. For purposes of this study, landscape character types were assigned one of the following scenic quality classifications:

Class A – land of outstanding or distinctive diversity or interest
Class B – land of common or average diversity or interest
Class C – land of minimal diversity or interest

Developed Settings – Visual Image Types

The purpose of characterizing the types of existing and planned visual images in proximity to the proposed west of Devers 230kV transmission upgrade corridor was to determine the potential visual quality impacts. In developed rural, suburban, and urban settings, landscape scenery is based on the visual features of the built environment and is defined by visual image types. Visual image types consist of development patterns that are defined by existing and planned land use, planning concepts (circulation and building types), and visual character (landscape design and architecture). Six major image types were identified in the developed setting, including residential, open space/park, commercial, industrial, institutional, and agricultural landscape types.

Existing Visual Conditions

The scenic quality of natural settings and the visual image of developed settings may be modified locally by the presence of facilities including transmission and distribution lines, overhead lighting, signs, roadways, canals, railroads, and other features that affect visual quality. The existing condition within the proposed 230kV transmission upgrade corridor was evaluated through mapping and field review in order to determine those locations where modifications would influence scenery and views. In this regard, the presence of multiple existing high voltage transmission lines adjacent to the proposed west of Devers 230kV transmission upgrade, has created an existing utility corridor that has substantially modified the local landscape setting along the entire length of the project and, in particular, in areas that have been previously developed.

Views

The inventory of views included four components: (1) the identification of key viewpoints, (2) visual sensitivity, (3) distance zones, and (4) viewing conditions.

Key Viewpoints and Sensitive Viewers

Numerous key viewpoints associated with sensitive viewers were identified including individual residences, residential developments, recreation areas, and travelways. Of particular importance were those locations where viewers have open, permanent views.

Visual sensitivity reflects the degree of concern for change in the scenic quality of the natural landscape, or to the visual image of the suburban setting. Visual sensitivity levels (high, moderate, or low) reflect the type of viewpoint/viewer (residential, recreational, or travel) and viewer concern for change, volume of use, public and agency concerns, influence of adjacent land use, and viewing duration.

Distance Zones

The distance from the viewer to the proposed west of Devers 230kV transmission upgrade also was considered. For this type of project, in the foreground (0 to 0.25 mile) individual objects are seen in greater detail, whereas the middleground (0.25 to 0.5 to 1 mile) is an area where objects are typically viewed in relationship to patterns rather than individual features. In background areas (1-3 miles), landscapes are viewed as horizon lines and tones, where atmospheric conditions often dominate.

Viewing Conditions

Viewing conditions address viewer orientation (parallel, perpendicular, elevated, or depressed), the potential for screening from sensitive view locations, and the potential for skylining of facilities. Three levels of screening were identified during the inventory, including open viewing conditions that exhibit minimal to no screening; partially screened views, including areas where viewing opportunities are intermittent; and screened views, including areas where terrain, vegetation, buildings, or other built elements (walls and fences) may obscure views. Skylining may range from fully or partially skylined viewing conditions to backdropped by terrain, vegetation, or structures.

Scenic Vistas

Scenic vistas are designated viewpoints associated with scenic views that typically occur along highways or other travel routes.

4.2.11.2 Visual Resource Inventory Results

This section describes the results of the visual resource inventory within the proposed west of Devers study corridor including visual quality, and scenic vistas.

Visual Quality

Landscape Character Types - Natural Setting

While portions of the west of Devers 230kV transmission upgrade study corridor have been developed, areas of vacant land still demonstrate natural conditions that can be divided into three distinct landscape types: desert valley grasslands, grasslands, and foothills. For examples of these natural landscape character types refer to Figure 4-3.

Scenic Quality - Scenic quality was inventoried for the study area as depicted on Map 4-6e (end of Chapter 4). Scenic Quality Rating Forms were developed for the landscape types previously described, consistent with BLM methods, and used to determine levels of scenic quality within the corridor as described below.

The proposed project does not pass through any lands that have been designated as Class A scenery.

Class B scenery is associated with undeveloped landscapes with some visual variety in line, color, form, and texture. The foothills associated with the San Bernardino Mountains west of the Devers Substation and the hills associated with San Timoteo Canyon were designated as Class B scenery. These landscapes exhibit variety in color based on the season and landform, adding interest to the setting.

Class C landscapes consist of undeveloped land with little variety in landform and vegetation. Approximately one-third of the study corridor crosses Class C scenery, which primarily consists of the flat valley land surrounded by subtle rolling hills. The rest of the study corridor passes through developed lands.

FIGURE 4-3

Figure 4-3 (cont.1)

Fig 4-3 (cont.2)

Figure 4-3 (cont.3)

Visual Image Types – Developed Settings

Within the suburban setting, six visual image types (see Figure 4-4) were identified during field reconnaissance along the proposed project including agricultural, residential, industrial, commercial, institutional, and open space/park. While developed areas, primarily residential, are currently found in scattered concentrations, future land use plans suggest that a majority of the study corridor (Links 101-104) will continue to be developed as residential areas with open space.

Agricultural Image Types – These include small pockets of land that are crossed by the proposed west of Devers upgrade within San Timoteo Canyon. While limited in extent, these areas have been modified for crop production. Other cultural modifications include facilities in support of agricultural production. Variations in landform are extremely limited, and vegetation primarily consisting of citrus grove, is homogenous in color.

Residential Image Types – These consist of low- to high-density single-family detached units in addition to apartment style condos and/or town homes, most often in a regular ordered pattern. The development pattern for medium- to high-density residential image types displays a strong sense of continuity in housing and street patterns, which are repeated throughout the development. These patterns are often arranged on an internal geometric grid, with a loop road system, providing a perimeter of housing which serves as a separation or seam to surrounding uses. Low-density residential image types exhibit large individual lots and curvilinear and random circulation patterns, often with no centralized focus. Housing character in these areas is non-unified, with orientation of the building generating inward and outward views to the surrounding landscape. Pockets of low-density residential types occur within San Timoteo Canyon and eastward toward the Morongo Indian Reservation as well as in Grand Terrace and Colton. Medium-density housing in the form of master-planned communities is scattered along the study corridor but is in higher concentrations in the cities of Banning and Beaumont (between Links 101 and 102).

Industrial Image Types – These include developments which have active industrial uses and are found immediately west of Devers Substation and in other limited areas. Facilities, buildings and land modifications in this image type are centralized, often large, and may dominate the local setting in terms of complexity, scale, and layout concept. Landscape treatment (often limited) may include vegetation screening, used on the perimeter of the industrial development to block views. These areas include wind farms, resource extraction, and other utility related facilities adjacent to, or in the vicinity of the proposed project.

Commercial Image Types – These are typically oriented to the street with the layout concept designed to provide high visibility and access. Structures are often “box like,” unified, and display a repetition of architectural facades and sign types. Open parking lots are the predominant source of buffering from the surrounding area. Hotels, motels, strip malls and stores are all examples of the commercial image type. Commercial image types were identified within the Morongo Indian Reservation (casino/hotel and outlet shopping center**)** and in localized areas.

Institutional Image Types – These include developments such as schools, libraries, and churches, which often provide a strong community landmark. The setting is dominated by a central building, which serves as a focus for the site. The character may consist of open green space, often including recreation facilities (schools). Visibility is often high both to and from the surrounding roads.

Open Space/Park Image Types – These include parks and open space and cemeteries. This image type is characterized by contiguous open space, typically including combinations of grass, shrubs/trees, and hardscape. The edges are most often defined by surrounding land use, usually residential or institutional, and streets, which may enclose these areas while at the same time providing access. Views are usually focused into the interior of the image type while other development confines off-site views. Open space/park image types that are adjacent to, or crossed by the proposed project, include golf courses, parks, trail systems, and the cemetery. In the cities of Banning, Calimesa, Redlands, and Loma Linda it was required that the existing utility corridor, where the proposed project is to occur, function as an open space, passive recreation/pedestrian circulation corridor.

Existing Conditions

Existing visual conditions that may affect the scenic quality or image type of an area were considered in the evaluation of landscape settings. All land crossed by the proposed west of Devers 230kV transmission upgrade have been highly modified by the presence of the existing transmission line corridor which includes up to five different types of existing structures. In many locations these facilities dominate the existing setting.

