APPENDIX D: SITING STUDY

August 31, 2006

CITY OF RIVERSIDE, CALIFORNIA
(PUBLIC UTILITIES DEPARTMENT)

RIVERSIDE TRANSMISSION RELIABILITY PROJECT

SITING STUDY

PROJECT NUMBER:
109528

PROJECT CONTACT:
John McGrew, Project Manager
Mike Strand, Environmental Project Manager

EMAIL: jmcgrew@powereng.com
mstrand@powereng.com
PHONE: John McGrew (208) 788-0475
FAX: (208) 788-2082
Mike Strand (714) 507-2710
FAX: (714) 507-2799

POWER ENGINEERS

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EXECUTIVE SUMMARY

1 INTRODUCTION

Riverside Public Utilities (RPU) is a municipal utility that serves the City of Riverside, which is one of the fastest growing areas in Southern California. In order to meet increased electrical demand associated with this growth and the projected growth within the RPU service area, expansion in electrical generation capability and increased transmission capacity are required. In order to provide the additional capacity and to maintain system reliability, transmission line and substation improvements are necessary.

In November 2004, the RPU Board authorized RPU to enter an agreement with Southern California Edison (SCE) for completion of a System Impact Study and a Facilities Study. The results of these studies were received in June and October 2005, and indicate the need for construction of a double-circuited 230 kV transmission line into the City of Riverside, as well as a 230-69 kV substation (tentatively named Jurupa). The identified components (230 kV transmission line and substation are collectively called the Riverside Transmission Reliability Project (RTRP).

The System Impact Study identified the existing SCE Mira Loma-Vista 230 kV transmission line (Mira Loma-Vista #1) as the tap point for interconnecting the proposed Jurupa Substation to the existing SCE electrical grid. RPU has owned the proposed Jurupa Substation site since the 1970s for the purpose of eventually building a 230 kV substation. It is located near the northeast corner of Wilderness Avenue and Ed Perkic Street. The Project will also require construction of three 69 kV transmission lines within the city to transfer the bulk power into the RPU electrical system.

POWER Engineers, Inc. (POWER) was retained to complete the RTRP Feasibility Study. This Siting Study is a component of the Feasibility Study for the RTRP. The primary purposes of this Siting Study are to identify feasible alternative transmission line routes for the RTRP. These alternative routes will then be evaluated within the CEQA environmental review document that will be produced for evaluating potential environmental impacts from the proposed Project. The City of Riverside City Council will be the CEQA lead agency and decision making body for the Project.

This report presents the results of an inventory of baseline environmental conditions, sensitivity analyses for each environmental resource evaluated, and alternative route locations for the 230 kV transmission line. Figure E-1 presents a map of the Project Study Area.

2 PROJECT COMPONENTS AND ALTERNATIVES

The RTRP project components that were evaluated in this study include:

1. One double-circuit 230 kV transmission line from the proposed Jurupa substation to the existing SCE Mira Loma-Vista 230 kV line;
2. One double-circuit 69 kV transmission line from the proposed Jurupa Substation to Mt. View Substation
3. Two double-circuit 69 kV transmission lines from the proposed Jurupa Substation to a tap point on the RERC-Mt. View double-circuit 69 kV transmission line.

The siting study identified sensitive areas by utilizing a sensitivity analysis process that assigned sensitivity levels to environmental resources within the Project Study Area. Sensitivity levels were categorized into four levels: Exclusion, High Avoidance, Moderate Avoidance, and Low Avoidance. Environmental resources identified within the Study Area were then assigned a sensitivity level

dependent upon the resources sensitivity to the construction, operation, and maintenance of the project components.

The data inventories were developed for each resource, consisting of land use, cultural resources, biological resources, water resources, and geohazards. Based upon this inventory and the sensitivity analyses, routing corridors were identified within the study area. These routing corridors represent wide areas that a transmission line could potentially be sited within. The corridors were established by avoiding the Exclusion areas, and avoiding the remaining sensitivity levels, to the greatest extent possible. Within the routing corridors, several alternative transmission line routes, or assumed centerlines, were identified that would meet the purpose and need of the RTRP. Aerial photography assisted in the identification of these alternative routes within the wide corridors. The corridors and alternative routes (assumed centerlines of the transmission lines) are shown on Figure E-1 and further described within Chapter 5 of this report. The alternative corridors and routes are also shown on Map 12, within Appendix A.

2.1 Field Review of 230 kV Alternatives

Following the identification of the alternative routes (Map 12, Appendix A), a field reconnaissance of each route was conducted. The field reconnaissance was focused on determining the feasibility of constructing each alternative transmission line route. RPU, SCE, and POWER representatives participated in the field review.

Several adjustments, removals, and additions were made to the alternative routes during the field investigation. Many of the changes included small adjustments of the originally identified routes. These were made in the field to better suit existing land uses, better placement of transmission structures, and to utilize existing access roads to the greatest extent. The major changes, primarily including removals and additions, are described below. The final alternative routes, reasonable for consideration for the proposed project, are displayed on Figure E-2.

Santa Ana River West Corridor

A change resulting from the review of the alternative routes within the Santa Ana River West Corridor (a description of this corridor is included in Chapter 5) involved the most westerly route, parallel Interstate 15. The open land, south of Limonite Ave. and east of Interstate 15, was observed as being graded for residential development. During the data collection task for this report, the area was identified within a specific plan and proposed residential. However, at that time the development had not begun. The current development would preclude the location of the proposed transmission line, and therefore the route was removed from consideration as not being a reasonable alternative.

Further changes included the relocation of the Santa Ana River crossing within the western corridor. The original crossing, located directly south of Bain Street, would be nearly a one-mile crossing and would be located adjacent to the Hidden Valley Nature Center, administered by the Riverside County Parks Department. The crossing was moved up-stream approximately one mile to a narrow crossing, and would be located parallel to an existing utility line (see Photo ES-1).

Photo ES-1: Proposed Santa Ana River crossing, east of Van Buren Blvd. and parallel to an existing electrical line.

Central Corridor

The Central Corridor alternatives were adjusted to better suit existing facilities and land uses within the corridors. These adjustments included the alternative that is located parallel to Van Buren Blvd., near Limonite Ave. Limonite Ave. is an underpass crossing of Van Buren Blvd. and the Union Pacific Railroad. The offramp from Van Buren Blvd. to Limonite Ave. is located within the spacing between Van Buren Blvd. and the railroad. Within this area, the alternative was re-routed to the east of the railroad, and then located back between Van Buren Blvd. and the railroad, on the north side of the Metrolink train station (see Photo ES-2). However, a new alternative was added along Etiwanda Ave., north of Galena Street. The new route would located on the east side of Etiwanda Ave. adjacent or within the Union Pacific Railroad Automobile Distribution Center.

Other changes included the removal of a small alternative adjacent to east side of Van Buren Blvd., immediately north of the Santa Ana River. This was removed because adequate spacing was not available due to existing land uses (commercial buildings).

Photo ES-2: Northern view along Union Pacific railroad and Van Buren Blvd. crossing over Limonite Ave.

Santa Ana River East Corridor

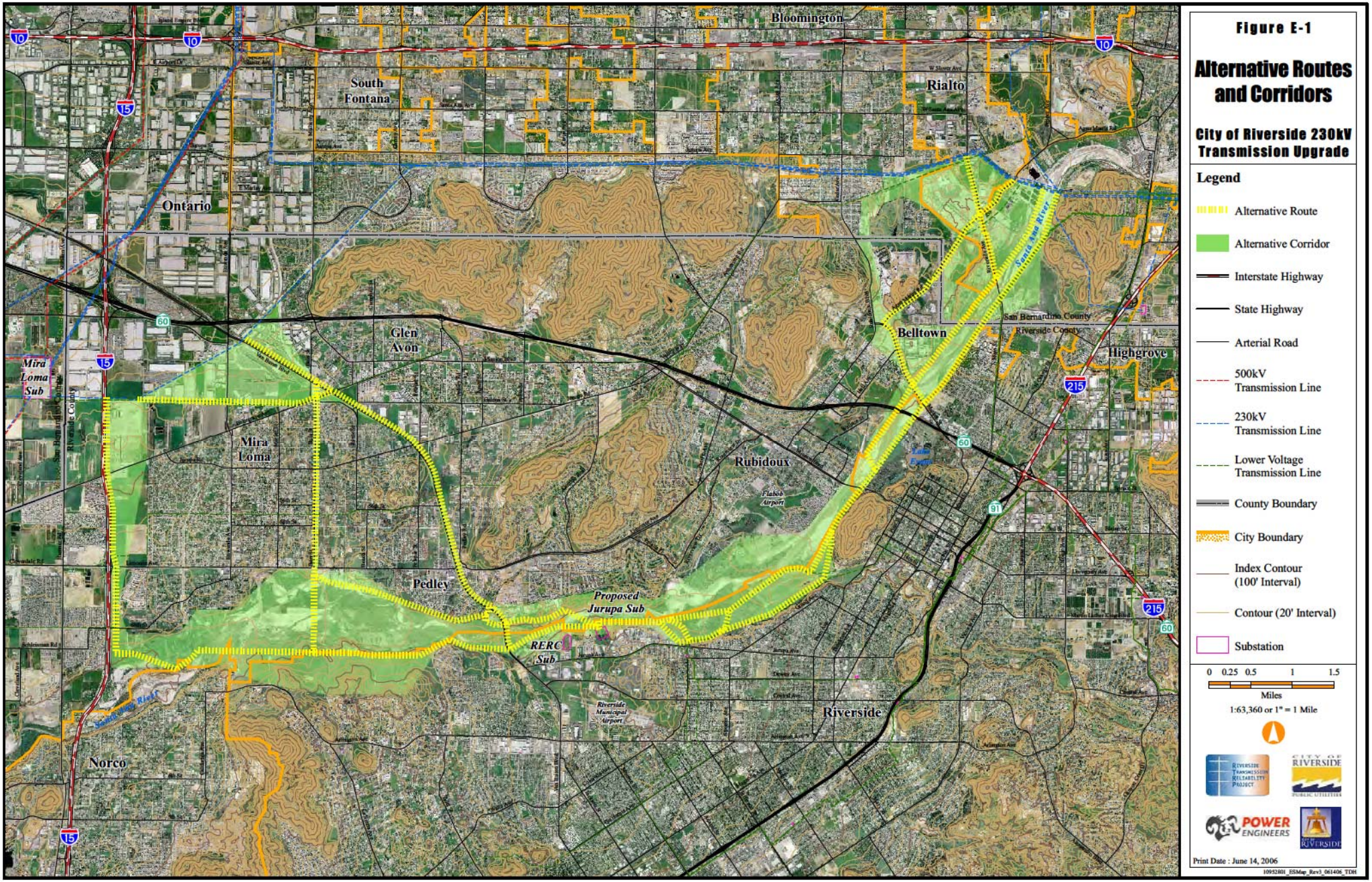
Approximately one and half miles east of the proposed Jurupa Substation site is a closed landfill. The alternative route crossing the landfill was removed from consideration due to engineering constraints on placement of transmission poles on unstable ground. The alternative was re-routed to the south side of the landfill. Adequate spacing on the north side of the landfill was not available.

One segment of the alternative routes along the south side of the Santa Ana River was removed between Market Street and Riverside Ave. (Main Street within Riverside County). The segment was removed due to existing and developing residential land uses adjacent to the Santa Ana River (see Photo ES-3). It was determined that adequate spacing for placement of the proposed double-circuit 230 kV transmission line was not available between the Santa Ana River levee and the residential properties (approximately 23 total feet between the base of the levee and the subdivision wall).

The removal of the segment described above led to the addition of an additional river crossing on the east side of Riverside Ave. An additional segment was added for consideration near the tap point on the Mira Loma-Vista #1 230 kV transmission line, east of the Santa Ana River. This segment was added for additional flexibility due to the presence of many existing transmission lines within the area, which may pose an engineering constraint to placement of the proposed transmission line.

The alternative route, adjacent to Riverside Ave. and north of Agua Mansa Road, was removed due to a lack of adequate spacing from existing land uses adjacent to the roadways.

Photo ES-3: Looking northeast along southern levee of the Santa Ana River; residential development adjacent to levee.


Bloomington
South Fontana
Rialto
Ontario
Glen Avon
Belltown
San Bernardino County
Riverside County
Highgrove
Mira Loma Sub
Mira Loma
Rubidoux
Pedley
Proposed Jurupa Sub
RERC Sub
Riverside
Norco
Santa Ana River
Flabob Airport
Riverside Municipal Airport
Figure E-1
Alternative Routes and Corridors
City of Riverside 230kV Transmission Upgrade
Legend
Alternative Route
Alternative Corridor
Interstate Highway
State Highway
Arterial Road
500kV Transmission Line
230kV Transmission Line
Lower Voltage Transmission Line
County Boundary
City Boundary
Index Contour (100' Interval)
Contour (20' Interval)
Substation
0 0.25 0.5 1 1.5
Miles
1:63,360 or 1" = 1 Mile
Riverside Transmission Reliability Project
City of Riverside Public Utilities
POWER ENGINEERS
Print Date : June 14, 2006
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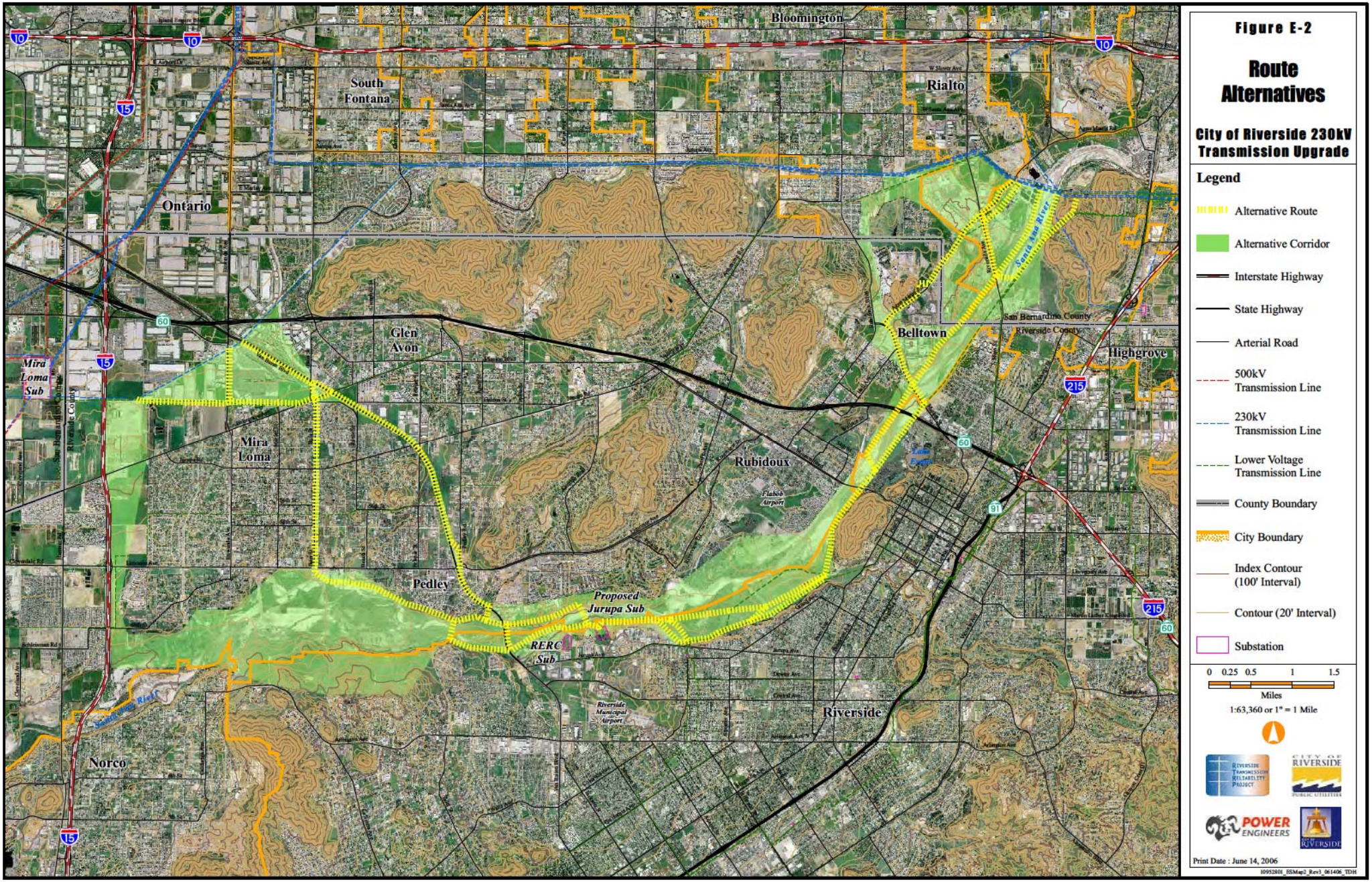
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Figure E-2
Route Alternatives
City of Riverside 230kV Transmission Upgrade
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CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

Riverside Public Utilities (RPU) is a municipally owned electric and water utility that serves the City of Riverside, California, which is located in the Inland Empire, one of the fastest growing areas in Southern California. In 2005, RPU, in association with Southern California Edison (SCE), conducted a System Impact Study and a Facilities Study that indicate the need for an electrical system upgrade in order to supply power to this rapidly increasing population.