Views

Numerous key viewpoints were identified including dispersed residences within master planned communities, recreational areas, and travel routes. Of particular importance were those locations where regional landscape features such as the San Bernardino and San Jacinto mountains were dominant. Localized views of importance include those from neighborhood areas, parks, cemeteries, and roads immediately adjacent to or crossed by the existing utility corridor. The following discussion regarding the inventory of views addresses viewer sensitivity, distance zones, and viewing conditions specific to sensitive viewpoints including residential, recreation, and travelway viewers within the proposed west of Devers 230kV transmission upgrade study corridor.

Residential Area Viewers – Residential viewers were identified within the study corridor and were assigned a high sensitivity based primarily on viewing duration and concern for change in the landscape. Dispersed rural residential viewers and low- to medium-density residential development and associated viewers include some areas within the Morongo Indian Reservation and San Timoteo Canyon. Viewers in these and other locations have foreground to middleground views of the proposed and existing transmission lines that vary from open, to partially or fully screened views, depending on localized conditions. Residential viewers along Links 103 and 104 (Loma Linda, Colton, and Grand Terrace) have similar viewing conditions. Residences that occur on the northern and southern side of the proposed transmission upgrade corridor within the Morongo Indian Reservation have immediate foreground views of the proposed transmission line.

Medium- to high-density housing and associated viewers occur in several locations including the cities of Banning and Beaumont. These viewers have open to partially or fully screened views of the existing and proposed west of Devers 230kV transmission lines, dependent upon their location within each development and localized screening conditions. Viewers on the edge of developments tend to have the most direct unobstructed views, while those on the interior have views that are partially to fully screened. Specifically, those homes occurring immediately adjacent on the north side of the existing transmission line right-of-way in Beaumont will have direct immediate foreground views of the proposed transmission upgrade.

Recreational Viewers - There are a number of parks located in proximity to, or that have foreground/middleground views of the existing transmission line corridor, including the PGA of Southern California Golf Course and the Oak Valley Green Neighborhood Park. The Pacific Crest National Scenic Trail, which crosses the existing right-of-way and the proposed west of Devers 230kV upgrade corridor, is considered to have high visual sensitivity because of its scenic designation. In addition, Riverside and San Bernardino counties and the cities of Banning, Calimesa, Redlands, and Loma Linda all preserve existing transmission line easements as open space/trail corridors in their general plans.

Travelway Viewers – High sensitivity travelways include several eligible, and officially designated, State Scenic Highways. Those located within the study corridor include CA 62 from I-10 to San Bernardino County, CA 111 to I-10 near Whitewater, and I-10 from CA 38 near Redlands to CA 62 near Whitewater. San Timoteo Canyon Road, which runs parallel to portions of the existing transmission line corridor, is also considered highly sensitive, in part, due to its historic value to the community. San Timoteo Canyon is located within a “resource preservation” area in the city of Redlands General Plan. Views from these roads range from open immediate foreground where I-10 and CA 62 cross the proposed west of Devers 230kV transmission upgrade corridor, to middleground/background screened views from CA 111 and San Timoteo Canyon Road, where views may range from partially to fully skylined, or backdropped.

Scenic Vistas

There are no designated scenic vistas within the proposed west of Devers 230kV upgrade study corridor.

4.2.12 <u>Cultural Resources</u>

See Section 4.1.12 for a brief overview of cultural resources in the project area.

<u>Archaeology</u>

Class I records search data identified eight previously recorded prehistoric archaeological sites and one isolated occurrence potentially within the study corridor. Two of these sites (RIV-179 and RIV-197) and the one isolated occurrence appeared to be potentially within the 300-foot-wide project APE. Based on the Class III archaeological survey of the 300-foot-wide project APE, RIV-179 could not be relocated, RIV-197 was found to be outside the APE, and two new sites were recorded (P33-13429, and P33-13430 (Eckhardt and Walker 2004b).

Neither P33-13429 nor P33-13430 appear eligible for the NRHP (Eckhardt and Walker 2004b).

Ethnography

Apart from the recorded archaeological sites and the portion of the study corridor that crosses the Morongo Indian Reservation, there are no known areas of ethnographic sensitivity within the project APE. In addition, Native American groups have an interest in the disposition of prehistoric archaeological sites as evidence of the presence of their ancestries.

BLM staff has indicated that they will consult with appropriate Native American groups in the context of the BLM's government-to-government responsibility with Native American tribes for input to the federal NEPA document for the DPV2 project (personal communication, Wanda Raschkow 2004).

History

A Class I records search identified 38 previously recorded historic-era buildings and archaeological sites, and five isolated occurrences potentially within the 1-mile-wide study corridor. Three of the previously recorded sites (RIV-4768H/SBR-7168H, RIV-2262H, and P33-007888) and none of the isolated occurrences appear to be potentially within the 300-foot-wide project APE. The Class III archaeological survey resulted in the relocation of all of those resources, and the recordation of nine other historic sites (RIV-7462H/P33-13427, P33-13428, RIV-2262H, RIV-4768H/SBR-7168H/P36-007168, SBR-11624H/P36-011624, P33-13431, P33-13434, P33-007888, and P36-020240 and one historic isolated occurrence (P33-13432) within the 300-foot-wide project APE (Eckhardt and Walker 2004b).

Of the nine historic sites identified within the APE, three (RIV-7168H/4768H, RIV-2262H, and P33-007888) are assessed potentially eligible for listing on the NRHP. Isolated artifacts do not meet criteria for listing on the NRHP (Eckhardt and Walker 2004b).

Paleontology

Between the Devers and Vista substations (Links 100, 101, 102, 103, and 104) the proposed 230kV upgrade right-of-way traverses approximately 25.9 miles of high or undetermined areas of paleontological sensitivity. The remainder of the corridor has a low paleontological sensitivity. The undetermined or high sensitivity areas include Pleistocene older alluvium in Links 102 and 103, Canebrake Conglomerate or Palm Springs Formation in Link 102, and San Timoteo Formation in Links 102 and 103. Link 104 traversing the area between Link 103 and San Bernardino Substation crosses only lithic units of low paleontological sensitivity (Scott 2003).

4.2.13 Public Health and Safety

4.2.13.1 School Facilities

The following section describes the school facilities that are located within ½ mile of the proposed west of Devers upgrade and SCE's existing transmission line right-of-way. Table 4-55 provides a summary of existing schools and their respective locations relative to the existing right-of-way within the proposed west of Devers transmission line upgrade corridor.

Existing schools located within approximately ¼ mile from the existing transmission line right-of-way are listed in Table 4-55. The new Beaumont High School, now under construction, also would be within ¼ mile from the right-of-way. The Colton Joint Unified School District plans to construct a new middle school in Bloomington, and will construct a new high school at an undetermined location in 2006 (CJUSD 2005).

TABLE 4-55 SCHOOLS WITHIN THE PROPOSED WEST OF DEVERS STUDY CORRIDOR				
School District	**City/Jurisdiction**	**School**	**Location**	**Distance from Existing Right-of-way**
Schools Within ¼ Mile				
Link 100				
Banning Unified (private under contract)	White Water, California	Whitewater High School	55860 Verbenia Avenue	0.1 mile (south)
Link 102				
Beaumont Unified	Beaumont, California	Beaumont Senior High School	1591 Cherry Avenue Cherry Avenue/Cougar Way	120 feet (north)
Beaumont Unified	Beaumont, California	Mountain View Middle School	200 Cougar Way Cougar Way/Palm Avenue	.25 mile (north)
Beaumont Unified	Cherry Valley, California	Beaumont High School (under construction)	11445 Beaumont Avenue Beaumont Avenue/Cougar Way	.25 mile (north)
Link 103				
Colton Joint Unified	Colton, California	Reche Canyon Elementary	3101 Canyon Vista Drive Canyon Vista Drive/Chase Canyon Lane	0.1 mile (south)
Private	Colton, California	Christian Center Academy	1401 S. Mount Vernon Avenue Mt. Vernon Avenue/I-215	adjacent (south)
Colton Joint Unified	Grand Terrace, California	Terrace View Elementary	22731 Grand Terrace Road Grand Terrace Road/Vista Grande Way	800 feet (south)
Link 104				
Redlands Unified	Loma Linda, California	Bryn Mawr Elementary School	11680 Whittier Avenue Whittier Avenue/Cresthaven Court	.25 mile (east)
Schools Within ½ Mile				
Link 101				
Banning Unified	Banning, California	Hoffer Elementary	1115 E Hoffer Street Hoffer Street/Phillips Avenue	.5 mile (southwest)
Link 102				
Private	Banning, California	Calvary Christian School	1325 Mountain Avenue	.5 mile (south)
Beaumont Unified	Beaumont, California	Chavez Elementary	1730 Cherry Avenue Cherry Avenue/Mary Lane	.5 mile (north)
Link 103				
Charter	Colton, California	San Andreas Academy	851 S. Cooley Drive	.5 mile (north)
Colton Joint Unified	Grand Terrace, California	Terrace Hills Middle	22579 De Berry Street De Berry Street/Mt. Vernon Avenue	.5 mile (south)
Private	Grand Terrace, California	Azure Hills Adventist Elementary	22577 City Center Court	.5 mile (southeast)
Colton Joint Unified	Grand Terrace, California	Grand Terrace Elementary	12066 Vivienda Avenue Vivienda Avenue/Barton Road	.5 mile (south)