1.2 PURPOSE AND NEED

The RTRP would provide a long-term solution to provide enough electrical capacity to meet RPU's current and projected load growth. Currently, all of RPU's energy for its customers comes through SCE's Vista Substation, located in the City of Grand Terrace. The capacity for RPU at the Vista Substation is limited to 557 MW. Based on current load growth, that limit could be exceeded as early as summer 2006.

The RTRP also would help to increase the reliability of RPU's electrical system. Because the Vista Substation is the only source of energy supply for RPU, any loss of supply at that substation would greatly affect RPU's ability to serve its customers. The proposed RTRP would provide a second point of delivery for electricity, reducing dependence on the existing Vista Substation and providing the capacity and reliability needed to support recent and future growth in the area. An additional substation also provides greater flexibility for future expansion of the electrical system, as needed.

1.3 RTRP PROJECT COMPONENTS

RTRP includes several system improvements, including a new double circuit 230 kV transmission line, new 230/69 kV substation, and new 69 kV overhead transmission lines.

The following is a listing of the RTRP project components that were evaluated in this study. More detailed descriptions of each project component evaluated are included in the subsequent chapters of this report.

1.3.1 230 kV Transmission Line

A new double-circuit 230 kV transmission line connecting the proposed Jurupa substation, located on RPU-owned land near the northeast corner of Wilderness Avenue and Ed Perkic Street, to the existing SCE Mira Loma-Vista #1 230 kV transmission line.

1.3.2 69kV Transmission Lines

As part of the RTRP, several 69 kV transmission lines would be constructed to connect the proposed Jurupa Substation to the existing RPU 69 kV electrical system. One double-circuit 69 kV transmission line would be built from the proposed Jurupa Substation to the Mt. View Substation.

Two double-circuit 69 kV transmission lines from the proposed Jurupa Substation would be built along Wilderness Avenue to a tap point on the RERC-Mt. View double-circuit 69 kV transmission line.

1.4 ROUTE STUDY OBJECTIVES

POWER Engineers, Inc. (POWER) was retained to complete the RTRP Siting Study. The primary objectives of this study are to:

- identify feasible alternative transmission line routes that would accommodate the proposed RTRP utilities;
- determine the feasibility of permitting alternative line routes;
- recommend alternative line routes and that should receive further study or action.

This report presents and summarizes the results of the environmental resource inventories and sensitivity analyses, alternatives identification process for transmission line alternatives, and recommendations for specific transmission line alternatives.

CHAPTER 2: STUDY METHODOLOGY

2.1 INTRODUCTION

2.2 STUDY AREA DELINEATION

The RTRP study area is located in the northwestern portion of Riverside County and the southwestern portion of San Bernardino County, and includes portions of the City of Riverside, the City of Norco, the City of Fontana, the City of Rialto, the City of Colton, City of Grand Terrace, and unincorporated areas of Riverside and San Bernardino Counties (Map 1). The study area measures approximately 41,720 acres (approximately 65 square miles) and was delineated to encompass all RTRP components and feasible transmission line alternatives. The northern boundary of the study area is logically defined by the location of the existing 230 kV transmission lines owned by SCE, including the project tap point, Mira Loma-Vista #1. The eastern boundary parallels existing 230 kV transmission lines then curves south, generally paralleling the urbanized area of the City of Riverside and the Santa Ana River corridor. The southern boundary parallels the Santa Ana River corridor and includes the RERC Substation and the proposed Jurupa Substation. The western boundary of the study area generally follows Interstate 15 and the existing residential development along the highway. The study area was utilized as the basis for data inventory and mapping and sensitivity analyses.

2.3 DATA INVENTORY AND MAPPING

Resource data for the study area were obtained from a variety of sources, including published and unpublished literature (e.g., documents, reports, studies, maps, etc.), correspondence and discussions with personnel from local, state and federal agencies, and aerial photographs. Inventory data were collected for six primary resource areas including land use resources, visual resources, biological resources, cultural resources, water resources, and geohazards. Resource data were then mapped utilizing a geographic information system (GIS), and ground reconnaissance was completed to verify and supplement inventory mapping. Once inventory mapping was completed, the maps were subsequently utilized for the purposes of conducting sensitivity analyses. The following provides information on inventory methodology by resource area.

2.3.1 Land Use

Land use inventory data were collected from a variety of sources for the study area. Land use inventory data for the study area were mapped utilizing GIS (Map 2). These data were organized into three general components:

- existing land use;
- planned land use; and
- parks, recreation, and preservation areas.

The existing land use component identifies surface structures, improvements, and land use designations that occur within the study area. The planned land use component identifies objectives, goals and/or policies regarding the locations of transmission lines, within the study area, per agency adopted or approved land use plans.

The parks, recreation, and preservation areas component identifies areas within the study area where the established or proposed land use is primarily for recreational enjoyment or to protect and preserve a valuable environmental resource.

2.3.2 Visual Resources

The visual resource inventory included identification of important visually sensitive points, corridors, and areas. These receptors include residential land uses, parks and recreation areas, important trails and travel corridors, and agency management plans and special designations. These were identified through literature review, correspondence and discussions with governmental agencies, GIS data collected from agencies, and field investigations. Land management plans and land use regulations were also reviewed to determine statutory requirements or policy guidelines relating to visual resources within the study area.

2.3.3 Cultural Resources

Cultural resources are districts, sites, buildings, structures, or objects considered important to a culture, subculture, or community for scientific, traditional, religious or other reasons. For this sensitivity analysis, cultural resources have been divided into three major categories: archaeological resources, architectural resources, and traditional cultural properties (TCPs). Archaeological resources are locations where human activity has measurably altered the earth or left deposits of physical remains (e.g., stone tools, cans, bottles, milling stations, petroglyphs, pictographs, house foundations, cemeteries). Architectural resources include standing buildings (e.g., houses, schools, churches) and intact structures (e.g., canals, bridges). Traditional cultural properties (TCPs) are resources that are important to a community's traditional practices and beliefs and for maintaining the community's cultural identity (Parker and King 1998).

Several laws and regulations require that information about cultural resources be kept confidential to protect them from vandalism. For this reason, this section offers only limited descriptions of the characteristics and locations of cultural resources in the project area. In addition, no information on TCPs will be shared without permission from those providing the information.

TRC Solutions, Inc., a subcontractor to POWER Engineers, Inc., conducted a records search for the area within the project boundaries to identify portions of the project area with potentially sensitive cultural resources. TRC consulted historic and archaeological records at the Archaeological Information Centers at the University of California, Riverside and the San Bernardino County Museum. Each is part of the California Historical Resources Information System (CHRIS) of the Office of Historic Preservation (OHP). The project boundaries include portions of the U.S. Geological Survey (USGS) Corona North, Guasti, Fontana, Riverside East, Riverside West, and San Bernardino South 7.5-minute quadrangles. TRC reviewed those maps at the information centers to determine the locations of previous cultural resource technical studies and of cultural resources recorded during those studies. Specific data regarding previously recorded cultural resources were tabulated, including each resource's OHP trinomial designation; UTM coordinates; township, range, and section number; site type, site size, and its current status, as indicated on the most recent site record, regarding eligibility for inclusion in the National Register of Historic Places. Cultural resource data was mapped using GIS (Map 4).

Additionally, all manuscript numbers for technical studies conducted within the project boundaries were listed, however, well over a hundred studies were identified and a review of each study was outside the scope of this sensitivity analysis.

TRC also reviewed the National Register Information System (NRIS) of the National Register of Historic Places, the California Register of Historic Resources, and the list of California Historical Landmarks provided by the OHP.

TRC has requested that the California Native American Heritage Commission (NAHC) review its records for the presence of any Native American sacred lands or traditional cultural properties within the project boundary.

No field survey was performed to verify or supplement the information obtained from these data sources

2.3.4 Biological Resources

Existing information on biological resources was obtained from a variety of sources, including existing reports, the California Natural Diversity Database (CNDDB), and the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). Biological resource inventory data for the study area were mapped utilizing GIS (Map 5).

2.3.5 Water Resources and Wetlands

Information on water resources within the study area were obtained from a variety of sources. Water resources evaluated include riparian vegetation, floodplains, rivers, ponds, lakes/reservoirs, and ditches/canals/channels. Water resource inventory utilized GIS data obtained from Riverside County, the Federal Emergency Management Agency, and the Riverside County Regional Flood Control and Water Conservation District. National Wetlands Inventory (NWI) mapping was not available for the study area. A water resource inventory map was prepared utilizing GIS (Map 7).

2.3.6 Geohazards

For the purposes of this study, geohazards considered within the study area included active faulting, liquefaction, and steep slopes. Information on geological hazards within the study area was obtained from the County of Riverside and the City of Riverside and mapped on the Geohazards Map (Map 8). Slopes were mapped into four categories of percent slope: 0 – 15%, 15 – 30%, 30 – 45%, and above 45%.

2.4 SENSITIVITY CRITERIA

Sensitivity is defined as a measure of probable adverse response of a resource to direct and indirect impacts associated with the construction, operation, and maintenance of project components. The determination of sensitivity included consideration of the following:

- **Resource Value**: A measure of rarity, intrinsic worth, singularity, or diversity of a resource within the area;
- **Protective Status**: A measure of the formal concern as expressed by legal protection or special status designation;
- **Present and Future Uses**: A measure of the level of potential conflict with land management and land use policies; and
- **Hazards**: A measure of the degree to which construction and/or operation of the proposed project represents a significant hazard to a resource.

Using this framework, the mapped inventory data will be analyzed and assigned relative sensitivity values. Sensitivity maps were developed for **land use, cultural, biological, and water resources, and geohazards**. Sensitivity levels were categorized as exclusion, high, moderate, or low based upon the following general characteristics:

Exclusion: Areas where the siting of transmission lines is essentially precluded. This category includes: (1) areas which contain polices for legally protected resources (e.g. wilderness area, national park); (2) where government regulation expressly prohibits encroachment; (3) where ownership and use of the land preempts the siting of a transmission line, and (4) areas where there would be unacceptable hazards to the construction or operation of a transmission line.

High Avoidance: Areas are determined to have high sensitivity due to: (1) the presence of unique, highly valued, or legally protected cultural, biological, or water resources; (2) a large potential for conflict with existing or planned land uses; and (3) substantial hazards to construction and operation of a transmission line or substation. Areas designated as high sensitivity also include those portions of the study area with a combination of resources that result in a high potential for impacts. For the purposes of this study, areas designated as high sensitivity are considered to be least desirable and should be avoided, if possible.

Moderate Avoidance: Areas are determined to have moderate sensitivity due to: (1) the presence of cultural, biological, or water resources that are valued and/or assigned special status; (2) a moderate potential for conflict with existing or planned land uses; and (3) limited hazards to construction and operation of a transmission line or substation. For the purposes of this study, areas designated as moderate sensitivity are not considered to be highly desirable, but may be used with careful consideration of design, layout, and the minimization of adverse impacts.

Low Avoidance or Opportunities: Areas are determined to have low sensitivity where: (1) there are no cultural resources, no valued or special status biological, or water resources; (2) minimal conflict with existing or planned land uses; and (3) no hazards exist to construction and operation of a transmission line or substation. For the purposes of this study, areas designated as low sensitivity are most desirable for the siting of project components.

2.4.1 Land Use

Land use sensitivity levels were largely based upon the potential for conflict with existing or planned land uses within the study area. Examples of relatively sensitive land uses that were designated as Exclusion include schools and residential areas. A High Avoidance level was assigned to areas that contain proposed or planned residential development, and a Moderate Avoidance was assigned to areas such as commercial and industrial areas. Low Avoidance areas were those areas that had no valued or protected resources such as existing utility or transportation corridors.

2.4.2 Visual Resources

For the purposes of this study, parks, recreation and preservation areas, residential areas, mapped regional recreational and historic trails, and existing or proposed designated scenic corridor or parkways were buffered ½ mile for expected foreground viewing condition for high expected visibility.

The focus of the visual resources inventory was on existing land uses and local laws, ordinances and regulations. Important visual receptors were identified based on potential high impacts and visual sensitivity.

Visual sensitivity for this study is a function of:

- Land Use Patterns: urban areas that have a mix of divergent and incoherent land uses and visual quality (commercial and industrial areas with a wide variety of signage, lights and billboards) are likely to be less sensitive than established residential neighborhoods where people are much more likely to have a stake in the quality of the landscape;

- Agency visual resource management guidelines and jurisdictional plans: land management agencies often have established plans, laws, and regulations as to how the visual environment will be managed;

- View duration: long view durations typically tend to increase sensitivity levels;

- User attitudes towards change: areas where the public has low expectations for maintaining scenic integrity generally occur in commercial or industrial areas where human-caused modifications already exist in the landscape; conversely, high expectations for maintaining scenic quality are likely to occur where a critical part of most people's visual experience is the quality of the environment, such as in residential and recreation areas;

- Use volume: high levels of use, such as more visits to a park or higher traffic volume on a road, would be expected to cause a greater overall effect on sensitivity levels; and

- Distance: the proximity of seen areas or elements will influence sensitivity levels; the closer visual contrasts are to a viewer, the more likely the viewer could be affected.

Based on previous studies of similar transmission lines, the highest impacts on high sensitivity viewers for a 230 kV line in a similar environmental setting would be expected to potentially cause the greatest impacts within 1/2 –mile.

2.4.3 Cultural Resources

A general sensitivity rating was assigned for specific portions of the project area to distinguish areas of high and low cultural resource sensitivity. Criteria for selecting areas of high sensitivity are:

- The presence of known archaeological or historical site distributions

- Geographical features, such as the Jurupa Mountains and the Santa Ana River drainage, that are known to contain numerous cultural resources; and

- Large parcels of unsurveyed and undeveloped land for which there is no information available on cultural resources and which appear to be relatively undisturbed.