TABLE 4-55 SCHOOLS WITHIN THE PROPOSED WEST OF DEVERS STUDY CORRIDOR				
School District	**City/Jurisdiction**	**School**	**Location**	**Distance from Existing Right-of-way**
Link 104				
Redlands Unified	San Bernardino, California	Victoria Elementary	9963 Richardson Street	.5 mile (west)
Sources: AES 2004; BUSD 2004; California Department of Education 2004; CJUSD 2004; RUSD 2004 Note: School property locations were identified within approximately ½-mile on either side of the existing transmission line right-of-way				

4.2.13.2 Airport and Airstrip Operations

There are two public airports and three heliports within 2 miles of the proposed west of Devers upgrade right-of-way. The San Bernardino International Airport is located about 1.25 miles north of the San Bernardino Substation. The Banning Municipal Airport is located just less than 1 mile south of the right-of-way. The Loma Linda University Medical Center Heliport and San Bernardino Heliport are located 1 mile and 1.6 miles, respectively, north/northeast of the right-of-way, between the Vista and San Bernardino substations. There is also a heliport at Devers Substation.

4.3 SUBALTERNATE TRANSMISSION LINE ROUTES

4.3.1 <u>Introduction</u>

Two 500kV transmission line subalternate routes are evaluated in this document—the Harquahala-West and Palo Verde Subalternate Routes. The Harquahala-West subalternate route would be approximately 14 miles shorter than the proposed Devers-Harquahala route. The route segment begins at the Harquahala Switchyard approximately 1 mile north of Courthouse Road and follows section lines west for approximately 12 miles through private and state land to the El Paso Natural Gas pipeline corridor. The route then follows the pipeline corridor northwest, through predominately BLM land for approximately 9 miles, to its intersection with the existing DPV1 and proposed Devers-Harquahala transmission line corridor.

The Palo Verde Subalternate Route was evaluated in the event that the termination point of the project would be the PVNGS Switchyard, as an alternative to the Harquahala Switchyard. The route is approximately 14.9 miles long and would parallel the DPV1 transmission line southeast past Saddle Mountain, and then east and northeast to PVNGS.

The description of the environmental setting for each of the subalternate routes follow. The Harquahala-West Subalternate Route is identified as Link HW and the Palo Verde Subalternate Route is identified as Link PVS on Maps 4-1a, 4-2a, 4-3a, 4-4a, 4-5a, and 4-6a, located at the end of Chapter 4.

4.3.2 Land Use

4.3.2.1 Methodology

The inventory was compiled through interpretation of existing maps and aerial photographs within and adjacent to the subalternate routes. The mapped information was then field verified by ground reconnaissance. The study corridor for both subalternate routes is 2 miles wide.

Land use inventory results for the subalternate routes are described in the following sections and displayed on in the following maps (end of Chapter 4):

- Map 4-1 a: Land Ownership
- Map 4-2 a: Land Jurisdiction
- Map 4-3 a: Land Use – Existing
- Map 4-4 a: Land Use – Future

4.3.2.2 Harquahala-West Subalternate Route

<u>Land Ownership/Jurisdiction</u>

Land ownership and jurisdiction status were identified and mapped for the Harquahala-West subalternate route based on available secondary data sources. Descriptions of the major categories follow, and the information is listed in Table 4-56 and Table 4-57 and shown on Maps 4-1a and 4-2a (end of Chapter 4).

TABLE 4-56
LAND OWNERSHIP CROSSED BY THE HARQUAHALA-WEST SUBALTERNATE ROUTE

Ownership	Total Miles Crossed
Bureau of Land Management	8.9
Arizona State Trust Land	3.1
Private Land	9.1
Total	**21.1**

Note: Totals may not check due to rounding.

TABLE 4-57
LAND JURISDICTION CROSSED BY THE HARQUAHALA-WEST SUBALTERNATE ROUTE

Jurisdiction	Total Miles Crossed
Unincorporated Maricopa County	13.2
Unincorporated La Paz County	7.8
Total	**21.0**

Note: Totals may not check due to rounding.

The public land managed by the BLM along the Harquahala-West Subalternate Route is within the Yuma Field Office planning area. The subalternate route is within the BLM utility corridor designated in the Lower Gila South RMP. The Eagletail Mountains WA falls within the study corridor of this subalternate route. The boundary of the wilderness comes within approximately ¼ mile from the proposed route. Approximately 8.9 miles of BLM land is crossed by the route.

Approximately 3.1 miles of Arizona State Trust Lands are crossed by the subalternate route. These lands occur in small areas between the BLM and private land. Approximately 9.1 miles of private land are found along the subalternate route as it goes west to the El Paso Natural Gas Pipeline corridor from the Harquahala Switchyard.

Existing Land Use

The following land use categories are found within the study corridor of the Harquahala-West Subalternate Route. The land uses are described as they occur in the study corridor.

Residential land uses along the Harquahala-West Subalternate Route include dispersed rural residences, which are accessed from Courthouse Road. Four residences occur within 1 mile of the subalternate route, and one residence occurs within ¼ mile of the route (between Mileposts 8 and 9 of link HW). Agricultural areas within the study corridor are located close to the Harquahala Generating Station, generally in the Harquahala Plain. Link HW crosses approximately 3 miles of agricultural land along irrigation canal laterals. Agricultural land within the study corridor is Prime Farmland as described by the Natural Resource Conservation Service. Prime Farmland characteristics are described in Section 4.1.2.1.

The majority of land within the subalternate route study corridor is vacant and/or undeveloped land. This vacant land includes private, state, and BLM land. Recreation areas within the study area include Courthouse Rock, a large rock feature located approximately 1.5 miles southwest of the subalternate route within the Eagletail WA.

The subalternate route parallels an El Paso Natural Gas pipeline corridor, which traverses from south of the PVNGS northwest through Wenden Pump Station 4126. The Wenden Station is located south of Milepost 30 on Link 1b and the pipelines that pass through it include 1600, 1103, 1100, and the All American Pipeline (Line 2000). Pipelines have been installed on both sides of the access road. A fiber optic cable is also located along the pipeline corridor.

Future Land Use

The general comprehensive and land management planning documents identify planned land uses in the subalternate corridor within the same jurisdictions as the proposed Devers-Harquahala route in this area. Eagle Ranch is a subdivided area along Courthouse Road. The subalternate route crosses approximately 4.5 miles of Eagle Ranch. The future land uses are identified on Map 4-4a.

The BLM has planned for utility corridors within their jurisdiction. The Harquahala-West Subalternate Route is located in a designated utility corridor where it is parallel to the El Paso Natural Gas pipeline corridor. The Maricopa County Comprehensive Plan designates the subalternate corridor as a Rural Residential area. Rural Residential is defined as one dwelling unit or less per acre. La Paz County does not have an adopted general plan.

No established hiking and riding trails were identified within the subalternate corridor, although dispersed recreation occurs on land managed by the BLM. The BLM is currently evaluating a proposal to develop a trail within the vicinity of Courthouse Rock.

4.3.2.3 Palo Verde Subalternate Route

If it is determined that the termination point of the project is the PVNGS Switchyard instead of the Harquahala Switchyard, the 500kV transmission line route would follow the DPV1 transmission line southeast past Saddle Mountain (See Map 3-2a) within the 130-foot-wide right-of-way granted to SCE by the BLM for DPV2 in 1989. The right-of-way is adjacent to the existing DPV1 transmission line, on the eastern and northern side, within the BLM-designated utility corridor. Acquisition of new right-of-way across private and state land also would be required. Construction of this alternative would require a cutover with the DPV1 line. A diagram of the proposed and subalternate route construction configurations is shown on Map 3-3 (end of

Chapter 3). The length of the Palo Verde 500kV subalternate transmission line route, between the junction of Harquahala and PVNGS, would add approximately 10 miles.