Criteria for identifying areas low in cultural resource sensitivity are:

- Previously surveyed parcels that do not contain any recorded cultural resources;

- Highly developed areas of relatively recent construction that area unlikely to contain intact or undisturbed archaeological or historical components.

2.4.4 Biological Resources

Biological sensitivity levels were based upon the presence or absence of threatened, endangered, or sensitive (TES) plant and animal species as well as habitats that support these species. Areas designated as High Avoidance include habitats that are known to support TES species and habitats that are of appropriate size, configuration, and vegetation characteristics to generally support the life history requirements of one or more species covered under the MSHCP. Native vegetation communities, such as Riversidian Sage, support special status plant and wildlife species, and were designated as High Avoidance. Areas designated as Low Avoidance or Opportunities are disturbed non-native grasslands, field croplands, and developed residential and industrial areas.

2.4.5 Water Resources and Wetlands

Sensitivity criteria were developed to reflect the sensitivity of water resources relative to the identification of transmission line corridors. Sensitivity levels for water resources were largely based upon their hydrological capacity, potential to affect engineering and design, and accessory benefits (e.g., plant and wildlife habitat). Regulations affecting water resources will become more pertinent at the design level where state and local regulations regarding stream and river buffers will be taken into consideration. The primary objective during the corridor selection phase was to minimize the number of stream, river, and lake crossings. Generally, man-made structures, such as ditches, canals and channels, were considered to have low sensitivity and were designated Low Avoidance, while floodplains, rivers, wetlands, and lakes/reservoirs were categorized as moderate sensitivity and Moderate Avoidance.

2.4.6 Geohazards

Sensitivity criteria were developed to reflect the sensitivity of geohazards relative to the identification of transmission line corridors. Sensitivity levels were largely based upon the degree to which soils within the study area are prone to the presence or absence of faults within the study area, liquefaction in the event of seismic activity, and the presence of steep slopes that have the potential to place constraints on the siting of transmission lines. The primary objective during the corridor selection phase was to identify areas where geological hazards would constrain or prevent the routing of transmission lines.

CHAPTER 3: INVENTORY RESULTS

3.1 INTRODUCTION

This chapter presents the results of the environmental inventories that were conducted for the study. These inventory results were used as the basis for subsequent sensitivity analyses and the identification of opportunities and constraints areas for the project components. The following presents a description of inventories by individual resource area, and includes:

- **Land use resources** – land jurisdiction, existing land use, existing zoning, planned land use, and parks, recreation, and preservation areas;
- **Visual resources** – landscape character, sensitive viewers, and jurisdictional plans;
- **Biological resources** – threatened and endangered species, critical habitat, and unique or sensitive habitats;
- **Cultural resources** – historical and archaeological characteristics;
- **Water resources** – flood control basins and channels, floodplains, wetlands, and lakes/reservoirs; and
- **Geohazards** – earthquake faults, liquefaction susceptibility, and steepness of slopes.

3.1.1 Land Use Resources

3.1.1.1 Environmental Setting

The study area encompasses unincorporated portions of northwestern Riverside County, southwestern San Bernardino County and 6 incorporated cities (Riverside, Norco, Fontana, Rialto, Colton, and Grand Terrace). Unincorporated communities include Rubidoux, Sunnyslope, Belltown, Glen Avon, Indian Hills, Pedley, Mira Loma, Bloomington, and Highgrove. Rapid population growth in the study area has resulted in a rapid increase in development, with accompanying changes in land use. The natural topography can be described as a valley lowland area intersected with rolling hills surrounded by mountainous ranges.

The Santa Ana River, located in the south and southeast of the study area, represents a recreational, habitat, and visual resource. Throughout the area, interconnecting trails provide access to a scenic wildlife setting. The Hidden Valley Wildlife Area serves as a nature center that includes hiking and equestrian activities.

3.1.1.2 Existing Land Use

The existing land uses analyzed in this section include both natural and human-modified developments. The majority of the study area is characterized by rural, urban and suburban development intermixed with agricultural operations and undeveloped lands. Existing land uses within the study area include developed, agriculture, and open space/vacant land categories. Developed land uses include residential uses (single-family detached, single-family attached, high-density residential, and mobile homes), commercial uses (retail/office and tourist/commercial recreation), industrial uses (light industrial/business park, heavy industrial, mineral extraction, and warehouse), public facilities (utilities, other public facilities, and schools), air facilities, linear facilities (roadways, railroads, bikeways, trails, flood control channels, major utility corridors), recreational uses (recreation open space), and rural uses (rural residential). Agricultural land in the study area includes row crops, groves, nurseries, dairies, poultry farms, processing plants, and other related uses. Open space/vacant lands are composed of natural, vacant, and water categories.

Schools, air facilities, linear features, drainage systems, and solid waste facilities are discussed further below. Map 2 is a land use inventory map for the study.

Schools

As shown in Map 2 there are 38 existing and 6 planned public or private schools located within the study area (see Table 3-1).

Table 3-1 Existing and Planned Public or Private Schools within the Study Area

Existing School Name	School District
Fremont Elementary School	Riverside Unified School District
Bryant Elementary School	Riverside Unified School District
Southridge Middle School	Fontana Unified School District
Canyon Creek Elementary School	Fontana Unified School District
Oak Park Elementary School	Fontana Unified School District
Jurupa Vista Elementary School	Colton Joint Unified School District
D'Arcy Elementary School	Colton Joint Unified School District
Ruth O. Harris Middle School	Colton Joint Unified School District
Riverview Elementary School	Corona-Norco Unified School District
Jurupa Valley High School	Jurupa Unified School District
Mission Bell Elementary School	Jurupa Unified School District
Granite Hill Elementary School	Jurupa Unified School District
Sunnyslope Elementary School	Jurupa Unified School District
Nueva Vista Continuation High School	Jurupa Unified School District
Mission Middle School (closed during 2005-2006)	Jurupa Unified School District
Mission Middle School (Interim Campus)	Jurupa Unified School District
Ina Arbuckle Elementary School	Jurupa Unified School District
Mira Loma Middle School	Jurupa Unified School District
Van Buren Elementary School	Jurupa Unified School District
Jurupa Middle School	Jurupa Unified School District
Glen Avon Elementary School	Jurupa Unified School District
Rubidoux High School	Jurupa Unified School District
Stone Avenue Elementary School	Jurupa Unified School District
Camino Real Elementary School	Jurupa Unified School District
Rustic Lane Elementary School :	Jurupa Unified School District
West Riverside Elementary School	Jurupa Unified School District
Pacific Avenue Elementary School	Jurupa Unified School District
Peralta Elementary School	Jurupa Unified School District
Indian Hills Elementary School	Jurupa Unified School District
Pedley Elementary School	Jurupa Unified School District
Troth Street Elementary School	Jurupa Unified School District
Sky Country Elementary School	Jurupa Unified School District
Terrace Elementary School	Alvord Unified School District
Norte Vista High School	Alvord Unified School District
Existing School Name	**School District**
Son Shine Christian Elementary School	Private
Glen Avon Christian Elementary School	Private
La Petite Elementary School	Private
Our Lady of Perpetual Help Elementary School	Private

Planned School Name	School District
Patricia Beatty Elementary School	Riverside Unified School District
Louis VanderMolen Fundamental Elementary School	Corona-Norco Unified School District
K-8 School	Jurupa Unified School District
Pedley Elementary School Future expansion 7-8 grades	Jurupa Unified School District
K-8 School (within Rio Vista Specific Plan 243)	Jurupa Unified School District
K-8 School (within Emerald Springs Ranch Specific Plan 337)	Jurupa Unified School District

Air Facilities

Two airports, Riverside Municipal Airport and Flabob, are located within or in the immediate vicinity of the study area. Owned and operated by the City of Riverside, Riverside Municipal Airport is situated inside the western portion of the city limits. The airport occupies some 441 acres with its operations overseen by the City of Riverside Airport Commission. It has two intersecting runways; the primary runway running roughly east/west, and a shorter crosswind runway, aligned north/south. A precision instrument approach procedure is established from the west, although most of the aircraft operations are in the opposite direction. An air traffic control tower serves the airport. From a land use compatibility standpoint, the most significant improvement planned for the airport is a 750-foot easterly extension of the runway. Establishment of a non-precision instrument approach procedure from the east also is planned.

Flabob Airport, a private airport, is situated along the edge of the Santa Ana River just west of downtown Riverside. The present airport has existed since at least 1925. The airport was acquired by the Thomas W. Walthen Foundation in 2000. The new owners have removed some of the old buildings, constructed several new hangars, and repaved much of the airfield. Today, the airport is home to some 200 aircraft, many of them vintage or experimental airplanes. Providing educational programs for local schoolchildren is another role played by the airport. Facility improvement plans include a school (aviation-based public charter high school), a museum and educational center, a 12.5-acre business park with space for 10 to 29 aviation-based businesses, and 85 new hangars for individual airplane owners. The hangars would be constructed in conjunction with a 85-home housing tract (Masterpiece Skyport at Flabob Airport) to be built next to Flabob by a private developer. A corresponding increase in aircraft operations can be anticipated. However, the limited land area prevents expansion of the single 3,190-foot runway (a shorter turf runway was closed in the early 1980s).

Linear Features

The existing circulation and transportation system serving the study area and immediate vicinity is composed of a series of separate modes or types of passenger travel and goods movement. These modes of travel and goods movement include passenger vehicles and truck freight, transit, passenger and freight rail, non-motorized systems (bicycle facilities, pedestrian facilities, and equestrian facilities). The study area also contains major utility corridors.

The transportation system is composed of state highways (both freeways and arterial highways), as well as county and city roadways. The street and highway system provides a rather dense definition of roads of countywide significance. The highway network is composed of three interstate routes (I-10, I-15, and I-215), and two state routes (SR-60 and SR-91). In addition, the highway system includes numerous county roadways, as well as roadways within each of the six cities in the study area. Some of the major roadways include Agua Mansa Road, Armstrong Road, Jurupa Road, Limonite Avenue, Market Street, Mission

Boulevard, Pedley Road, Riverside Avenue, Rubidoux Boulevard, Van Buren Boulevard, and Washington Street. Proposed improvements to Riverside Avenue would realign the roadway generally across or around the closed Riverside County landfill, circumventing the Spring Mountain Ranch development on the north, connecting to Main Street in the community of Highgrove in unincorporated Riverside County, proceed westerly across I-215 to Riverside Avenue, and follow Riverside Avenue north to I-10. In addition, La Cadena Drive would be realigned to allow an elevated intersection with the Pigeon Pass-Riverside Avenue arterial west of I-215. The realigned portion of La Cadena would match the existing La Cadena roadway.

The public transit system includes fixed route public transit systems (Riverside Transit Agency), common bus carriers, MetroLink (commuter rail service), and other local agency transit and paratransit services. In addition, the transportation system in the study area includes freight rail service (Union Pacific Railroad), bicycle facilities, and other non-motorized forms of transportation (pedestrian and equestrian trails).

Major conveyance lines for water, natural gas, and electricity transmission systems form a substantial network of corridors crossing the study area. Major utility transmission lines are shown on Map 1. There is a concentration of major electrical transmission lines running west to east, approximately 2 miles south of I-10.

Drainage Systems

The Riverside County Flood Control and Water Conservation District (RCFCWCD) is responsible for the operation and maintenance of regional flood control facilities such as dams, flood basins, levees, open channels and regional underground storm drains. In most cases, RCFCWCD does not maintain storm drain inlets or pipes less than 36 inches in diameter. The RCFCWCD is also responsible for construction of new facilities called for in its adopted Master Drainage Plan. Smaller drainage facilities, consisting mostly of underground closed conduits and storm drains located primarily in developed areas, are typically maintained by City or County Transportation Department crews. These local facilities collect stormwater and convey it to regional facilities, including the Santa Ana River and arroyos located in the study area. The United States Army Corps of Engineers has the primary planning responsibility for the Santa Ana River. The facilities constructed pursuant to Corps of Engineer master plans are operated by the RCFCWCD.

Solid Waste Facilities

The Colton Sanitary Landfill is located in the study area. This active landfill is located approximately one mile west of the Vista Substation. Plans for the landfill include either closure or expansion.

3.1.1.3 Planned Land Use

The study area contains land under the jurisdiction of the County of Riverside, County of San Bernardino, and the cities of Riverside, Norco, Fontana, Rialto, Colton, and Grand Terrace.

Planned land uses are defined by long-range planning documents, such as general plans, community plans, specific plans, and zoning ordinances, which guide future development and growth patterns within a given jurisdictional planning area. State law requires all counties and cities in the State to prepare and maintain a general plan for the long-term growth, development, and management of the community. The general plan acts as a charter for development, and is a city's or county's lead legal document in relation to growth, development, and resource management issues. Specific Plans are usually highly detailed and often include special development and land use standards which supersede both the General Plan and the Zoning Ordinance. Other plans include habitat or wildlife conservation plans. The following section

presents a general description of plans and policies, applicable to the study area. These planning documents, as they relate to utilities, are described below.

County of Riverside

General Plan

Unincorporated lands in Riverside County, not within a specific plan or a Community Plan, are covered by the Riverside County General Plan (2003) as administered by the Riverside County Transportation and Land Management Agency.

The General Plan provides policy direction at two levels: 1) Countywide for the entire unincorporated portion of the County under Board of Supervisors' Authority; and 2) for 19 sectors of the County in the form of Area Plans. The intent of this tiered system of policy direction is to distinguish between policies that apply uniformly everywhere in unincorporated territory and those that apply explicitly in distinct geographic areas. Area Plans provide more detailed policy direction.

The countywide policy direction is captured in traditional topical elements as depicted in the California Government Code: Land Use, Circulation, Multipurpose Open Space (Open Space and Conservation as specified in the law), Safety, Noise and Housing. An additional optional element, Air Quality, also operates at the countywide level. Policies at this level apply to all Area Plans in addition to the localized policies contained in them, but do not have to be duplicated in the area plan documents.

Countywide Policies

LU 5.4 Ensure that development and conservation land uses do not infringe upon existing public utility corridors, including fee owned rights-of- way and permanent easements, whose true land use is that of "public facilities". This policy will ensure that the "public facilities" designation governs over what otherwise may be inferred by the large scale general plan maps.

LU 13.5 Require new or relocated electric or communication distribution lines, which would be visible from Designated and Eligible State and County Scenic Highways, to be placed underground.

LU 14.2 Review all proposed projects and require consistency with any applicable airport land use compatibility plan as set forth in Appendix L of the General Plan and as summarized in the Area Plan's Airport Influence Area section for the airport in question.

LU 14.7 Ensure that no structures or activities encroach upon or adversely affect the use of navigable airspace.

LU 14.9 All development proposals within an Airport Influence Area will be submitted to the affected airport.

LU 25.5 Require that public facilities be designed to consider their surroundings and visually enhance, not degrade the character of the surrounding area.

LU 25.6 Ensure that development and conservation land uses do not infringe upon existing public utility corridors, including fee owned rights-of-way and permanent easements, whose true land use is that of Public Facilities. This policy will ensure that the "public facilities" designation governs over what otherwise may be inferred by the large-scale general plan maps.

OS 20.2 Prevent unnecessary extension of public facilities, services, and utilities, for urban uses, into Open Space-Conservation designated areas.

OS 20.3 Discourage the absorption of dedicated park lands by non-recreational uses, public or private. Where absorption is unavoidable, replace park lands that are absorbed by other uses with similar or improved facilities and programs.

Area Plan Policies

Eastvale Area Plan-Santa Ana River Corridor Policy Area

EAP 1.13 Discourage utility lines within the river corridor. If approved, lines shall be placed underground where feasible and shall be located in a manner to harmonize with the natural environment and amenity of the river.