Land Ownership/Jurisdiction

Land ownership and jurisdiction status were identified and mapped for the Palo Verde Subalternate Route. Descriptions of the major categories follow, and the information is listed in Table 4-58 and shown on Maps 4-1a, 4-2a, and 4-2b.

TABLE 4-58
LAND OWNERSHIP CROSSED BY THE PALO VERDE SUBALTERNATE ROUTE

Ownership	Total Miles Crossed
Bureau of Land Management	8.8
Arizona State Trust Land	2.3
Private Land	3.8
Total	**14.9**

Land managed by the BLM along this subalternate route is managed by the Phoenix Field Office and includes Saddle Mountain and the Palo Verde Hills. The route would utilize the 130-foot-wide right-of-way granted to SCE in 1989 for the DPV2 transmission line. Approximately 2.3 miles of Arizona State Trust Lands are crossed by the subalternate route. Approximately 3.8 miles of private lands are found along the subalternate route in the vicinity of the PVNGS.

Existing Land Use

The following land uses are found within the Palo Verde subalternate study corridor and are identified on Map 4-3a. Dispersed rural residences occur in the northern portion of the study corridor along the Salome Highway and in the southern portion of the study corridor, along Wintersburg Road. Residences along the Salome Highway are between 1 and 2 miles away from the centerline of the subalternate route. The Palo Verde Subalternate Route does not cross any agricultural land. The majority of land within the subalternate route study corridor is vacant and/or undeveloped land. The route parallels the existing DPV1 500kV transmission line for its entire length.

Future Land Use

General comprehensive and land management planning documents identify planned land uses in the subalternate corridor within the same jurisdictions as the proposed Devers-Harquahala transmission line route in this area. The future land uses are identified on Map 4-4a. The Palo Verde Subalternate Route is located in the BLM designated Palo Verde-Devers utility corridor that includes the DPV1 transmission line. The Maricopa County Tonopah/Arlington Specific Area Plan includes planned land use designations of rural residential, planned open space (in the vicinity of Saddle Mountain), and industrial (within the PVNGS property).

4.3.3 Socioeconomics, Population, and Housing

4.3.3.1 Harquahala-West and Palo Verde Subalternate Routes

The Harquahala-West Subalternate Route is located in Maricopa and La Paz counties, Arizona. The Palo Verde Subalternate Route is entirely within Maricopa County. Socioeconomic, population, and housing data are reported in Section 4.1.3.1.

4.3.4 Geology and Soils

4.3.4.1 Harquahala-West and Palo Verde Subalternate Routes

Physiographic Setting

The Harquahala-West and Palo Verde Subalternate Routes are in the Sonoran Desert section of the Basin and Range physiographic province (refer to Plate 4 in the 1977 Environmental Report). The province is described in Section 4.1.4.1.

4.3.5 Hydrology

4.3.5.1 Harquahala-West and Palo Verde Subalternate Routes

The Harquahala-West and Palo Verde Subalternate Routes are located in the Harquahala Plain. This plain is bounded by discontinuous mountain ranges including the Little Harquahala, Big Horn Mountains, Gila Bend Mountains, and Palo Verde Hills. As noted in Table 4-25, the Harquahala Plain drains into Centennial Wash.

As noted in Section 4.1.5.1, groundwater is typically found in the sand and gravel layers that lie beneath the alluvial valleys.

4.3.6 Air Quality

4.3.6.1 Harquahala-West and Palo Verde Subalternate Routes

The air quality data for the Harquahala-West and Palo Verde Subalternate Routes are described in Section 4.1.6.1.

4.3.7 Traffic and Transportation

4.3.7.1 Harquahala-West and Palo Verde Subalternate Routes

The Harquahala-West Subalternate Route does not cross any major transportation routes. The Palo Verde Subalternate Route crosses Wintersburg Road.

4.3.8 Biology

4.3.8.1 Harquahala-West Subalternate Route

Vegetation

Beginning at the Harquahala Switchyard, the Harquahala-West Subalternate Route traverses agricultural, ruderal, and native desert lands. Agricultural and ruderal land makes up the first 3 miles of the alternative as it crosses the Harquahala Plain. Once beyond the human-affected lands, the route crosses native desert land that is dominated by creosote bush (*Larrea tridentata*) with local co-dominance by white bursage (*Ambrosia dumosa*), the classic plant species that typify the Lower Colorado River Valley Subdivision of the Sonoran Desert (Turner 1982). Small drainageways and runnels on the Harquahala Plain support widely scattered individuals of mesquite (*Prosopis velutina*). In areas where water from runnels and sheet flows collect, small patches of mesquite woodland are present. Creosote bush communities dominate the corridor westward to the CAP lateral canal and the El Paso Natural Gas pipeline near the easternmost foothills of the Eagletail Mountains. At this location, the corridor turns to the northwest and follows the El Paso Natural Gas pipeline and associated access road.

The El Paso Natural Gas pipeline runs along the northeastern edge of the Eagletail Mountain foothills. The route segment along the natural gas pipeline traverses a plant community that is ecotonal between the shrub-dominated Lower Colorado Valley Subdivision of the Sonoran Desert and the more diverse, arborescent/succulent Arizona Upland Subdivision. Soils in this area are much more coarse and gravelly than those on the Harquahala Plain and this is manifest in a different plant community in the foothills. Creosote bush continues to be a dominant species, but is joined by the arborescent ironwood, blue paloverde, and foothill paloverde. Cacti and ocotillo also become a much more common component of the foothill flora. Cactus species present include saguaro, chain-fruit cholla, prickly pear, silver cholla, teddy bear cholla (*O. bigelovii*), hedgehog cactus (*Echinocereus engelmannii*), and pincushion cactus (*Mammillaria tetrancistra*; *M. grahamii*) among others.

Close examination of the actual distribution of ironwood, blue paloverde, and saguaro reveals that most of these plants are actually growing alongside small washes and runnels with interfluvial sites dominated by creosote bush and white bursage with brittlebush on some of the steeper, rockier sites. Larger washes also contain catclaw acacia and cheesebush.

Special Status Plant Species and Sensitive Plant Communities

The USFWS (2004) lists two species of Endangered plants in Maricopa County (see Table 4-32) — Arizona agave (*Agave arizonica*) and Arizona cliff-rose (*Purshia subintegra*). Neither of these plants is known from any locality anywhere near the Harquahala-West Subalternate Route, nor is there suitable habitat for either species within the corridor.

A number of species that are listed under the ANPL are present within the Harquahala-West corridor. Based on several previous native plant surveys along the existing DPV1 line, it appears highly unlikely that any of the Highly Safeguarded Protected Native Plants are present within the Harquahala-West corridor. It is possible that crested or fan-top forms of the saguaro cactus could be present, although no individuals of this form were observed during site reconnaissance conducted in March 2004. There is a number of Salvage Restricted Protected Native Plants within the corridor including all agaves, cacti, and ocotillo. Table 4-32 contains three representative species of cacti, two of which are known to be present within the Harquahala-West corridor. Salvage Assessed and Harvest Restricted species include blue and foothill paloverde, mesquite, and ironwood.

Although the BLM sensitive Death Valley Mormon tea (Table 4-32) was not observed, it may be present in the this area, but it is more likely to be found further west toward the Colorado River. There were no unique or highly sensitive plant communities observed within the Harquahala-West corridor. The creosote bush-dominated communities that typify the vegetation of the area are the most common, widespread communities in the lowlands of southern Arizona. The more sensitive habitats include xeroriparian scrublands along major washes and patches of mesquite woodland occurring at lowland areas on the Harquahala Plain.

Wildlife

Vertebrate wildlife that is present within the Harquahala-West corridor is composed of mammals, birds, amphibians, and reptiles that are characteristic of arid Sonoran Desert lowland and low foothill plant communities and soil types.

Mammals

The mammalian fauna of the Harquahala-West corridor is composed largely of small, nocturnal species of bats and rodents, including highly desert-adapted Heteromyid pocket mice and kangaroo rats. Owing to an absence of suitable roosting and nursery sites (e.g., caves, mine shafts and adits, buildings, and bridges), it is likely that bat presence is largely restricted to foraging individuals. Diurnal species include black-tailed jack rabbit, Harris antelope ground squirrel, and rock squirrel. Desert mule deer occur sparingly in larger desert washes and the ubiquitous coyote is likely to be encountered almost anywhere within the corridor.