Jurupa Area Plan-Santa Ana River Corridor Policy Area

JURAP 7.13 Discourage utility lines within the river corridor. If approved, lines shall be placed underground where feasible and shall be located in a manner to harmonize with the natural environment and amenity of the river.

Jurupa Area Plan-Flabob Airport Influence Policy Area

JURAP 8.2 There are three safety zones associated with the Flabob Airport Influence Area. Properties within these zones are subject to regulations governing such issues as development intensity, density, height of structures, and noise.

Riverside Municipal Airport and Flabob Airport Influence Policy Area.

Properties within these zones are subject to regulations governing such issues as development intensity, density, height of structures, and noise. Within Flabob Airport imaginary approach surfaces and Areas of Additional Safety Concerns, residential lot sizes smaller than two and one-half acres are not allowed. These land use restrictions are fully set forth in Appendix L of the General Plan and are summarized in Table 4, Land Use Compatibility Guidelines for Airport Safety Zones for March, Flabob, Bermuda Dunes, Chino, and Skylark Airports, and land use proposals shall be evaluated for appropriateness within these safety zones. For more information on these zones and additional airport policies, refer to Appendix L and the Land Use, Circulation, Safety and Noise Elements of the Riverside County General Plan.

JURAP 8.3 To provide for the orderly development of Flabob Airport and the surrounding area, comply with the Airport Land Use Compatibility Plan for Flabob Airport as fully set forth in Appendix L of the General Plan and as summarized in Table 4 therein, as well as any applicable policies related to airports in the Land Use, Circulation, Safety and Noise Elements of the Riverside County General Plan.

Jurupa Area Plan-Riverside Municipal Airport Influence Policy Area

JURAP 9.1 To provide for the orderly development of Riverside Municipal Airport and the surrounding area, comply with the Airport Land Use Compatibility Plan for Riverside Municipal

Airport as fully set forth in Appendix L of the General Plan and as summarized in Table 5, as well as any applicable policies related to airports in the Land Use, Circulation, Safety and Noise Elements of the Riverside County General Plan.

Specific Plans

The following specific plans were identified in the study area:

- Mission De Anza Specific Plan 123
- Sky Country Specific Plan 125
- Agua Mansa Industrial Corridor Specific Plan 210
- Rio Vista Specific Plan 243
- Interstate 15 Specific Plan 266
- Emerald Meadows Ranch Specific Plan 337

County of San Bernardino

General Plan

The General Plan is a policy document that guides all aspects of land use within the County. The current San Bernardino County General Plan is the product of a comprehensive update completed in June of 1989 that was a major overhaul of the previous General Plan. The 1989 General Plan established land use policies for a 20-year planning horizon.

The San Bernardino County General Plan was adopted in 1989 and revised in 1999. The General Plan has been amended by the adoption of a resolution by the Board of Supervisors on December 21, 2000, November 22, 2001, September 10, 2002, and March 27, 2003. The following policies and actions are provided.

Countywide Plans

OR-1 Because preservation of open space lands will be facilitated through the application of land use standards, the County shall implement the following actions:

> c. Utilize the Hazard and Resources Overlay Maps to identify areas suitable or required for retention as open space. Resources and issues identified on the Overlays which indicate open space as an appropriate use may include: flood, fire, geologic, aviation, noise, cultural, prime soils, biological, scenic resources, minerals, agricultural preserves, utility corridors, water supply and water recharge.
>
> e. Ensure that any portion of the planning area that is under public and quasi-public domain but not necessary for public or quasi-public use be considered first for open space, and then for uses requiring development of the site.

OR-51 Because the provision of scenic areas, trails and scenic highways is an integral part of the planning process, the County shall require the following:

> h. Encourage undergrounding of all utility facilities for all projects requiring discretionary or ministerial action.

ET-3 Because the efficient production, distribution and routing of energy and telecommunications will maximize resources, the County shall:

> a. Actively participate in the formation of regional siting plans and policies, such as:
>
> i) Memorandum of Understanding with other affected agencies
> ii) The Joint Utilities Management Program

b. Consolidate pipeline and transmission line corridors by requiring proposed new facilities to locate in existing corridors to the maximum extent feasible. When new transmission facilities cannot be located within existing corridors, assist in investigating the feasibility of establishing corridors parallel to interstate freeways.

ET-6 Because the use of new and innovative resources, technologies and design features in energy and telecommunications facilities can assist in maximizing resources and minimizing impacts, the County shall:

b. Require undergrounding of new and existing transmission lines when feasible.

e. Resist any proposed powerline routes for major steel tower electrical transmission lines along existing wooden pole lines.

ET-7 Because land uses adjacent to utility corridors must be compatible, the County shall approve only those secondary uses within corridors that are compatible with adjacent land uses.

Specific Plans

The following specific plans were identified in the study area:

- Agua Mansa Industrial Corridor Specific Plan
- Kaiser Commerce Center

Recognizing a need to update the 1989 General Plan, the Board of Supervisors has approved a General Plan Update (GPU) process that consists of two phases, the first of which was completed in 2002. During Phase I of the GPU, a strategic analysis of the 1989 General Plan and Environmental Impact Report (EIR) was conducted. The actual General Plan Update, Phase II, currently undergoing.

City of Riverside

General Plan

The Riverside General Plan 2010, adopted in 1994, currently serves as the principal policy document guiding the growth and development of Riverside.

The Growth Management section contains five of the elements required by state law. Relevant Airport Goals and Policies, identified in the Transportation Element, are listed below:

Goal T 3 To support and expand airport services for the Riverside community.

Policy T 3.5 The City should protect flight paths from inappropriate development encroachment.

Policy T 3.7 The City should place a high priority on air safety through careful planning and management of the airport system.

Policy T 3.8 The City should limit building heights and land use intensities beneath airport approach and departure paths to protect public safety.

Area Plans

The General Plan includes two categories of area plans: community plans and specific plans. The total planning area is divided into 25 subareas or "communities". Many of these encompass areas historically recognized as distinct communities or neighborhoods and which have been the subject of past planning

studies. Generally, plans which have been previously adopted for various subareas are more detailed but are nevertheless consistent with the General Plan. Several subareas have currently adopted community plans which have been developed in past years. Pre-existing community plans have been superseded by the community plan text of the Riverside General Plan 2010. Community plans contained in the General Plan and within the study area are:

- Northside (adopted 1991)

The Plan area for the Northside Community includes approximately 1,904 acres generally bounded by I-215 Freeway on the east, U.S. 60 on the south, the Santa Ana River on the west, and San Bernardino County and the City of Colton to the north.

The Northside Community Plan focuses on guidelines to achieve a balanced community with single family residential neighborhoods, recreation and open space areas, specific areas for office and industrial development and commercial uses. Presented below are relevant goals and policies included within the Northside Community Plan.

Goal N-1 To establish the Northside Community as a balanced community in which it is pleasant to live, work and recreate.

Policy N-1.6 The Orange Street frontage of Reid Park should be modified by replacing the overhead utilities with underground utilities.

Policy N-2.3 Center Street shall be extended to Main Street generally along the Riverside County's 1970 adopted specific plan right-of-way except that the portion at the intersection of Center Street and Orange Street should be modified so that any construction or right-of-way acquisition is outside the Trujillo Adobe property. The grant funding for the adobe's purchase apparently precludes any encroachment on the property. Developments on or adjacent to the proposed alignment should dedicate the right-of-way and construct portions of the street per standard City development practices. In order to create a new visual image for this part of the Community Plan area, the street from the I-215 Freeway to Main Street should be constructed with a tree planted landscape median and with all utilities placed underground.

Policy N-2.14 The long term goal for land use within the Northside Specific Plan is to move all utilities underground. Funding should come from City and County budget allocations, possible assessment districts and CALTRANS. Given the high cost and likely long time span for implementation, priorities for moving utilities should be as shown below:

Table 3-2 Utility Undergrounding Priorities, by Street

Priority	Street
1	Columbia Avenue (Main to Orange Street)
2	Orange Street (Columbia Avenue to Burt Drive)
3	Columbia Avenue (Orange Street to W. La Cadena)
4	Orange Street (Columbia Avenue to U.S. 60 Freeway) (Burt Drive to Placentia Lane)
5	Other Streets
*	West La Cadena
**	Center Street

* West La Cadena Drive should be considered a special case since the overhead utilities detract from the Scenic Highway designation of this street. Undergrounding should be incorporated as part of any widening of the I-215 Freeway and funded as part of the Freeway project.
** Portions of existing Center Street and Placentia Lane that will be part of the new Center Street having existing 12 KV lines. These lines should be undergrounded as part of the Center Street extension.

Policy N-2.16 The U.S. 60 Freeway and Interstate 215 shall be considered to be designated as City of Riverside Scenic Highways with the following aesthetic measures:

Overhead utility lines on West La Cadena Drive should be placed underground.

Several subareas contain adopted or pending specific plans. Most of the adopted specific plans coincide with subareas of the same name as noted above. A few, however, are portions of larger subareas or communities. Other specific plans within the study area are:

- Rancho La Sierra (adopted 1996)
- Rancho La Sierra (Update in progress, proposed expansion area)
- Downtown (adopted 2002)

The City of Riverside is currently updating its General Plan. The City Planning Commission completed review and action on the Draft Plans on August 18, 2005. The next steps in the process include City Council Review and action on revised Draft Plans. The updated General Plan is anticipated to be tentatively adopted in late May 2006 or June 2006 (Hayes 2006).

City of Norco

General Plan

The City of Norco General Plan contains no specific goals and policies regarding the siting of a major transmission line.

City of Fontana

General Plan

The current General Plan was adopted in October of 2003. In addition, the City has adopted 14 Specific Plans and five Community Plans, with two more Specific Plans under consideration. Within the City's Sphere of Influence, the County of San Bernardino has adopted an Industrial Specific Plan. The current General Plan considers all these factors and sets the tone for future growth and development. Issues, Goals, Policies and Actions include the following:

Issue #2: Land Use Compatibility
Goal #2:

Policies:

2) Regionally beneficial land uses such as transportation corridors, flood control systems, utility corridors, and recreational corridors shall be sensitively integrated into our community.

5) Multiple uses within utility easements shall emphasize open spaces but may accommodate more intensive uses to safely augment adjacent uses.

Actions:

5) Administer a utility coordination program with utility providers to consolidate disruptions of public rights-of-way.

6) Coordinate with utility providers to determine which open space opportunities have potential and negotiate agreements accordingly.

Issue #9: Public Utilities
Goal #9

Policies:

2) The installation of utilities shall be coordinated so that disruption of public rights-of-way and private property is kept to a minimum.

3) Collaboration with utility companies shall occur to achieve the maximum undergrounding of utility lines commensurate with available funds.

Actions:

2) Establish and maintain a utility coordinating process to coordinate installation of utility pipes and lines in public rights-of-way and through private property. Include provisions for appropriately conditioning development projects.

3) Establish and maintain a utility undergrounding program.

One approved specific plan (Valley Trails SPL04-04) was identified in the study area.

City of Rialto

General Plan

The City of Rialto General Plan was adopted in 1992 and is currently being updated. The City of Rialto General Plan contains no specific goals and policies regarding the siting of a major transmission line.

City of Colton

General Plan

The City of Colton General Plan was adopted in 1987 and is currently being updated. The City of Colton General Plan contains no specific goals and policies regarding the siting of a major transmission line.

City of Grand Terrace

General Plan

The City of Grand Terrace General Plan was updated in 1989 and is currently being updated. The City of Grand Terrace General Plan contains no specific goals and policies regarding the siting of a major transmission line.

Multi - Species Habitat Conservation Plan (MSHCP)

In June of 2003, the Riverside County Board of Supervisors adopted the MSHCP to provide a regional conservation solution to species and habitat issues that have historically threatened to stall infrastructure and land use development. The MSHCP is a comprehensive, multi-jurisdictional Habitat Conservation Plan (HCP) focusing on Conservation of species and their associated habitats in Western Riverside County. The MSHCP is a multi-jurisdictional effort that includes the unincorporated area of western Riverside County and 14 cities. The MSHCP covers 146 species and addresses biological diversity within 1.26 million acres, from west of the San Jacinto Mountains to the Orange County border. While protecting high-profile species like the Stephen's kangaroo rat and the Quino checkerspot butterfly, the MSHCP is primarily designed to protect more than 30 federally threatened and endangered species and conserve 510,000 acres, of which 347,000 acres are already in public and quasi-public ownership. The underlying goal of the MSHCP is to protect multiple species by preserving a variety of habitat and providing linkages between different habitat areas.

The MSHCP serves as an HCP pursuant to Section 10(a)(1)(B) of the Federal Environmental Species Act, as well as a Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001. Though the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) have authority to regulate the take of threatened and endangered species, consistent with the terms and conditions of approval of the MSHCP, the USFWS and CDFG have granted "Take Authorization" to participating jurisdictions in exchange for the assembly and management of coordinated MSHCP Conservation Areas for 146 “covered species” (including 14 narrow endemic plant species). Of the 146 “covered species,” 118 species are considered “adequately conserved” within the MSHCP.

The Habitat Evaluation and Acquisition Negotiation Strategy (HANS) process is used by the County of Riverside to implement portions of the MSHCP by identifying and delineating conservation areas on specific properties. The HANS process applies to property that may be needed for inclusion in the MSHCP Conservation Area or subjected to other MSHCP Criteria and shall be implemented by the County and those Cities that have agreed to implement the HANS process. Under the incentive-based MSHCP program, the Western Riverside County Regional Conservation Authority (RCA), the County, Cities, or various State and Federal Agencies may obtain interests in property needed to implement the MSHCP over time (interest may be obtained in fee, conservation easement, deed restriction, land exchange, flood control easement or other type of interest acceptable to the RCA, the County, Cities, acquiring State and/or Federal Agency, and property owner). Fee ownership of property may not be required. If it is determined that all or a portion of property is needed for inclusion in the MSHCP Conservation Area, various incentives may be available to the property owner in lieu of or in addition to monetary compensation in exchange for the conveyance of a property interest.

A Criteria Cell is land (approximately 160 acres) that has been identified as an area where conservation potentially needs to occur.

The following Criteria Area/Criteria Cells were identified in the study area:

- Santa Ana River North
- Santa Ana River Central
- Santa Ana River South
- Delhi Sands Area
- Jurupa Mountains

Conserving lands within these areas would secure habitat for several sensitive species as well as maintain connections between key locations in the study area.

Riverside County Airport Land Use Compatibility Plan

Riverside County's Airport Land Use Commission (ALUC) periodically updates an Airport Comprehensive Land Use Plan, commonly known as an Airport Land Use Compatibility Plan. The Airport Land Use Compatibility Plan designates zones of airport-influenced areas for every airport in Riverside County and provides a series of policies and compatibility criteria to ensure that both aviation uses and surrounding uses may continue. The Airport Land Use Compatibility Plan includes provisions for two airports within or in the vicinity of the study area (Riverside Municipal Airport and Flabob Airport). The Comprehensive Land Use Plans for the airports are intended to protect and promote the safety and welfare of residents of the airport vicinity and users of the airport while ensuring the continued operation of the airports. Specifically, these plans seek to protect the public from the adverse effects of aircraft noise, to ensure that people and facilities are not concentrated in areas susceptible to aircraft accidents, and to ensure that no structures or activities encroach upon or adversely affect the use of navigable airspace.

Riverside Municipal Airport

RI.1 Compatibility Map Delineation

1.1 Airport Master Plan Status: The most recent airport master plan was adopted by the City of Riverside in November 1999. The airport layout plan drawing was subsequently updated in January 2001.