Birds

Turner (1994) notes that the Lower Colorado River Valley Subdivision is the poorest of the Sonoran Desert subdivisions with respect to its avifauna. He points out that LeConte's thrasher (*Toxostoma lecontei*) is the only bird species that is diagnostic of the subdivision. The fact that florisitic elements that are not strictly Lower Colorado River Valley are present in this area contributes significantly to a more diverse avifauna than would be present otherwise. It is likely that one could expect to find 75 or so species of birds in the Harquahala-West corridor over the course of a year's time including vultures, hawks, quail, doves, roadrunner, owls, goatsuckers, swifts, hummingbirds, woodpeckers, and a fairly diverse array of songbirds (flycatchers, larks, swallows, wrens, gnatcatchers, mockingbird, thrashers, shrike, vireos, wood warblers, orioles, tanagers, grosbeaks, finches, and sparrows).

Amphibians

The only amphibians likely to be present with the Harquahala-West corridor are the highly adapted species of toads and spadefoot toads that appear in response to summer monsoon rainfall. These species spend most of the year sequestered in rodent burrows or are dug well into the soil awaiting the summer rains when they emerge to breed in temporary rainfall pools and stock tanks. Species likely to be present include Couch's spadefoot, Great Plains toad, Sonoran Desert toad, and red-spotted toad.

Reptiles

Depending on substrate, a fairly diverse group of lizards and snakes may be found in habitats traversed by the Harquahala-West subalternate route. Fine, sandy soils are likely to host such species as banded sand snake, sidewinder, and desert iguana. Rocky slopes, outcrops, and washes support a different herpetofauna that includes such species as long-tailed brush lizard, chuckwalla desert spiny lizard, desert horned lizard, western whiptail, desert glossy snake, and many more (Turner 1982).

Special Status Wildlife

Table 4-33 provides a listing of federally listed, state-listed, and BLM sensitive species that are known to occur in Maricopa and La Paz counties, Arizona. Of this group of organisms, none of the federally listed species were observed or are likely to be present within the Harquahala-West corridor. There is some possibility of the Southwestern willow flycatcher being present along wooded washes during spring or fall migration, but due to lack of habitat, there is no possibility of the species nesting within the corridor. Loggerhead shrike and California leaf-nosed bat, both federal species of concern and BLM sensitive species, are almost certain to occur at least occasionally within the corridor. Desert bighorn reside in the Eagletail Mountains and may occasionally wander downslope in the Harquahala-West corridor.

4.3.8.2 Palo Verde Subalternate Route

Vegetation

The Palo Verde Subalternate Route exits the Harquahala Switchyard and travels easterly for approximately 2 miles across agricultural land. Between the point the corridor leaves agricultural land and the point it crosses the Salome Highway and turns to the southeast, the route crosses land dominated by creosote bush with white bursage. There are local patches of mesquite along washes and behind berms created by road construction. Creosotebush continues being the dominant plant species, but Arizona Upland Subdivision elements that appear include saguaro, ironwood, foothill paloverde, and several species of cacti. The ecotonal plant community composed of elements of both Sonoran Desert subdivisions is the characteristic vegetation type as the route travels southward between Saddle Mountain and the Palo Verde Hills.

Approximately 5 miles after turning to the southeast, the route leaves the fairly broken terrain between the Palo Verde Hills and Saddle Mountain and crosses a broad, alluvial plain that is dominated by creosote bush. Arizona Upland elements persist on this plain, but the upland plants including ironwood, mesquite, etc., tend to be restricted to major and minor drainages. Past the southern tip of the Palo Verde Hills, the route turns to the east and crosses approximately 2.2 miles of ruderal land that is located about 650 feet east of Winters Wash. The route crosses Winters Wash, which is dominated by mid-sized mesquite trees with a dense grass and forb understory.

Special Status Plants and Sensitive Plant Communities

The USFWS (2004) lists two species of plants in Maricopa County (see Table 4-32) — Arizona agave and Arizona cliffrose. Neither of these plants has been found in any locality anywhere near the subalternate route, nor is there suitable habitat for either species within the corridor.

A number of species that are listed under the ANPL are present within the corridor. Based on several previous native plant surveys along the existing DPV1 line, it appears highly unlikely that any of the Highly Safeguarded Protected Native Plants are present along the Palo Verde Subalternate Route. It is possible that crested or fan-top forms of the saguaro cactus could be present, although no individuals of this form were observed during site reconnaissance of the route during mid-September 1999, nor was this form reported by field crews conducting cactus ferruginous pygmy-owl surveys or monitoring construction of the Harquahala-Hassayampa 500kV transmission line. Salvage Restricted Protected Native Plants within the subalternate route include all agaves, cacti, and ocotillo. Table 4-32 contains three representative species of cacti, two of which are known to be present within the corridor. There are a number of other species of cacti present that are not listed in Table 4-32, such as Salvage Assessed and Harvest Restricted species include blue and foothill paloverde, mesquite, and ironwood.

There are no unique or highly sensitive plant communities within the corridor. The most sensitive habitats are associated with major and minor drainageways and include communities on washes between the Palo Verde Hills and Saddle Mountain. These washes are dominated by ironwood with blue paloverde, mesquite, and catclaw acacia. Saguaro cacti also tend to be associated with small washes and runnels in this area. Habitats along Winters Wash are very strongly dominated by dense growth of mesquite, representing the most “unique” vegetation type within the corridor.

Wildlife

Vertebrate wildlife present within the Palo Verde Subalternate Route corridor includes mammals, birds, amphibians and reptiles that are characteristic of arid Sonoran Desert lowland and low foothill plant communities and soil types.

Mammals

The mammalian fauna of the Palo Verde Subalternate Route are composed largely of small, nocturnal species of bats and rodents, including highly desert-adapted Heteromyid pocket mice and kangaroo rats. Owing to an absence of suitable roosting and nursery sites in the corrodor (e.g., caves, mine shafts and adits, buildings, and bridges), it is likely that bat presence is largely restricted to foraging individuals. Diurnal species include black-tailed jackrabbit, Harris antelope ground squirrel, and rock squirrel. Desert mule deer occur sparingly in larger desert washes and the ubiquitous coyote is likely to be encountered almost anywhere within the corridor.

Birds

Turner (1994) notes that the Lower Colorado River Valley Subdivision is the poorest of the Sonoran Desert subdivisions with respect to its avifauna. He points out that LeConte's thrasher is the only bird species that is diagnostic of the subdivision. The fact that florisitic elements that are not strictly Lower Colorado River Valley are present in the Palo Verde Subalternate Route corridor contributes significantly to a more diverse avifauna than would be present otherwise. It is likely that one could expect to find 75 or so species of birds over the course of a year's time including vultures, hawks, quail, doves, roadrunner, owls, goatsuckers, swifts, hummingbirds, woodpeckers, and a fairly diverse array of songbirds (flycatchers, larks, swallows, wrens, gnatcatchers, mockingbird, thrashers, shrike, vireos, wood warblers, orioles, tanagers, grosbeaks, finches, and sparrows).

Amphibians

The only amphibians likely to be present with the Palo Verde Subalternate Route corridor are the highly adapted species of toads and spadefoot toads that appear in response to summer monsoon rainfall. These species spend most of the year sequestered in rodent burrows or are dug well into the soil awaiting the summer rains when they emerge to breed in temporary rainfall pools and stock tanks. Species likely to be present within the corridor include Couch's spadefoot Great Plains toad, Sonoron Desert toad, and red-spotted toad.

Reptiles

Depending on substrate, a fairly diverse group of lizards and snakes may be found in habitats traversed by this subalternate route. Fine, sandy soils are likely to host such species as banded sand snake, sidewinder, and desert iguana. Rocky slopes, outcrops, and washes support a different herpetofauna that includes such species as long-tailed brush lizard, chuckwalla, desert spiny lizard, desert horned lizard, western whiptail, desert glossy snake, and many more (Turner 1982).

Special Status Wildlife

Federally listed, state-listed, and BLM sensitive species that are known to occur in Maricopa and La Paz counties, Arizona are listed in Table 4-33. Of this group of organisms, none of the federally listed species were observed, or are likely to be present within the Palo Verde subalternate corridor. There is some possibility of the Southwestern willow flycatcher being present along wooded washes during spring or fall migration; but due to lack of habitat, there is no possibility of the species nesting in the corridor. A 7-mile segment of this corridor south of the Salome Highway traverses Category II Sonoran Desert tortoise habitat. Loggerhead shrike and California leaf-nosed bat, both federal species of concern and BLM sensitive species, are almost certain to occur at least occasionally within the subalternate corridor. The big game species, desert bighorn, likely occupy the rugged terrain of Saddle Mountain and may move back and forth across the corridor in their travels between Saddle Mountain and the Palo Verde Hills.

4.3.9 Noise

4.3.9.1 Harquahala-West and Palo Verde Subalternate Routes

The acoustic setting for the Harquahala-West and Palo Verde Subalternate Routes is similar to the proposed Devers-Harquahala transmission line route as described in Section 4.1.9.

4.3.10 Public Services and Utilities

4.3.10.1 Harquahala-West and Palo Verde Subalternative Routes

The unincorporated community of Tonopah is the nearest community to both of the subalternate routes. Public Services and Utilities information for these subalternate routes is similar to that described in Section 4.1.10.1.

4.3.11 Visual Resources

4.3.11.1 Harquahala-West Subalternate Route

Potential visual issues identified along the Harquahala-West subalternate route are associated with sensitive viewers, including recreational and residential. The existing conditions have been modified by a gas pipeline and associated road. A number of residences occur within 1 mile of the subalternate route with open views of the proposed project. Additional sensitive viewers that occur within the subalternate route study corridor are associated with the trail in the Eagletail Wilderness. However, the views of the subalternate transmission line would be partially screened and back-dropped and would occur approximately 1 mile away from the trail. The scenic quality adjacent to and crossed by this alternative is Class C.

4.3.11.2 Palo Verde Subalternate Route

Sensitive viewers associated with the Palo Verde Subalternate Route include travelers, residents, and dispersed recreation users. The landscape within the study corridor has been locally modified by existing 500kV transmission lines for the entirety of the subalternate route and designated as Scenic Quality Class C. The residential viewers identified are located at least 1 mile away from the route. Travelers on the Salome Highway would have open views of the existing DPV1 transmission line and the Palo Verde subalternate transmission line on this alternative route. Dispersed recreation users will have varying views of the existing DPV1 and subalternate transmission lines, depending on their location within the Eagletail WA.

4.3.12 Cultural Resources

4.3.12.1 Harquahala-West Subalternate Route

Archaeology

Class I research conducted in 2004 identified 19 prior studies and 15 recorded archaeological sites within the Harquahala-West Subalternate Route study corridor. Of these 15 recorded sites, 4 were determined to be potentially within the 300-foot-wide project study corridor based on Class I research information (Luhnow 2004).

A Class II archaeological survey was conducted in 2004 for the Harquahala-West Subalternate route. The purpose of the Class II survey was to ascertain the relative cultural resource sensitivity of the Harquahala-West Subalternate Route study corridor (Luhnow 2004).

None of the four sites determined through the Class I research to be potentially within the 300-foot-wide corridor could be relocated in the field (Luhnow 2004). The Class II survey did result in the discovery of two isolated prehistoric archaeological occurrences—a lithic tool and a lithic flake. Isolated artifacts do not meet criteria for listing on the NRHP.

Ethnography

Previous ethonographic research conducted for the DPV1 transmission line project resulted in the identification of two areas of ethnographic concern in the vicinity of the project area (Bean and Vane 1978). These places may meet criteria for designation as TCPs. They are the Eagletail Mountains and Harquahala Plain (ibid). In addition, Native Americans have interest in prehistoric archaeological sites that represent evidence of the presence of their ancestors.

Native American groups such as the Yavapai, Tohono O'odham, Hia-Ced O'odham, and Cocopah may have affiliation with these areas. BLM staff has indicated that they will consult with appropriate Native American groups in the context of the BLM's government-to-government responsibility with Native American tribes for input to the federal NEPA document prepared for the DPV2 project (personal communication, Wanda Raschkow 2004).

History

Class I research identified 19 prior studies and no recorded historic-era resources within the study corridor (Luhnow 2004).

A Class II archaeological survey was conducted for the Harquahala-West Subalternate route. This survey consisted of an intensive survey of two sample transects 300-foot-wide by 1-mile long along two areas with environmental characteristics with potential for the presence of archaeological resources (across a large wash and playa setting, and along a valley/hill interface). The purpose of the Class II survey was to ascertain the relative cultural resource sensitivity of the Harquahala-West Subalternate Route (Luhnow 2004).

The Class III survey resulted in the discovery of one isolated historic-era archaeological occurrence. This is a rock cairn that may be associated with a mining claim (Luhnow 2004). Isolated artifacts do not meet criteria for listing on the NRHP.

Paleontology

Virtually the entire length of the Harquahala-West Subalternate Route crosses undifferentiated Pleistocene older alluvium and Holocene alluvium in the Harquahala Plain. The Pleistocene older alluvium has a high paleontological sensitivity ranking (Scott 2003).

4.3.12.2 Palo Verde Subalternate Route

Archaeology

Class I research identified 26 prior studies, 48 previously recorded prehistoric archaeological sites, and one NRHP listed district within 1 mile of the Palo Verde Subalternate Route. Of these resources, 14 were identified in the Class I research as occurring within or immediately adjacent to the project APE (defined as a 300- to 600-foot-wide corridor encompassing future tower and access road locations).

The Class III survey was unable to relocate 10 of the 14 resources identified as potentially occurring within the project APE (Luhnow and Dickinson 2004). These sites are recorded as AZ S:12:5 (ASM), AZ S:12:6 ASM), AZ S:12:7 (ASM), AZ T:9:10 (ASM), AZ T:9:11 (ASM), AZ T:9:14 (ASM), AZ T:9:15 (ASM), AZ T:9:16 (ASM), AZ T:9:17 (ASM), and AZ T:9:22 (ASM). The four sites that were relocated are AZ T:9:12 (ASM), AZ T:9:13 (ASM), AZ T:9:21 (ASM), and AZ T:9:64 (ASM). In addition, four previously unrecorded sites were discovered during the Class III survey. These are AZ S:12:35 (ASM), AZ S:12:36 (ASM), AZ T:9:86 (ASM) and AZ T:9:87 (ASM).

Three archaeological sites are assessed NRHP eligible or potentially eligible. The Class III survey observations indicate that the site lacks integrity and does not demonstrate any historic or prehistoric associations (Luhnow and Dickinson 2004). The newly recorded sites consist of one small scatter of chipped stone and two small localized ceramic scatters. All are recommended not NRHP eligible (ibid).

In addition to the archaeological sites, the Class III survey located 21 isolated archaeological occurrences (Luhnow and Dickinson 2004). Isolated artifacts do not meet criteria for listing on the NRHP.

Ethnography

Previous ethnographic research conducted for the DPV1 transmission line project resulted in the identification of five TCPs (Bean and Vane 1978). These are: the Jagow Well/Palo Verde Hills Archaeological District, Palo Verde Hills, plains between the Palo Verde Hills and Gila Bend Mountains, Harquahala Plain, and the Tonopah area. In addition, Native Americans have interest in prehistoric archaeological sites that represent evidence of the presence of their ancestors.

Native American groups such as the Yavapai, Tohono O’odham, Hia-Ced O’odham, and Cocopah may have affiliation with these areas, which were largely associated with resource procurement.

The Jagow Well/Palo Verde Hills Archaeological District is called “Mountain that sounds like a drum” by the Yavapai people. This area, which exhibits rock art, shrines, and an intaglio figure, is considered to be a place of spiritual power (Rogge et al. 2000a).

BLM staff has indicated that they will consult with appropriate Native American groups in the context of the BLM’s government-to-government responsibility with Native American tribes for input to the federal NEPA document for the DPV2 project (personal communication, Wanda Raschkow 2004).

History

The Class I research identified 13 recorded historic-era sites within the study corridor. Of these resources, three were identified in the Class I research as occurring within or immediately adjacent to the project APE (defined as 300- to 600-foot-wide corridor encompassing future tower and access road locations). The Class III survey was unable to relocate one of the three resources identified as potentially occurring within the project APE (Luhnow and Dickinson 2004). AZ S:12:32 (ASM) is recommended not eligible to the NRHP. One previously unrecorded site was discovered during the Class III survey, AZ S:12:36 (ASM). The newly recorded site consists of late historic mining features with an associated scatter of historic artifacts. It is recommended not NRHP eligible (ibid).

In addition, nine isolated historic occurrences were recorded during the Class III survey. These include five historic artifacts, three historic GLO survey markers, and one chassis with associated body parts of an abandoned five-window Ford pickup truck. Isolated artifacts do not meet criteria for listing on the NRHP (Luhnow and Dickinson 2004).