1.2 Airfield Configuration: The Airport Master Plan proposes an easterly 750-foot extension of Runway 9-27. Establishment of a straight-in non-precision instrument approach to Runway 27 also is contemplated. The compatibility map for Riverside Municipal Airport takes into account the traffic patterns associated with both the existing and future runway ends and approach types.

1.3 Airport Activity: For the purposes of the Compatibility Plan, the Master Plan forecasts have been extended to a level anticipated to have a time horizon of 20+ years. Specifically, a projection of 220,000 annual operations, almost double the current level, is assumed. Essentially all of this growth is expected to be in operations by turboprop aircraft, business jets, and helicopters; single-engine airplane activity is projected to remain roughly constant.

1.4 Airport Influence Area: The instrument approach route and typical extent of the airport traffic pattern define the of the airport influence area boundary for Riverside Municipal Airport. To the east and west, this boundary mostly coincides with the outer edge of the airport's FAR Part 77 conical surface. A westward extension encompasses locations where aircraft on a precision instrument approach are lower than 1,000 feet above the airport elevation.

RI.2 Additional Compatibility Policies

2.2 Zone B2 Building Height: Not withstanding the limitation of two aboveground habitable floors indicated in Table 2A of Chapter 2, any nonresidential building in Compatibility Zone B2 at Riverside Municipal Airport may have up to three aboveground habitable floors provided that no such building or attachments thereto shall penetrate the airspace protection surfaces defined for the airport in accordance with Federal Aviation Regulations Part 77.

According to City of Riverside Zoning Codes, airport zone (AIR) and airport industrial (AI) zone restrict types of uses and heights of structures on and near the airport.

Flabob Airport

FL.1 Compatibility Map Delineation

1.1 Airport Master Plan Status: No master plan has been prepared for this privately owned airport. The airport layout plan prepared by the airport proprietor in 2003 serves as the basis for the *Compatibility Plan*.

1.2 Airfield Configuration: No modifications to the runway length or approach types are anticipated for Flabob Airport.

1.3 Airport Activity: The basic character of the airport's usage and the small size of the facility will limit future activity levels. For compatibility planning purpose, aircraft operations are assumed to reach no more than 43,400 per year, a 60% increase from the estimated 27,000 annual operations at present.

1.4 Airport Influence Area: The outer edge of the FAR Part 77 conical surface defines the airport influence area boundaries on the west and northeast. To the north, south, and southeast, the airport's impacts are less extensive and roads are therefore used to delineate the limits of the airport influence area.

Other Proposed Land Uses

Proposed land uses consist of large residential development proposals, which have been recently approved or are currently under consideration for approval by governmental agencies. Information regarding proposed land use was obtained through personal communication with agency planning staff. The following proposed projects would be located within the study area:

- Tract No. 33253 (City of Riverside)
- Tract No. 31894 (Riverside County)
- The Resort (Riverside County)
- Stonehill Estates (Riverside County)

3.1.1.4 Parks, Recreation, and Preservation Areas

As shown in Map 2 there are 35 existing and 6 planned parks, recreation and preservation facilities/areas within the study area (see Table 3-3).

Table 3-3 Existing and Planned Parks, Recreation, and Preservation Facilities/Areas within the Study Area

Existing Facility/Area	Jurisdiction
Hidden Valley Wildlife Area*	Riverside County Regional Park & Open-Space District
Santa Ana River Regional Park*	Riverside County Regional Park & Open-Space District
Martha McLean-Anza Narrows Park	Riverside County Regional Park & Open-Space District
Louis Robidoux Nature Center	Riverside County Regional Park & Open-Space District
Jensen-Alvarado Historic Ranch and Museum*	Riverside County Regional Park & Open-Space District
Rancho Jurupa Park*	Riverside County Regional Park & Open-Space District
Trujillo Adobe Historic Area	Riverside County Regional Park & Open-Space District
Fairmont Park*	City of Riverside Park, Recreation & Community Services
Agricultural Park	City of Riverside Park, Recreation & Community Services
Mt. Rubidoux Park	City of Riverside Park, Recreation & Community Services
Reid Park*	City of Riverside Park, Recreation & Community Services
Tequesquite Park	City of Riverside Park, Recreation & Community Services
Nichols Park	City of Riverside Park, Recreation & Community Services
Rutland Park	City of Riverside Park, Recreation & Community Services
Carlson Park	City of Riverside Park, Recreation & Community Services
Loring Park	City of Riverside Park, Recreation & Community Services
Ab Brown Soccer Complex	City of Riverside Public Utilities
Oak Park	City of Fontana Community Services and Recreation
Southridge Park	City of Fontana Community Services and Recreation
Village Park	City of Fontana Community Services and Recreation
Catawba Park	City of Fontana Community Services and Recreation
Martin Tudor Jurupa Hills Park* Jurupa Swim Lagoon & Waterslide	City of Fontana Community Services and Recreation
River Trails Park	City of Norco Parks, Recreation & Community Services

Existing Facility/Area	Jurisdiction
Jurupa Community Center/Wedding Garden/Skate Park	Jurupa Area Recreation and Park District
Rick Thompson Arena/Agate Park/Harvey Ball Field	Jurupa Area Recreation and Park District
Avalon Park/Wanamaker Gymnasium	Jurupa Area Recreation and Park District
Clay Park	Jurupa Area Recreation and Park District
Knowles Athletic Park	Jurupa Area Recreation and Park District
Laramore Park/Arena	Jurupa Area Recreation and Park District
Veterans Memorial Park/Pool/Community Center/Picnic Area	Jurupa Area Recreation and Park District
Wineville Park	Jurupa Area Recreation and Park District
Limonite Meadows Park	Jurupa Area Recreation and Park District
Feldspar Arena	Jurupa Area Recreation and Park District
Jurupa Mountains Cultural Center	Private
Big League Dreams Sports Park	Private
Planned Facility/Area	**Jurisdiction**
Savi Ranch Park	City of Riverside Park, Recreation & Community Services
Centennial Park	Jurupa Area Recreation and Park District
Horseshoe Lake Park	Jurupa Area Recreation and Park District
Glen Avon Heritage Park	Jurupa Area Recreation and Park District
Rio Vista Park (Sunnyslope)	Jurupa Area Recreation and Park District
Emerald Meadows (Rubidoux/Belltown)	Jurupa Area Recreation and Park District

*Land & Water Conservation Fund Grant Site (as of 3/30/2006). Section 6(f) resources are those acquired through the use of Land and Water Conservation Funds (LWCF). The LWCF (Public Law 88-578) was enacted by Congress to provide money to federal, state, and local governments to purchase lands for maintaining or enhancing recreational opportunities, clean water, wildlife habitat, scenic resources, historic sites, and wilderness areas (Land and Water Conservation Fund, 2003; U.S. Forest Service, 2003). Resources that have been purchased using LWCF cannot be converted to other than public outdoor recreation uses without the approval of the Department of Interior's National Park Service (NPS). Section 6(f) directs the NPS to assure that replacement lands of equal value, location, and usefulness are provided to mitigate conversions of these lands for other than public outdoor recreation uses.

3.1.1.5 National Trail

The National Trails System is a network of scenic, historic, and recreation trails created by the National Trails System Act of 1968. These trails provide for outdoor recreation needs, promote the enjoyment, appreciation, and preservation of open-air, outdoor areas and historic resources, and encourage public access and citizen involvement.

Portions of two national trails (Juan Bautista de Anza National Historic Trail and Santa Ana River National Recreation Trail) are located within the study area. The Juan Bautista de Anza National Historic Trail, designated on August 15, 1990, commemorates the route followed by a Spanish commander, Juan Bautista de Anza, in 1775-76 when he led a contingent of 30 soldiers and their families to found a presidio and mission near the San Francisco Bay. This trail was also designated a National Millennium Trail on June 26, 1999. National historic trails commemorate historic (and prehistoric) routes of travel that are of significance to the entire Nation. They must meet all three criteria listed in Section 5(b)(11) of the National Trails System Act. Such trails are established by an Act of Congress.

The Santa Ana River Trail is a National Recreation Trail. The Santa Ana Watershed Project Authority (SAWPA) has been working with the Crest-To-Coast Partnership in assisting efforts to complete the entire Santa Ana River Crest-to-Coast Trail and add parkway elements to the river. The effort is funded by the counties and cities in the watershed and by environmental groups interested in facilitating the

completion of the 110 miles of trail system. Three county parks districts, Orange County, San Bernardino County, and Riverside County are involved with help from the Wildlands Conservancy in completing this process. When completed, the bicycling, riding and hiking trail will extend from the Pacific Ocean to the San Bernardino Mountains, providing recreational and commuting opportunities in three Counties. National recreation trails also authorized in the National Trails System Act, are existing regional and local trails recognized by either the Secretary of Agriculture or the Secretary of the Interior upon application.

3.1.1.6 Mitigation Bank

A mitigation area is an area with resource value, where the owner records a conservation easement on the property and sells mitigation credits prior to the execution of a mitigation banking agreement with the Wildlife Agencies. Mitigation areas are permanently conserved and managed for natural resource values. Mitigation areas are intended to protect resources in large, connected areas in advance of the need for mitigation and therefore are considered a valuable tool for assembling the MSHCP Conservation Area.

The Santa Ana River Wetlands Mitigation Bank is located in the study area.

3.1.1.7 Trails and Bikeway System

The study area contains bicycle, pedestrian, and multi-purpose trails that traverse urban, rural, and natural areas. These trails accommodate hikers, bicyclists, equestrian users, and others as an integral part of the circulation system. These multi-use trails serve both as a means of connecting communities and activity centers throughout the study area and as an alternate mode of transportation. In addition to transportation, the trail system also serves by providing recreation and leisure opportunities.

3.1.1.8 Golf Courses

The following ten golf courses were identified in the study area:

- El Rivino Country Club
- Riverside Golf Club
- Fairmount Municipal Golf Course
- Oak Quarry Golf Club
- Country Village Golf Course
- Goose Creek Golf Club
- Paradise Knolls Golf Course
- Indian Hills Country Club
- Jurupa Hills Country Club
- Skylinks Golf Course

3.1.2 Visual Resources

3.1.2.1 Residences

Existing and planned residential areas are located throughout the study area, but are less prevalent on the northeast side of the study area, where topography does not allow development, and along the Santa Ana River corridor. A lower concentration of residential development occurs north and northwest of Belltown in the study area.

3.1.2.2 Parks, Recreation, and Preservation Areas

See Chapter 3.1.1.5 for important regional trails, parks, recreation, and preservation areas identified in the study area.

3.1.2.3 Travel Corridors

The following existing designated scenic roadway was identified in the study area:

- Mission Boulevard - City of Riverside Gateway/Planned Parkway
- Van Buren Boulevard - City of Riverside Gateway
- Jurupa Avenue - Proposed City of Riverside Scenic Boulevard
- Arlington Avenue - Proposed City of Riverside Scenic Boulevard/Planned Parkway
- University Avenue - City of Riverside Planned Parkway
- Market Street - City of Riverside Planned Parkway
- Cedar Avenue - San Bernardino County Scenic Highway

3.1.2.4 Other Areas

The City of Riverside, as detailed in the General Plan, identified cemeteries as sensitive scenic areas. The following cemeteries were identified in the project area with the City of Riverside:

- Crestlawn Memorial Park east of the intersection of California Avenue and Arlington Avenue in the southwest corner of the study area; and
- Evergreen Cemetery is located approximately between Redwood Drive and Cedar Street on the northwest end of 14th Street.

3.1.2.5 Jurisdictional Plans

Federal

No federal Laws, Ordinances, Regulations, and Standards (LORS) apply to visual resources in the project area for the purposes of identifying corridor feasibility.

State

There are no State eligible or designated scenic highways in the study area.

Local

Riverside County

Riverside County Land Use Policy LU 13.1 seeks to "preserve and protect outstanding scenic vistas and visual features for the enjoyment of the traveling pubic", and has designated scenic highways. There are no county scenic highways in the study area.

A large portion of the study area is under the jurisdiction of Riverside County. "Area Plans" that focus on geographical units are identified in the General Plan. Area Plans applicable to the project area include the Eastvale Area Plan, Jurupa Area Plan, and the Highland Area Plan. There are specific "policy areas" identified in these plans that contain special or unique characteristics that merit focused policies. The Jurupa Area Plan has ten policy areas, the Eastvale Area Plan has two policy areas, and the Highgrove Area Plan has three policy areas.

Relevant Eastvale and Jurupa Area Plan visual resource policies are detailed in Table 3-4 below.

Table 3-4 Relevant Area Plan Policies-Eastvale and Jurupa Area Plans

Eastvale Area Plan Policy Number	Jurupa Plan Policy Number	Policy
EAP 1.2	JURAP 7.2	Require development, where allowable, to be set back an appropriate distance from the top of bluffs, in order to protect the natural and recreational values of the river and to avoid public responsibility for property damage that could result from soil erosion or future floods.
EAP 1.3	JURAP 7.3	Encourage future development that borders the Policy Area to design for common access and views to and from the Santa Ana River.
EAP 1.13	JURAP 7.13	Discourage utility lines within the river corridor. If approved, lines shall be placed underground where feasible and shall be located in a manner to harmonize with the natural environment and amenity of the river.

The Highgrove Land Use Plan identifies the Highgrove Community Policy Area, with the following relevant visual resource policies:

HAP 1.2.c. In order to implement scenic recreational and transportation corridors and any regional trails proposed to connect thereto, development applications shall provide easements for public access along a project's perimeter or within or along areas of the project otherwise traversed by the rights-of-way dedicated to the public use.

HAP 1.2.e. Development applications that incorporate designated scenic recreational and transportation corridors within their project boundaries shall construct or cause to be constructed the following recreational and transportation amenities for the use and enjoyment of the general public, according to current applicable Riverside County standards:

1) A combination Class I bikeway and jogging trail.

2) An equestrian path.

3) Adequate vegetative or other buffering features between the above facilities to increase their attractiveness, to promote privacy, and to reduce any potential conflicts between uses.

San Bernardino County

Chapter 5 (Open Space/Recreation/Scenic), Section 8 of the 1989 San Bernardino General Plan (San Bernardino 1989) describes the County's scenic resources, and provides policies and standards which apply to the need to preserve important scenic vistas as part of the open space system (Goals C-55 through C-57, Policies OR-50 through OR- 58). Applicable Scenic Resource Goals for the County are as follows:

- Preserve and protect the outstanding scenic resources of the county for their continued future enjoyment (Goal C-55),
- Restrict development along scenic corridors (Goal C-56), and
- Provide for visual enhancement of existing and new development through landscaping (Goal C-57).

Within the study area, the Santa Ana River Trail is considered part of the county's scenic resources. In addition, features that have the following characteristics are specifically defined as being scenic that are potentially within the study corridor (Policy OR-50.b):

- Views of major mountain ranges or portions thereof, especially from urban areas (i),
- Areas containing significant biological resources as identified by the Biotic Overlay map (ii),
- Any natural blue line stream (viii),
- Regional Parks and their local access routes (xii), and
- Any portion of the regional trail system (xiii).

In addition, Policy OR-51 states that the County shall require the following:

Review of proposed development along scenic highways and trails shown on the Resource Overlay Maps to ensure preservation of scenic values for the traveling public and those seeking a recreational driving experience (a),

Encourage undergrounding of all utility facilities for all projects requiring discretionary or ministerial action (h), and

Control development on prominent ridgelines (j),

Policy OR-53 states that because preservation of scenic qualities is important to the County, development which would alter the character of visually significant resources should be prevented.

Policy OR-58 designates scenic highways within the county, with all applicable policies to development within the Scenic Corridor. Within the study area, Cedar Avenue from Bloomington Avenue south to Riverside County line is designated as a San Bernardino County Scenic Highway (within the East Valley Regional Planning Area).

City of Fontana

The City of Fontana adopted General Plan (2003) has a number of goals, policies, and actions relative to visual resources that are applicable to transmission line siting.

Within the Land Use Element of the plan, Goal #2 (G2) states seeks to avoid development that has "negative impacts on residence and businesses" and should be "compatible with, and enhance(s)" the natural and built environment. To that end, Policy #2 (G2) requires that regionally beneficial land uses such as transportation corridors, flood control systems, utility corridors, and recreational corridors shall be sensitively integrated into the community.

City of Riverside

The City of Riverside is undergoing a plan revision, which is currently in draft form (Draft Riverside General Plan 2005). The existing General Plan, adopted in 1994, identifies specific Goals and Policies regarding the management of visual resources.

"Goal OS1" was established to "create a system of open space areas and linkages throughout the General Plan Area that protects the natural and visual character of the community and provide for appropriate active and passive recreational uses." Policies for the implementation of Goal OS 1 include:

- Identification and location of open space areas and "scenic roadways" for the city (OS 1.1);
- The provision that the City should recognize the value of major institutional passive open spaces, particularly cemeteries, as important components of the total open space system and protect their visual character.

The City of Riverside established 14 concepts as a means to implement the Vision Statement that describes Riverside as a city "that builds on its past and present character to create a diverse and distinctive community of quality for the future." One of these concepts states that "distinctive gateways should clearly identify entrances into this City and help define" the boundaries. The Gateway is defined as a point along a roadway entering a city or a county at which a motorist gains a sense of having entered the city or county.

Goal CC 1 OF Section IV (Community Enhancement) seeks to use urban design policies to maintain and strengthen the identity of the City of Riverside as a community of character, quality, and diversity. Policy CC 1.1 identifies a series of key gateways into the City. These gateways include entrances from the north at the northerly City limits/County line on North Main Street, west via Highway 60, northeast via Highway 215 and Van Buren Boulevard, east via Highway 60 and Alessandro Boulevard, southeast via Trautwein Road, south via Mockingbird Canyon Road and La Sierra Avenue, southwest via Highway 91, and west via Arlington Avenue. These entry points define the physical boundaries of the community and emphasize its distinctive character to residents and visitors alike. General Plan policies and implementation measures related to City gateways shall apply to the gateways defined in this policy.

3.1.3 Cultural Resources

The results of the review show that 146 archaeological and historical surveys have been conducted within the project area. These surveys were performed by many different professionals using various methods and probably vary in the intensity and quality of survey coverage. Further review of these studies will be necessary to evaluate which portions of the project area have been surveyed for cultural resources according to modern standards. Some previously surveyed locations may require additional survey to confirm the absence of cultural resources.

As a result of the technical studies, 118 cultural resources are recorded with the California Historical Resources Information System (CHRIS). Of these, 28 are historic (usually Euro-American) and the remaining 90 are prehistoric (Native American). The historic sites include remnants of historic buildings (i.e., residences, a chapel, and a winery), irrigation facilities (i.e., canals and ditches), a quarry, roadways, historic town sites, and at least 11 historic refuse deposits or surface scatters. The 90 prehistoric sites include 61 bedrock milling stations and 20 lithic scatters containing stone flakes and tools (10 of the sites are both milling stations and lithic scatters). There are also four locations containing pictographs or petroglyphs. The majority of the prehistoric sites are located along the Santa Ana river drainage and in the Jurupa Mountains in the northern part of the project area.

Various historic structures within the project area have been determined eligible for listing in the National Register of Historic Places. Most of these structures occur in the older portions of downtown Riverside; many are within the City of Riverside's Historic Preservation Districts. Others consist of linear features, primarily

irrigation canals or roads. One property -- a "Chinatown" neighborhood in Riverside -- is listed in the National Register. Records also show that one California Historical Landmark, a historic period cemetery, is located within the project boundaries.

Of the 119 resources identified, 72 have not been evaluated for National Register eligibility. Of the remainder, 39 were recommended as ineligible for inclusion in the National Register, three (a pictograph site and two canals) were recommended as eligible, three are listed on the National Register of Historic Places, one is a California Historic Landmark, and two have indeterminate eligibility. Eligibility recommendations were made by the cultural resource professionals preparing the inventory form and have not been reviewed by the TRC, POWER Engineers, or OHP.

NAHC staff are currently reviewing a request to the NAHC for information on Native American sacred lands or TCPs within the project boundary. At this time, there is no information available this class of cultural resource is located in the project area.

3.1.4 Biological Resources

3.1.4.1 Vegetation

Reconnaissance-level surveys were conducted within the study area to delineate vegetative communities and identify sensitive habitats. This information was subsequently used to help determine the potential occurrence of special status plant and animal species. The study area is located within the Riverside Lowlands Bioregion, which is characterized by a relatively arid climate and a high level of urbanization. Primary vegetation communities in the bioregion include Riversidean sage scrub and annual grasslands. Elevations in the study area range from 680 to 1,900 feet MSL. Most of the study area has been developed, and the only remaining large areas of native habitats occur along the Santa Ana River and in the Jurupa Mountains. There are also several smaller undeveloped areas (i.e., Pedley Hills and Mt. Rubidoux) that continue to support native vegetation.

Native vegetative communities in the study area include chaparral, Riversidian sage scrub, coastal and freshwater marsh, disturbed alluvial, riparian scrub, Riversidian alluvial fan sage scrub, southern cottonwood/willow riparian, and southern willow scrub. Non-native vegetative communities that occur in the area include disturbed, non-native grassland, and field croplands. A map of vegetative communities in the study area is presented in Map 5. The following presents brief summaries of each of these communities based upon descriptions presented in the MSHCP:

Chaparral – Chaparral occurs on the arid, upper slopes in the Jurupa Mountains. Chaparral is a shrub-dominated community that is composed largely of evergreen species that range from 3 to 12 feet in height. The primary species in this community is chamise (*Adenostoma fasciculatum*), with other common shrub species including manzanita (*Arctostaphylos* spp.), oak (*Quercus* spp.), laurel sumac (*Malosma laurina*), and mountain-mahogany (*Cercocarpus betuloides*). Less common species include sages (*Salvia* spp.), bush penstemon (*Keckiella* sp.), monkeyflower (*Mimulus aurantiacus*), nightshade (*Solanum* sp.), California buckwheat (*Eriogonum fasciculatum*), and a variety of herbaceous species. In the study area, chaparral is intergrades with Riversidian sage scrub and non-native grassland.

Riversidian Sage Scrub - Riversidian sage scrub is the primary native community within the study area. This community occurs on lower, undeveloped slopes throughout the area, including the Jurupa Mountains, Pedley Hills, Mount Rubidoux, and the extreme northeast corner of the study area. Riversidian sage scrub is dominated by a suite of short, aromatic, deciduous shrub species, including such as California sagebrush (*Artemisia californica*), California buckwheat, brittlebush (*Encelia farinosa*), California encelia (*Encelia californica*), black sage, white sage, blue elderberry (*Sambucus*

Mexicana), boxthorn (*Lycium* sp.), cholla (*Opuntia* sp.), and prickly-pear (*Opuntia* spp.). In the study area, Riversidian sage scrub intergrades with chaparral and non-native grassland.

Coastal and Freshwater Marsh – Several small patches of coastal and freshwater marsh occur along the Santa Ana River in the southwestern portion of the survey area. These areas are seasonally inundated and have standing water for part of the year. The coastal and freshwater marsh community supports native species including cattail (*Typha latifolia*), mulefat (*Baccharis salicifolia*), smartweed (*Polygonum* spp), stinging nettle (*Urtica dioica*), and willow (*Salix* spp.), as well as non-native species such as arundo (*Arundo donax*), poison hemlock (*Conium maculatum*), and tree tobacco (*Nicotiana glauca*).

Disturbed Alluvial - Disturbed alluvial habitats occur along the entire length of the Santa Ana River within the study area, and represent areas that have been disturbed by flooding events and changes in the river channel. These habitats are currently dominated by weedy species such as arundo, horehound (*Marrubium vulgare*), mustard, poison hemlock, tree tobacco, and wild radish. Disturbed alluvial communities intergrade with riparian scrub and southern cottonwood/willow riparian forest.

Riparian Scrub – A few small patches of riparian scrub are located along the central portion of the Santa Ana River. This community is dominated by shrubs, including arrow weed (*Pluchea sericea*), castor bean, mulefat, nightshade, with a few trees including southern California black walnut, (*Juglans californica*), tree tobacco, and willows.

Riversidian Alluvial Fan Sage Scrub - Riversidean alluvial fan sage scrub occurs on alluvial deposits along the Santa Ana River in the eastern portion of the study area. This community is dominated by scalebroom (*Lepidospartum squamatum*), white sage, California buckwheat (*Eriogonum fasciculatum*), California croton (*Croton californicus*), tarragon (*Artemisia dracunculus*), yerba santa (*Eriodictyon* spp.), and mule fat.

Southern Cottonwood/Willow Riparian - Southern Cottonwood/Willow Riparian habitats occur along the entire length of the Santa Ana River riparian corridor within the study area. This community is dominated by cottonwood (*Populus* spp.) and willow trees with occasional western sycamore (*Platanus racemosa*). Understory vegetation includes shrubs and herbaceous plants such as arundo, fiddleneck, mulefat, nettle, sowthistle, and wild radish. Southern Cottonwood/Willow Riparian habitats intergrade with riparian scrub and disturbed alluvial vegetation.

Southern Willow Scrub – A few small patches of southern willow scrub are located along tributaries of the Santa Ana River in the southwestern portion of the study area. This community is dominated by willows, particularly arroyo willow (*Salix lasiolepis*).

Disturbed - Disturbed areas occur throughout the study area, and generally occur on vacant lots and near roads and developed areas. These areas have been subjected to disturbance and are dominated by weedy species such as castor bean (*Ricinus communis*), cheeseweed (*Malva parvifolia*), fiddleneck (*Amsinkia menziesii*), filaree (*Erodium* sp.), mustard (*Brassica* spp.), sowthistle (*Sonchus oleraceus*), tree tobacco, wild radish (*Raphanus raphanistrum*), and non-native, annual grasses, including foxtail barley (*Hordeum murinum*), ripgut grass (*Bromus diandrus*), and wild oats (*Avena* spp). Scattered native species may be found within disturbed.

Non-native Grasslands - Non-native grasslands occur throughout the study area and are most widespread on level terrain and extending up slopes into Riversidian sage scrub or riparian

habitats. These areas dominated by non-native, annual grasses, including foxtail barley, ripgut grass, and wild oats. Herbaceous, weedy species, including filaree, mustard, sowthistle, and wild radish, are also present to a lesser extent. Scattered native species may be found within areas of non-native grassland.

Field Croplands – Field croplands occur in the western portion of the study area along the I-15 corridor. Croplands either support various types of row crops or are fallow.

3.1.4.2 Wildlife

Habitats within the study area support a large number of amphibian, reptile, bird, and mammal species. Table 3-5 presents a list of species that were observed during field investigations. While this is not a comprehensive list of all species that occur in the area, it provides an indication of the general types of species and habitats that are present in the area.

Table 3-5 Wildlife Species Observed in the Study Area

Common Name	Scientific Name
gopher snake	*Pituophis melanoleucus*
side-blotched lizard	*Uta stansburiana*
western fence lizard	*Sceloporus occidentalis*
American crow	*Corvus brachyrhynchos*
American goldfinch	*Carduelis tristis*
American kestrel	*Falco sparverius*
Anna's hummingbird	*Calypte anna*
ash-throated flycatcher	*Myiarchus cinerascens*
barn swallow	*Hirundo rustica*
Bewick's wren	*Thryomanes bewickii*
black-headed grosbeak	*Pheucticus melanocephalus*
black phoebe	*Sayornis nigricans*
blue grosbeak	*Guiraca caerulia*
California towhee	*Pipilo crissalis*
Cassin's Kingbird	*Tyrannus vociferans*
cliff swallow	*Petrochelidon pyrrhonata*
common raven	*Corvus corax*
common yellowthroat	*Geothlypis trichas*
Cooper's hawk	*Accipiter cooperii*
European starling	*Sturnus vulgaris*
golden eagle	*Aquila chrysaetos*
great egret	*Ardea alba*
Hammond's flycatcher	*Empidonax hammondii*
hooded oriole	*Icterus cucullatus*
house finch	*Carpodacus mexicanus*
house sparrow	*Passer domesticus*
killdeer	*Charadrius vociferus*
Lark Sparrow	*Pooecetes gramineus*
lesser goldfinch	*Carduelis psaltria*
mallard	*Anas platyrhynchos*
mourning dove	*Zenaida macroura*
Nashville warbler	*Vermivora ruficapilla*

Common Name	Scientific Name
northern mockingbird	*Mimus polyglottos*
Nuttall's woodpecker	*Picoides nuttallii*
red-shouldered hawk	*Buteo lineatus*
red-tailed hawk	*Buteo jamaicensis*
roadrunner	*Geococcyx californianus*
rock dove	*Columba livia*
rock wren	*Salpinctes obsoletus*
Say's phoebe	*Sayornis saya*
song sparrow	*Melospiza melodia*
turkey vulture	*Cathartes aura*
western kingbird	*Tyrannus verticalis*
western meadowlark	*Sturnella neglecta*
western scrub-jay	*Aphelocoma californica*
white-crowned sparrow	*Zonotrichia leucophrys*
white-throated swift	*Aeronautes saxatalis*
Wilson's warbler	*Wilsonia pusilla*
yellow-rumped warbler	*Dendroica cornata*
Botta's pocket gopher	*Thomomys bottae*
California ground squirrel	*Spermophilus beecheyi*
coyote	*Canis latrans*
desert cottontail	*Sylvilagus audubonii*
long-tailed weasel	*Musetla frenata*

3.1.4.3 Special Status Species

Special status species include those listed as threatened, endangered, candidate, or proposed under the Federal Endangered Species Act (ESA) and those listed as threatened, endangered, or special concern under the California Endangered Species Act (CESA), and those included in the MSHCP. The native vegetative communities that occur within the study area provide suitable habitat for a number of special status plant and wildlife species. Based upon an evaluation of species habitat requirements and known distributions, a total of 91 of the 146 MSHCP species are likely to occur in the study area. The MSHCP includes species listed under the Federal and State ESAs. Table 3-6 presents a list of special status species that are known or likely to occur in appropriate habitats within the study area based upon information presented in the MSHCP, species accounts, and the CNDDB. This table also identifies the species' Federal and State status and the general habitat types in which they occur.

The Delhi sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) is a federally endangered species that is known to occur in the study area. This species is endemic to fine, sandy soils in the Delhi soil series. The Delhi sands flower-loving fly is typically found in relatively intact native habitats with less than 50% vegetative cover. All known extant populations of the Delhi Sands flower-loving fly occur within an 8 to 11-mile radius of each other within Riverside and San Bernardino counties. The distribution of the Delhi Sands flower-loving fly within Riverside is limited to the northern portion of the County in the vicinity of Mira Loma, Jurupa, and the Agua Mansa area.