Paleontology

Approximately 8 miles of the 15-mile Subalternate Route study corridor traverse areas of high paleontological sensitivity. The remainder is low sensitivity. The high sensitivity areas are all Pleistocene older alluvium (Scott 2003).

4.3.13 <u>Public Health and Safety</u>

4.3.13.1 School Facilities

There are no existing or proposed schools located within the study corridor of either subalternate route.

4.3.13.2 Airport and Airstrip Operations

The PVNGS heliport is located approximately ½ mile northeast of the existing DPV1 transmission line near the PVNGS switchyard, the terminus of the Palo Verde Subalternate Route.

4.4 MIDPOINT SUBSTATION ALTERNATIVES

4.4.1 <u>Introduction</u>

The Midpoint Substation alternatives include three sites (Map 3-2a,b) located along the proposed Devers-Harquahala 500kV transmission line route, west of Blythe, California. All of the alternatives occur on vacant, undeveloped land; therefore, the alternatives are combined into one description for several of the following resources. Because the alternatives occur immediately adjacent to the proposed Devers-Harquahala transmission line route, several of the descriptions refer to previous resource sections that address the proposed route.

4.4.2 <u>Land Use</u>

4.4.2.1 Land Ownership/Jurisdiction

The Midpoint Substation preferred site and alternative sites occur in Riverside County, California, west of Blythe. The SCE preferred site and the Wiley Well alternative site are located on BLM land. The Mesa Verde alternative site is located on private land.

4.4.2.2 Existing Land Use

The Midpoint Substation preferred and alternative sites are immediately adjacent to the proposed Devers-Harquahala transmission line, west of Blythe. Land use within this corridor is documented in the proposed route description and shown on Maps 4-3c and 4-4c. All of the alternatives occur on vacant/undeveloped land. The closest residence to the preferred site is approximately 1 mile to the east. Residences are located more than 2 miles from either of the two alternative sites.

4.4.2.3 Planned Land Use

The Midpoint Substation preferred site and alternative sites are located within Riverside County, California. According to the Riverside County General Plan, the land use designation for the Wiley Well and Mesa Verde alternative sites is Rural Residential. The land use designation for the Preferred Site is agriculture. A review of development plans at Riverside County in June 2004 showed no specific development plans in the area of the preferred and alternative sites.

4.4.3 Socioeconomics, Population, and Housing

The Midpoint Substation preferred and alternative sites are located within Riverside County, west of Blythe. Section 4.1.3.2 includes socioeconomic, population, and housing data for Riverside County and Blythe, applicable to the preferred and alternative substation sites.

4.4.4 Geology and Soils

The Midpoint Substation preferred and alternative sites lie in the Western Mojave Desert and Eastern Mojave Desert physiographic provinces. (These provinces are described in Section 4.1.4.2.) The Midpoint Substation preferred and alternative sites are located on the Palo Verde Mesa, which is underlain by non-indurated sedimentary rock. The soils for the Midpoint Substation preferred and alternative sites are the same as those described for the proposed route in Section 4.1.4.1.

4.4.5 Hydrology

The Midpoint Substation preferred and alternative sites are located on the Palo Verde Mesa, which is drained by McCoy Wash and a number of unnamed drainages. Groundwater data for the Palo Verde Mesa are provided in Table 4-26.

4.4.6 Air Quality

The Midpoint Substation preferred and alternative sites are located in Riverside County, California within the Mohave Desert Air Quality District. Air quality standards for Riverside County and the Mohave County Air Quality District are described in Section 4.1.6.

4.4.7 **Traffic and Transportation**

Descriptions of road and traffic conditions in the vicinity of the Midpoint Substation preferred and alternative sites are provided in Section 4.1.7.2.

4.4.8 **Biology**

Vegetation

The Midpoint Substation preferred and alternative sites are located within the Lower Colorado River Valley subdivision of Sonoran Desertscrub (Turner and Brown 1994). Vegetation is dominated by creosote bush and white bursage. Big galleta is a common herbaceous perennial. Dyebush is locally common in places. Common annuals include species of *Lotus*, *Cryptantha*, and *Plantago* as well as desert sand verbena (*Abronia villosa*). Drainageways in the area are lined with blue paloverde and ironwood as well as big galleta.

Special Status Plant Species

There are four species that could potentially be found in the area of the preferred and alternative substation sites: Abram's spurge (*Chamaesyce abramsiana*), Arizona spurge (*Chamaesyce arizonica*), Harwood's milkvetch (*Astragalus insularis harwoodii*), and glandular ditaxis (*Ditaxis clariana*). A complete list of sensitive plant species found in Riverside County is in Table 4-35.

Individuals of Harwood's milkvetch were found on and adjacent to the preferred substation site in surveys conducted in April 2004. The milkvetch were also found adjacent to the Mesa Verde Alternative Site, but none were found at the Wiley Well Alternative Site. This species has no federal or state status, but the California Native Plant Society considers it a List 2 plant.

Wildlife

The suite of vertebrate wildlife that is present within the area of the preferred and alternative sites is composed of mammals, birds, amphibians, and reptiles that are characteristic of the arid Colorado River Valley vegetation community and soil types.

Mammals

The mammalian fauna in the area of the preferred and alternative sites is composed largely of small nocturnal species of bats and rodents, including highly desert-adapted Heteromyid pocket mice and kangaroo rats. Owing to an absence of suitable roosting and nursery sites (e.g., caves, mine shafts and adits, buildings, and bridges), it is likely that bat presence is largely restricted to foraging individuals. A common diurnal species is the black-tailed jackrabbit. Desert mule deer occur sparingly in larger washes, and the ubiquitous coyote is likely to be encountered almost anywhere within the project area.

Birds

Turner and Brown (1994) note that the Lower Colorado River Valley Subdivision is the poorest of the Sonoran Desert subdivisions with respect to its avifauna. They point out that the LeConte's thrasher is the only bird species that is diagnostic of the subdivision. However, many other species are common in this area including: vultures, hawks, doves, owls, woodpeckers, flycatchers, gnatcatchers, mockingbird, finches, and sparrows.

Amphibians

The only amphibians likely to be present in the area of the Midpoint Substation preferred and alternative sites are the highly adapted species of toads and spadefoots that appear in response to unreliable summer rainfall. These species spend most of the year sequestered in rodent burrows or dug well into the soil awaiting the summer rains when they emerge to breed in temporary rainfall pools and stock tanks. Species likely to be present include Couch's spadefoot, Great Plains toad, Sonoran Desert toad, and red-spotted toad.

Reptiles

The fine sandy soils found in the area of the preferred and alternative sites provide habitat for species such as banded sand snake, sidewinder, and desert igunana. Western whiptails and zebra-tailed lizards (*Callisaurus draconoides*) are also common in the area of the preferred and alternative sites.

Special Status Wildlife

A list of special status wildlife species occurring in Riverside County can be found in Table 4-36. Habitat for the federally threatened desert tortoise on Palo Verde Mesa is minimal, and few if any individuals are likely to be found here. The Colorado Desert fringe-toed lizard (*Uma notata*) is likely to occur on the loose sandy substrates in the area of the Midpoint Substation preferred and alternative sites. This lizard is considered a species of concern by the USFWS and sensitive by BLM. There is also habitat for the flat-tailed horned lizard within the areas of the sites. This species utilizes fine windblown sand; however, the range for this species does not include the study corridor. It is possible that burrowing owls could be found in the vicinity of the sites.

4.4.9 Noise

Noise is generally defined as unwanted sound. Sound travels through the air as waves of minute air pressure fluctuations caused by some type of vibration. In general, sound waves travel away from the noise source as an expanding spherical surface. Thus, the energy contained in a sound wave is spread over an increasing area as it travels away from the source resulting in a reduction in noise as the distance from the noise source increases.

The preferred and alternative substation sites are located in open desert land. The nearest residence is located approximately 1 mile from the preferred alternative site. The area has a desert climate and is subject to inclement weather only 9 percent of the time. Minimal ambient noise is expected at the proposed and alternative substation sites.

4.4.10 Public Services and Utilities

The nearest public services and utilities to the Midpoint Substation preferred and alternative sites are located in Blythe, California. Section 4.1.10.2 describes these services in the Blythe area.

4.4.11 Visual Resources

4.4.11.1 Preferred Site

One residence is located within 1 mile of the preferred Midpoint Substation site. The residence is situated below a bluff and would have a viewing position that provides partially screened views of the substation site. Furthermore, the existing viewing conditions in this area have been modified by the occurrence of 500kV and 161kV transmission lines.