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Table 3-6 Special Status Species Likely to Occur in the Study Area

Common Name	Scientific Name	Status[1]	Habitat	Observed during survey
American bittern	*Botaurus lentiginosus*	--	Marshes, Riparian	-
Arroyo chub	*Gila orcutti*	SSC	Santa Ana River	-
Bald eagle	*Haliaeetus leucocephalus*	FT, ST	Riparian	-
Bell's sage sparrow	*Amphispiza belli belli*	SSC	Sage Scrub, Chaparral	-
Black-crowned night heron	*Nycticorax nycticorax nycticorax*	--	Marshes, Riparian	-
Black-tailed jackrabbit	*Lepus californicus bennettii*	SSC	Sage Scrub, Chaparral, NNG	-
Bobcat	*Lynx rufus californicus*	--	Sage Scrub, Chaparral, Santa Ana River	-
Brand's phacelia	*Phacelia stellaris*	--	Santa Ana River, sandy benches	-
Brush rabbit	*Sylvilagus backmanii cinerascens*	--	Sage Scrub, Chaparral	-
burrowing owl	*Athene cunicularia hypugaea*	SSC	Sage Scrub, Chaparral, NNG, Cropland	-
Cactus wren	*Campylorhynchus brunneicapillus cousei*	SSC	Sage Scrub	-
California gnatcatcher	*Polioptila californica californica*	FT, SSC	Sage Scrub, Chaparral	-
California muhly	*Muhlenbergia californica*	--	All habitats, moist areas	-
California newt	*Taricha torosa torosa*	SSC	Riparian	-
California Orcutt grass	*Orcuttia californica*	FE, SE	Vernal pools	-
Coast horned lizard	*Phrynosoma coronatum blainvilli*	SSC	All habitats	-
Coastal western whiptail	*Cnemidophorus tigris multiscutatus*	--	Sage Scrub, Chaparral, NNG	-
Cooper's hawk	*Accipiter cooperii*	SSC	Riparian, Santa Ana River	yes
Coyote	*Canis latrans clepticus*	--	All habitats	yes
Delhi sands flower-loving fly	*Rhaphiomidas terminatus abdominalis*	FE	Delhi Sands	-
Desert woodrat	*Neotoma lepida intermedia*	SSC	Sage Scrub, Chaparral, NNG	-
double-crested cormorant	*Phalacrocorax auritus*	SSC	Open water	-
Downy woodpecker	*Picoides pubescens turatie*	--	Riparian, Santa Ana River	-
Dulzura kangaroo rat	*Dipodomys simulans*	--	Sage Scrub, Chaparral	-
ferruginous hawk	*Buteo regalis*	SSC	All habitats	-
Golden eagle	*Aquila chrysaetos canadensis*	SSC	Sage Scrub, Chaparral	yes

Common Name	Scientific Name	Status[1]	Habitat	Observed during survey
Graceful tarplant	*Holocarpha virgata elongata*	--	Sage Scrub, Chaparral	-
Granite night lizard	*Xantusia henshawi*	--	Sage Scrub, Chaparral with rock outcrop	-
Granite spiny lizard	*Sceloporus orcutti orcutii*	--	Sage Scrub, Chaparral with rock outcrop	-
Grasshopper sparrow	*Ammodramus savannarum*	--	Grasslands	-
Great blue heron	*Ardea herodias*	--	Riparian, Open water, Santa Ana River	-
Hammitt's clay-cress	*Sibaropsis hammittii*	--	Sage Scrub, Chaparral	-
Horned lark	*Eremophila alpestris actia*	SSC	Grasslands	-
Intermediate mariposa	*Calochortus weedii intermedius*	--	Sage Scrub, Chaparral	-
Large-leaf filaree	*Erodium macrophyllum*	--	Sage Scrub, NNG	-
Least Bell's vireo	*Vireo bellii pusillus*	FE, SE	Riparian, Santa Ana River	-
Lincoln's sparrow	*Melospiza lincolnii- breeding*	--	All habitats	-
Little mousetail	*Myosurus minimus apus*	--	Vernal pools	-
Loggerhead shrike	*Lanius ludovicianus gambeli*	SSC	All habitats	-
long-spined spine flower	*Chorizanthe polygonoides var. longispina*	--	Sage Scrub, Chaparral, Grassland, Clay soil	-
Long-tailed weasel	*Mustela frenata latriostra*	--	Riparian, Santa Ana River	yes
Los Angeles pocket mouse	*Perognathus longimembris brevinasus*	SSC	Sage Scrub, NNG	-
Many-stemmed dudleya	*Dudleya multicaulis*	--	Sage Scrub, Chaparral	-
Merlin	*Falco columbarius*	SSC	All habitats	-
Mountain plover	*Charadrius montanus*	SSC	NNG, cropland	-
Munz's onion	*Allium munzii*	FE, ST	Sage Scrub, Chaparral	-
Nashville warbler	*Vermivora ruficapilla ridgwayi*	--	Riparian, Santa Ana River	yes
Nevin's barberry	*Berberis nevinii*	FE, SE	Sage Scrub, Chaparral	-
Northern harrier	*Circus cyaneus hudsonius*	SSC	NNG, cropland	-
Orange-throated whiptail	*Cnemidophorus hyperythrus beldingi*	SSC	Sage Scrub, Chaparral, Riparian	-
Osprey	*Pandion haliaetus carolinensis*	SSC	Riparian, Santa Ana River	-
Palmer's grapplinghook	*Harpagonella palmeri palmeri*	--	Sage Scrub, Chaparral, NNG	-
Parry's spineflower	*Chorizanthe parryi parryi*	--	Sage Scrub, Chaparral	-

Common Name	Scientific Name	Status[1]	Habitat	Observed during survey
Peninsular spineflower	*Chorizanthe leptotheca*	--	Sage Scrub, Chaparral	-
Peregrine falcon	*Falco pereginus*	SE	Santa Ana River	-
Plummer's mariposa lily	*Calochortus plummerae*	--	Sage Scrub, Chaparral	-
Prairie falcon	*Falco mexicanus*	SSC	Rocky outcrops and cliffs, grasslands	-
Prostrate spineflower	*Chorizanthe procumbens*	--	Sage Scrub, Chaparral, NNG	-
Purple martin	*Progne subis subis*	SSC	Riparian, NNG	-
Red diamond rattlesnake	*Crotalus ruber ruber*	SSC	Sage Scrub, Chaparral, NNG, Riparian	-
Rufous-crowned sparrow	*Aimophila ruficeps canescens*	SSC	Sage Scrub, Chaparral	-
San Bernardino kangaroo rat	*Dipodomys merriami parvus*	FE, SSC	Sage Scrub, Disturbed Alluvial, Riparian	-
San Diego ambrosia	*Ambrosia pumila*	--	NNG, Vernal pools	-
San Diego banded gecko	*Coleonyx variegatus abbotti*	SSC	Sage Scrub, Chaparral	-
San Diego pocket mouse	*Chaetodipus fallax fallax*	SSC	Sage Scrub, Chaparral, NNG, cropland	-
San Miguel savory	*Satureja chandleri*	--	Sage Scrub, Chaparral, NNG, Riparian	-
Santa Ana River woollystar	*Eriastrum densifolium sanctorum*	FE, SE	Santa Ana River	-
Santa Ana sucker	*Catastomus santaanae*	FT, SSC	Santa Ana River	-
Sharp-shinned hawk	*Accipiter striatus velox*	SSC	Riparian	-
Small-flowered microseris	*Microseris douglasii var. platycarpha*	--	Grasslands, Vernal pools	-
Small-flowered morning-glory	*Convolvulus simulans*	--	Sage Scrub, NNG	-
Southern California black walnut	*Juglans californica californica*	--	Sage Scrub, Riparian	yes
Southwestern pond turtle	*Clemmys marmorata pallida*	SSC	Riparian	-
Southwestern willow flycatcher	*Empidonax traillii extimus*	FE, SE	Riparian	-
Spreading (=Ditch) navarretia	*Navarretia fossalis*	FT	Vernal pools	-
Stephens' kangaroo rat	*Dipodomys stephensi*	FE, ST	Sage Scrub	-
Swainson's hawk	*Buteo swainsoni*	ST	NNG, Riparian, cropland	-
Thread-leaved brodiaea	*Brodiaea filifolia*	FT, SE	NNG, Vernal pools	-
Tree swallow	*Tachycineta bicolor*	--	NNG, Riparian, Freshwater Marsh	-

Common Name	Scientific Name	Status[1]	Habitat	Observed during survey
Tricolored blackbird	*Agelaius tricolor*	SSC	Riparian, NNG, Marshes, Croplands	-
Turkey vulture	*Cathartes aura meridionalis*	--	NNG, Chaparral, Sage Scrub, Riparian	yes
Vernal barley	*Hordeum intercedens*	--	Vernal pools	-
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	Vernal pools	-
Western spadefoot	*Scaphiopus hammondii*	SSC	Vernal pools	-
Western yellow-billed cuckoo	*Coccyzus americanus occidental*	FC, SE	Riparian, Santa Ana River	-
White-faced ibis	*Plegadis chihi*	SSC	Freshwater Marshes, NNG, cropland	-
White-tailed kite	*Elanus leucurus majusculus*	--	NNG, Riparian, cropland	-
Wilson's warbler	*Wilsonia pusilla pileolata*	--	Riparian, Chaparral, croplands	yes
Wright's trichocoronis	*Trichocoronis wrightii wrightii*	--	Vernal pools	-
Yellow warbler	*Dendroica petechia brewsteri*	SSC	Riparian	-
Yellow-breasted chat	*Icteria virens longicauda*	SSC	Riparian	-

[1]Status designations:
FE= Federal Endangered
FT= Federal Threatened
FC= Federal Candidate
SE= State Endangered
ST= State Threatened
SSC=State Species of Special Concern

3.1.5 Water Resources and Wetlands

The study area lies within the Santa Ana River watershed. This watershed is located within one of the fastest growing areas in California. As this watershed is located in an arid region, little natural perennial surface water is present.

The Santa Ana River is located along the southern and eastern border of the study area and is the most prominent water resource. The Santa Ana River flow is primarily perennial and includes treated wastewater discharges, urban runoff, irrigation runoff, and groundwater forced to the surface by shallow/rising bedrock.

Within the study area, 100-year floodplains present are primarily associated with the Santa Ana River. Narrower 100-year floodplains are present along several man-made channels and ditches in the study area (Map 5).

Wetlands in the study area are also associated with the Santa Ana River. Riparian communities occur along the entire length of the Santa Ana River and several small patches of coastal and freshwater marsh communities occur along the Santa Ana River in the southwestern portion of the study area (Map 5). See Section 3.1.4.1 Biological Resources for a description of these plant communities.

Several small lakes/reservoirs are present in the study area, including Lake Evans, Hole Lake, and Horseshoe Lake.

3.1.6 Geohazards

The study area lies within the boundary between the Transverse Mountain Ranges to the north and the Peninsular Mountain Ranges to the south. Although no active or potentially active faults are known to exist within the study area, the study area does lie within a region with several active fault lines: the San Andreas, the San Jacinto, the Elsinore and the Cucamonga faults. The San Andreas fault is located along the south side of the San Bernardino Mountains, approximately 10 miles north of the study area. The San Jacinto fault lies approximately 2 miles northeast of the study area, the Elsinore fault lies approximately 8 miles west to southwest of the study area and the Cucamonga is approximately 9 miles north.

Liquefaction susceptibility is strongest in sands and recently-deposited alluvial soils where the ground water depth is less than fifty feet below the surface. Within the study area, the alluvial plain south of the Jurupa Mountains and the Santa Ana River flood plain both posses soil types and groundwater characteristics that render them susceptible to liquefaction (Map 9).

Although the study area contains many hills and several small mountains, the natural slope in the majority of the area is less than 15%. Only on the hills and Jurupa Mountains do slopes become steeper, ranging from 15 – 45%.

CHAPTER 4: SENSITIVITY ANALYSIS RESULTS

4.1 INTRODUCTION

The sensitivity analysis process involves evaluating the data collected for each component and assigning appropriate sensitivity levels to that inventory. Methods used for this evaluation are outlined in Chapter 2. The specific sensitivities identified for each resource are listed below. This chapter also presents the results of the composite sensitivity analysis. Based upon the sensitivity analyses, a set of alternatives for the RTRP project components were developed. These alternatives are described in the last section of this chapter.

4.2 RESOURCE AREAS

4.2.1 Land Use

Land use sensitivity mapping was developed (Map 3) to reflect the sensitivity of land use resources relative to the development of alternative routes. Table 4-1 identifies specific land use components that were mapped within the study area and the corresponding sensitivity levels.

Table 4-1 Land Use Sensitivity

Land Use Component	Exclusion	High Avoidance	Moderate Avoidance	Low Avoidance or Opportunities
Airport	•			
Residential (existing) – Assumes non-removal of residences. Actual distances to residences would be dictated by Public Utility Commission's General Order (GO) 95 "Rules for Overhead Electric Line Construction".	•			
School (School Site and Facilities)	•			
Residential (planned)		•		
School Buffer Zones – California Department of Education guideline is 150 feet from the edge of an easement for a 220-230 kV line. This guide has been designed to help school districts select and gain state approval for school sites.		•		
National Trail		•		
County/City/Private Park, Recreation, and Preservation Area		•		
Mitigation Bank		•		
Multiple – Species Habitat Conservation Plan Criteria Area/Criteria Cell		•		
County Scenic Highway		•		
Active Landfill		•		
Commercial			•	
Golf Course			•	

Agriculture			•	
Industrial				•
Vacant/Undeveloped				•
Roads (Interstate, State Highway, County Road)				•
Railroads*				•
Transmission Lines				•

* Although considered an opportunity, construction, operation, maintenance, repair or removal of a transmission line, in close proximity to a railroad, could create interference issues. Interference includes, but is not limited to, physical interference from electromagnetic induction, electrostatic induction, or from stray or other currents, with the operation, maintenance or use of right-of-way, tracks, structures, pole lines, signal or communication lines, radio or other equipment, devices or other property appurtenances. As a result, appropriate mitigation/protection may be necessary.

4.2.2 Visual Resources

Potential visual impacts to recreational viewers and along officially designated corridors will potentially be high for all significant resources identified. High sensitivity is typically expected for residential areas and residences regardless of the setting. For users of parks, recreation and special trails in an urban environment such as one that occurs in the project area, high sensitivity is also expected for these areas due to the high use coupled with high user expectation (user attitudes). For designated scenic roadways, gateways and City of Riverside cemeteries, official designation and specific references in LORS specifically identify that scenic beauty and visual quality are an important, if not primary, considerations during the planning process. Therefore, all of these areas inventoried may potentially cause high impacts on visual resources within the project area, and therefore have High Avoidance Level.

Because of the dominance of residential areas and abundant parks and recreation sites in the study area coupled with ½ mile buffering, most of the study area is located in a High Avoidance Level designation. Visual resources do not significantly contribute to the identification of routing options at this level of detail, and therefore the visual resource sensitivity map was not used in producing the Composite Sensitivity Map.

4.2.3 Cultural Resources

A general sensitivity rating was determined for specific portions of the project area to distinguish areas of high and low sensitivity based upon the areas potential for cultural resources. High sensitivity was based on: 1) the presence of known archaeological or historical site distributions; 2) geographical features that are known to contain numerous cultural resources; and 3) large parcels of unsurveyed and undeveloped land for which there is no information available on cultural resources and which appear to be undisturbed. Areas low in cultural resource sensitivity are: 1) previously surveyed parcels that do not contain cultural resources; and 2) recently developed areas that area unlikely to contain intact or undisturbed cultural resources. High and low sensitivity areas for cultural resources are illustrated in Map 4.

These broadly categorized areas were mapped as a GIS cultural resources sensitivity layer for future planning considerations. High sensitivity areas for cultural resources are located along the Santa Ana River drainage and in the Jurupa Mountains in the northern part of the project area. The remainder of the project area is classified as low sensitivity.