4.4.11.2 Mesa Verde Alternative

There are no residential or other sensitive viewers within 1 mile of the Mesa Verde alternative site. Travelers on I-10 will have open to partially screened views of this site.

4.4.11.3 Wiley Well Alternative

The Wiley Well alternative substation site is located approximately ½ mile from I-10, resulting in unobstructed foreground views to this substation site in a landscape with little modification. The site is located on Class C scenic quality. To the south of this alternative substation site is a prison complex and access road.

4.4.12 Cultural Resources

4.4.12.1 Preferred Site

Archaeology

A records search identified four previously recorded archaeological sites and two isolated occurrences within a ½-mile radius of the preferred Midpoint Substation site. These resources include two trail segments (RIV-775T, RIV-772T), two multi-component sites (RIV-1823 and RIV-6534), and isolated occurrences of lithic flakes and ceramic sherds (P33-005963 and P33-005964). In addition to these previously recorded resources, an archaeological survey of the substation site resulted in the recordation of two new resource discoveries within the site boundaries (P33-13659 and P33-13660). Of the previously recorded resources, one (RIV-775T) was found to be located within the substation site boundary.

All of the three archaeological sites confirmed to be located within the preferred Midpoint Substation site (RIV-775T, P33-13659, and P33-13660) appear potentially eligible to the NRHP.

Ethnography

Previous ethnographic research conducted for the DPV1 project resulted in the identification of areas of cultural concern to contemporary Chemehuevi and Mojave Native Americans in the vicinity of the preferred Midpoint Substation site. These are archaeological sites and aboriginal trails in the Colorado River area. None of the areas with direct Native American association are known to be within the preferred Midpoint Substation site. Native Americans have indicated a general interest in prehistoric archaeological resources that represent evidence of their ancestors.

No known TCPs are present in the preferred Midpoint Substation site boundaries. BLM staff has indicated that they would consult with appropriate Native American groups in the context of the BLM’s government-to-government responsibility with Native American tribes for input to the federal NEPA document for the DPV2 project.

History

A records search identified two previously recorded historic-era resources within ½ mile of the preferred Midpoint Substation site. An archaeological survey of the preferred Midpoint Substation site resulted in no further historic resource discoveries, and confirmed that two previously recorded historic resources are located outside of the preferred Midpoint Substation boundaries. There are no known historic-era resources located within the preferred Midpoint Substation site.

Paleontology

The preferred Midpoint Substation site is located on Pleistocene older alluvium, which is considered to have a high paleontological sensitivity ranking (Scott 2003). Rock units composed of Holocene alluvium are located on either side of the substation area. Pleistocene alluvium has a low paleontological sensitivity ranking (ibid.).

4.4.12.2 Mesa Verde Alternative

Archaeology

A records search identified one previously recorded archaeological site (RIV-1819, a cobble quarry locus with ceramic scatter) within ½ mile of the Mesa Verde alternative substation site. Archaeological survey of this alternative substation site resulted in the discovery of one previously unrecorded archaeological resource within the alternative substation boundaries (P33-13672), and confirmed that RIV-1819 is located outside of the alternative substation site boundaries. P33-13672 is a lithic scatter of petrified wood flakes and is potentially eligible to the NRHP.

Ethnography

Previous ethnographic research conducted for the DPV1 project resulted in the identification of areas of cultural concern to contemporary Chemehuevi and Mojave Native Americans in the vicinity of the preferred substation site. These are archaeological sites and aboriginal trails in the Chuckwalla Valley and Colorado River areas. None of the areas with direct Native American association are known to be within the Mesa Verde alternative substation site. Native Americans have indicated a general interest in prehistoric archaeological resources that represent evidence of their ancestors.

No known archaeological resources or TCPs are present in the Mesa Verde alternative substation site boundaries. BLM staff has indicated that they would consult with appropriate Native American groups in the context of the BLM's government-to-government responsibility with Native American tribes for input to the federal NEPA document for the DPV2 project.

History

A records search identified no previously recorded historic-era resources within ½ mile of the Mesa Verde alternative substation site. An archaeological survey of the alternative substation site resulted in no additional historic-era resource discoveries. There are no known historic-era resources within the Mesa Verde alternative substation boundaries.

Paleontology

The Mesa Verde alternative substation site is located on Holocene alluvium and Holocene dune sand geological units. Neither of these geological units is conducive to the formation or preservation of fossils, and this alternative substation site is therefore given a low paleontological sensitivity ranking (Scott 2003).

4.4.12.3 Wiley Well Alternative

Archaeology

A records search identified three previously recorded archaeological sites and one isolated occurrence within a ½-mile radius of the Wiley Well alternative substation site. These resources are RIV-1818, a ceramic sherd scatter, RIV-3810, a large multi-component site, and P33-013599, a sparse lithic scatter. The isolated occurrence is P22-12930, an isolated lithic flake. An archaeological survey of the proposed Wiley Well alternative site resulted in no resource discoveries. There are no known archaeological resources on the alternative substation site.

Ethnography

Previous ethnographic research conducted for the DPV1 project resulted in the identification of areas of cultural concern to contemporary Chemehuevi and Mojave Native Americans in the vicinity of the Wiley Well alternative substation site. These are archaeological sites and aboriginal trails in the Chuckwalla Valley and Colorado River areas. None of the areas with direct Native American association are known to be within the Wiley Well alternative substation site. Native Americans have indicated a general interest in prehistoric archaeological resources that represent evidence of their ancestors.

No known archaeological resources or TCPs are present in the Wiley Well alternative substation site boundaries. BLM staff has indicated that they would consult with appropriate Native American groups in the context of the BLM's government-to-government responsibility with Native American tribes for input to the federal NEPA document for the DPV2 project.

History

A records search identified no previously recorded historic-era resource within ½ mile of the Wiley Well alternative substation site. Archaeological survey identified one newly recorded resource, P33-013598, a refuse scatter associated with the World War II Desert Training Center. P33-013598 is located off the substation site. Archaeological survey of this alternative substation site resulted in no resource discoveries within the substation site boundaries.

Paleontology

The Wiley Well alternative substation site is located on Holocene alluvium and Holocene dune sand geological units. Neither of these geological units is conducive to the formation or preservation of fossils, and this alternative substation site is therefore given a low paleontological sensitivity ranking (Scott 2003).

4.4.13 Public Health and Safety

4.4.13.1 School Facilities

There are no existing schools located within ¼ mile of the preferred and alternative Midpoint Substation sites.

4.4.13.2 Airport and Airstrip Operations

There are no public airports or private airstrips within 2 miles of the Midway Substation preferred site or alternative sites.

Map 4-1a

Ownership

11 x 17 color

Map 4-1b

Ownership

11 x 17 color

Map 4-1c

Ownership

11 x 17 color

Map 4-2a

Jurisdiction

11 x 17 color

Map 4-2b

Jurisdiction

11 x 17 color

Map 4-2c

Jurisdiction

11 x 17 color

Map 4-2d

Jurisdiction

11 x 17 color

Map 4-2e

Jurisdiction

11 x 17 color

Map 4-3a

Existing Land Use

11 x 17 color

Map 4-3b

Existing Land Use

11 x 17 color

Map 4-3c

Existing Land Use

11 x 17 color

Map 4-3d

Existing Land Use

11 x 17 color

Map 4-3e

Existing Land Use

11 x 17 color

Map 4-4a

Future Land Use

11 x 17 color

Map 4-4b

Future Land Use

11 x 17 color

Map 4-4c

Future Land Use

11 x 17 color

Map 4-4d

Future Land Use

11 x 17 color

Map 4-4e

Future Land Use

11 x 17 color

Map 4-5a

Biological Resources

11 x 17 color

Map 4-5b

Biological Resources

11 x 17 color

Map 4-5c

Biological Resources

11 x 17 color

Map 4-5d

Biological Resources

11 x 17 color

Map 4-5e

Biological Resources

11 x 17 color

Map 4-6a

Scenic Quality Rating Units/VIsual Image Types

11 x 17 color

Map 4-6b

Scenic Quality Rating Units/VIsual Image Types

11 x 17 color

Map 4-6c

Scenic Quality Rating Units/VIsual Image Types

11 x 17 color

Map 4-6d

Scenic Quality Rating Units/VIsual Image Types

11 x 17 color

Map 4-6e

Scenic Quality Rating Units/VIsual Image Types

11 x 17 color