The sensitivity assessment was based on existing records only and has not been confirmed in the field. Overall, less than 50 percent of the project area has been surveyed for archaeological and historical resources. It is likely that future surveys of the currently unsurveyed portions of the project area will result in the identification of additional sensitive cultural resources and of locations that definitely do not contain cultural

resources. Until a response is received from the California NAHC, it is not possible to state whether sacred sites or TCPs exist within the project boundaries.

4.2.4 Biological Resources

Sensitivity ratings were developed to reflect the sensitivity of biological resources relative to the development of alternative corridors (Table 4-2). Since all of the native vegetative communities in the study area support special status plant and wildlife species, the sensitivity classifications for biological resources are based upon habitat types. The specific biological resource components and the corresponding sensitivity levels were mapped and included in the composite sensitivity analysis (Map 6).

Table 4-2 Biological Sensitivity

Biological Component	Exclusion	High	Moderate	Low
Chaparral		•		
Riversidian Sage Scrub		•		
Coastal and Freshwater Marsh		•		
Disturbed Alluvial		•		
Riparian Scrub		•		
Riversidian Alluvial Fan Sage Scrub		•		
Southern Cottonwood/Willow Riparian		•		
Southern Willow Scrub		•		
Undeveloped Delhi Soils (potential habitat for the Delhi Sands flower-loving fly)		•		
Disturbed				•
Non-native Grassland				•
Field Croplands				•
Developed portions of the Study Area				•

4.2.5 Water Resources and Wetlands

Sensitivity ratings were developed to reflect the sensitivity of water resources and wetlands relative to the identification of transmission line corridors (Table 4-3). Sensitivity levels for water resources were largely based upon their hydrological capacity, potential to affect engineering and design, and accessory benefits (e.g., plant and wildlife habitat). Where practical, the number of stream, river, and lake crossings will be minimized; additionally, due to engineering constraints, portions of lakes or river channels that exceed allowable span widths will be excluded. The specific water resource components and the corresponding sensitivity levels were mapped and included in the composite sensitivity analysis (Map 8).

Table 4-3 Sensitivity Ratings for Water Resources and Wetlands

Resource Component	Sensitivity Level			
	Exclusion	High	Moderate	Low
100-Year Floodplains			•	
Wetlands			•	
Lakes/Reservoirs/River Channel		•		
Ditches/Channels/Canals				•

4.2.6 Geohazards

Although no active or potentially active faults are known to exist in the study area, the study area does lie within a region that is seismically active. Four major active faults considered to have the greatest impact on the study area are the San Andreas, San Jacinto, Elsinore and Cucamonga Faults. The San Andreas fault is estimated to have the capability of producing a magnitude (M) 8.3 earthquake. The San Jacinto fault is estimated to be capable of a 7.0M earthquake, while the Elsinore fault is estimated to be capable of producing a 6.0M earthquake. The Cucamonga fault is estimated to be capable of a 7.0M event. Given the proximity of four active faults capable of producing moderate to strong earthquakes, it is reasonable to assume that seismic shaking poses a potential hazard to transmission lines within the study area.

Liquefaction is a phenomenon in which saturated, cohesionless soils lose their strength due to the build-up of excess pore water pressure during cyclic loading such as that induced by earthquakes. The primary factors affecting the liquefaction potential of a soil deposit are: 1) intensity and duration of earthquake shaking, 2) soil type and relative density, 3) overburden pressures, and 4) depth to groundwater. Soils most susceptible to liquefaction are clean, loose, uniformly graded, fine-grained sands, and not-plasticed silts that are saturated. Silty sands have also been proven susceptible to liquefaction. Liquefaction susceptibility is strongest in sands and geologically-recent alluvial soils where the ground water depth is less than fifty feet below the surface. The plain south of the Jurupa Mountains is composed of alluvial deposits which are highly susceptible to liquefaction during an earthquake, and have been mapped as having a high potential for liquefaction. Areas containing soil deposits of late Holocene age, such as current river channels and their historic floodplains and marshes, and where the ground water level is less than fifty feet below the surface, are very highly susceptible to liquefaction. The Santa Ana River and much of its flood plain posses these characteristics, and has been mapped as having a very high potential for liquefaction (Map 9).

Given the relative lack of slopes greater than 45% within the study area, it is unlikely that steep slopes will prevent the routing of transmission lines; however, the gentle natural slope of the greater portion of the study area combined with soils highly or very highly susceptible to liquefaction present an additional liquefaction hazard. Lateral spread is a type ground surface deformation in which surface sediments displace laterally above a zone of liquefaction in a subsurface layer, and typically occurs on gentle slopes (less than 15%). Lateral spreads may displace surface sediments up to tens of meters. Such movement typically damages structures that have shallow foundations, such as utility structures. See Map 10 for overall Geohazards Sensitivity within the study area.

4.3 COMPOSITE SENSITIVITY ANALYSIS

A composite sensitivity map was developed by overlaying the individual resource sensitivity maps. The map indicates the highest sensitivity for a particular area. For example, if a particular site was identified

as high sensitivity on biological resources and low sensitivity for all other resources, then it is identified as high on the composite map. This map provides an overview of resource sensitivities for the project area (Map 11).

CHAPTER 5: CORRIDOR AND ROUTE SELECTION RESULTS

5.1 INTRODUCTION

Following the mapping of resource sensitivity constraints, GIS layers were overlaid to create a composite sensitivity map (Appendix A, Map 11). Utilizing this map to avoid highly sensitive resources, corridors were identified in which transmission lines could be routed (see Appendix A, Map 12).

Corridors are described below:

5.2 230 KV TRANSMISSION LINE CORRIDORS

Santa Ana River West Corridor

The Santa Ana River West Corridor generally follows the Santa Ana River from the proposed Jurupa substation west to I-15, covering the entire width of the river channel from between 1/3 of a mile to 1 ½ miles at the widest section. South of 68th Street the Corridor turns north, paralleling the eastern side of I-15 to Mira Loma-Vista #1 transmission line. The Corridor widens near Limonite Avenue to encompass existing commercial and agricultural areas.

Central Corridors

Two alternative corridors have been determined in the central-western portion of the Study area. The first follows the Santa Ana River West Corridor from the proposed Jurupa Substation to Bain Street. The Bain Street corridor is located between residential on both the west and east sides of the street. This corridor follows Bain Street north to Belgrave Avenue. At this point, the Corridor widens to encompass the Union Pacific Railroad Automobile Distribution Center and other industrial complexes, with the southern edge following existing SCE transmission lines to the existing SCE Mira Loma-Vista #1 230 kV transmission line. The northeastern edge of this Corridor follows Van Buren Boulevard to the existing SCE Mira Loma-Vista #1 230 kV transmission line, which forms the northwestern boundary.

The second Corridor follows the Santa Ana River West Corridor from the proposed Jurupa Substation to Van Buren Boulevard. The corridor then follows Van Buren Boulevard and the Union Pacific Railroad north to the Mira Loma-Vista #1 transmission line near the Union Pacific Railroad Automobile Distribution Center.

Santa Ana River East Corridors

The Santa Ana River East Corridor follows the Santa Ana River from the proposed Jurupa Substation northeast. The corridor encompasses the entire river corridor to the Mira Loma-Vista #1 transmission line approximately 2 miles west of the Vista Substation.

North of the Riverside-San Bernardino County Line, the corridor widens to include the predominantly industrial and agricultural areas on the north side of the Santa Ana River. The corridor includes those areas to the east and west of Riverside Avenue.

At Market Street, a second Corridor branches off, following Market Street north to Agua Mansa Road. The corridor then heads to the north and northeast. The north corridor generally follows Rubidoux

Boulevard to Mira Loma-Vista #1 about ½ mile north of the Riverside/San Bernardino County Line. Another section of the corridor, heading northeast from Market Street, follows Agua Mansa Road from Market Street to Mira Loma-Vista #1.

5.3 230 KV ALTERNATIVE ROUTES

Within the corridors described above, assumed centerlines for the proposed transmission line were identified. These centerlines represent a general location for the proposed transmission line. They were identified by utilizing sensitivity mapping, the identified corridors, and aerial photography. The alternatives are generally described below, and are displayed on Map 12, Appendix A.

Santa Ana River West Corridor

The alternative route within the Santa Ana River West Corridor leaves the proposed Jurupa Substation and generally follows the City of Riverside boundary line and an existing SCE transmission line along the southern bank of the Santa Ana River (see Photo 1), to a point approximately 1 mile east of I-15 (north of California Avenue), where the route crosses the Santa Ana River. Approximately 1/3 mile south of 68th Street the route turns north, and parallels the eastern edge of I-15 to connect with Mira Loma-Vista #1, a distance of about 3 miles.

Photo 1: Looking east at existing SCE transmission line along southern bank of Santa Ana River.

Central Corridors

The first alternative route would be located on the north side of the Santa Ana River from Van Buren Boulevard west to Bain Street (see Photo 2). A second alternative would continue along the alternative within the Santa Ana River West Corridor described above, and would cross the Santa Ana River near the Hidden Valley Nature Center (see Photo 3). Here the routes continue up the eastern edge of Bain Street to Van Buren Boulevard, within an existing Southern California Gas right-of-way (see Photo 4). The route would then turn northwest and follow the Union Pacific/MetroLink ROW adjacent to Van Buren Boulevard to connect to Mira Loma-Vista #1.

The third alternative route leaves the proposed Jurupa Substation and crosses the Santa Ana River approximately 1/3 mile north of the RERC Substation (see Photo 5), and generally follows the river for approximately 1 mile west to Van Buren Boulevard. At this point, there are several alternative segments heading north to the Union Pacific/MetroLink ROW. The route would continue north between the Union Pacific Railroad and Van Buren Boulevard (see Photo 6) to the alternative route described above as the first alternative.

The fourth alternative route would be located west from Van Buren Boulevard on the north side of Bellegrave Avenue for approximately ½ mile then turns west, following an existing SCE 69 kV transmission line along Galena Street to connect to Mira Loma-Vista #1 near the intersection of Galena Street and Wineville Road (see Photo 7).

Photo 2: Area along north side of Santa Ana River, between Van Buren Boulevard and Bain Street.

Photo 3: Looking north at the Santa Ana River crossing adjacent to the Hidden Valley Nature Center.

Photo 4: Looking north along Southern California Gas right-of-way, adjacent to Bain Street.

Photo 5: Potential crossing of Santa Ana River, near the proposed Jurupa Substation.

Photo 6: Looking south at area between Van Buren Boulevard and Union Pacific Railroad.

Photo 7: Western view down Galena Street and the existing SCE 69 kV transmission line along the south side of the street, near Jurupa Valley High School.

Santa Ana River East Corridors

The alternative routes within the Santa Ana River East Corridor would leave the proposed Jurupa Substation and travel northeast, generally paralleling the Riverside City Boundary, along the south side of the Santa Ana River and parallel to existing RPU 69 kV transmission lines (see Photo 8) to Mission Boulevard. Beyond Mission Boulevard there would be two alternative routes; one located on both the south and north sides of the Santa Ana River (see Photo 9). These alternatives would continue adjacent to the river northeast to the Mira Loma-Vista #1 transmission line (see Photo 10).

Two alternative crossings of the Santa Ana River have been identified through the study. The first would be located between Mission Boulevard and SR-60. The second would be located along adjacent to the Market Street Bridge crossing the Santa Ana River.

Several other alternative routes would be located adjacent to roadways north of the Santa Ana River, within the northeast portion of the Study Area. One alternative would follow Market Street from the Santa Ana River on the east side to Agua Mansa Road. At Agua Mansa Road, the route turns northeast, and follows Agua Mansa Road on the north side for approximately ¾ mile to Riverside Avenue. At the intersection of Agua Mansa Road and Riverside Avenue there are two alternatives: one continues north along the west side of Riverside Avenue to the Mira Loma-Vista #1 transmission line, and the second continues along the north side of Agua Mansa Road to the Mira Loma-Vista #1 transmission line. Another segment within this area would leave the Santa Ana River alternatives at the crossing of Riverside Avenue over the river. The alternative would be located on the east side of Riverside Avenue north to the intersection of Riverside Avenue and Agua Mansa Road.

Photo 8: Western view of existing 69 kV transmission line along the Santa Ana River, east of Martha McLean Anza Narrows Park.

Photo 9: Looking east along south side of Santa Ana River from Mission Boulevard.

Photo 10: Possible tap point on the north side of the Santa Ana River on the Mira Loma-Vista #1 transmission line.

5.4 69 KV TRANSMISSION LINES

Several 69 kV circuits would be necessary as part of the RTRP. These transmission lines would transfer the electrical power and connect the proposed Jurupa Substation into the existing RPU electrical system. The 69 kV circuits were identified through the electrical system study performed by RPU. These circuits would include two double-circuit 69 kV transmission lines interconnecting the proposed Jurupa Substation to the existing RERC-Mt. View double-circuit 69 kV transmission line, and one double-circuit 69 kV transmission line connecting the proposed Jurupa Substation to the Mt. View Substation. Alternative alignments for these proposed transmission lines were considered for the project. Both the preferred alignments and the alternatives considered are displayed on Figures 5-1, and 5-2.

Jurupa to RERC-Mt. View

Two double-circuit 69 kV transmission lines would be needed for this segment. One transmission line would leave the proposed Jurupa Substation directly to the west and would be located on the west side of Wilderness Avenue, south to Jurupa Avenue where it would interconnect to the existing RERC-Mt. View 69 kV transmission line. One alternative was evaluated. The alternative route would immediately head south after leaving the proposed substation on the west side, and would be located on the north side of Ed Perkic Street, then would continue south on the west side of Wilderness Avenue. This alternative was not selected due to engineering constraints including additional, unnecessary angles and additional cost. The second transmission line would leave the proposed Jurupa Substation from the south side, and would be located on the south side of Ed Perkic Street, and then the east side of Wilderness Avenue south to the existing RERC-Mt. View 69 kV transmission line.

Jurupa to Mt. View

The double-circuit 69 kV transmission line connecting the proposed Jurupa Substation to the existing Mt. View Substation would include both overhead and underground segments of transmission line. This segment also had one alternative that was considered. The preferred route would leave the proposed Jurupa Substation from the south and would continue east along the north side of Ed Perkic Street to Columbia Avenue. The route would then be located on the north side of Columbia Avenue, avoiding the majority of commercial properties adjacent to the street, to a point approximately 200 feet north of Jurupa Avenue. From this point, both 69 kV circuits would be located underground crossing Jurupa Avenue and continuing south on Fremont Street and then east on Mountain View Avenue to the Mountain View Substation.

The alternative considered for this route would head south within an existing Metropolitan Water District of Southern California (MWD) aqueduct right-of-way. At Jurupa Avenue, the alternative would be located underground for approximately ½ mile to Fremont Street, where it would continue to the Mt. View Substation as described above for the preferred route. This alternative was not selected in order to avoid the MWD right-of-way, and to avoid additional construction along Jurupa Avenue. The alternative would also have substantial additional costs (approximately 3.5 million dollars) due to the additional undergrounding along Jurupa Avenue.

CHAPTER 6: LIST OF PREPARERS

Riverside Public Utilities

Joe Carrasco, Project Manager

Lyle Hill, System Planner

POWER Engineers

John McGrew, Project Director

Mike Strand, Project Manager

Allison Carver, Project Coordinator

Mark Schaffer, Land Use

Darrin Gilbert, Visual Resources

Jim Rudolph, Cultural Resources

Terry Enk, Biological Resources

Cynthia Lysne, Water Resources

Tim Hazekamp, GIS

David Smith, Cultural Resources (TRC Solutions)

Roger Overstreet, Biological Resources (TRC Essex)

Michael Cook, Geohazards (Kleinfelder, Inc.)

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