

## **Appendix 1. Alternatives Screening Report**

# Alternatives Screening Report

## Southern California Edison's El Casco System Project

Application No. A.07-02-022

SCH No. 2007071076



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# Appendix 1. Alternatives Screening Report

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# Appendix 1. Alternatives Screening Report

## 1. INTRODUCTION

### 1.1 Purpose of Report

On February 16, 2007 Southern California Edison (SCE) filed an application (No. 07-02-022) with the California Public Utilities Commission (CPUC) for a Permit to Construct (PTC) the El Casco System Project (Proposed Project). The Proposed Project is described in detail in Section B (Project Description) of this EIR. This document describes the alternatives screening analysis that has been conducted for the Proposed Project, supplementing the information presented in Section C (Alternatives) of the EIR.

A number of alternatives to the Proposed Project were suggested during the Scoping period (July through August 2007) by the general public after SCE filed its Application for a PTC. The alternatives screening analysis was carried out in order to determine the range of alternatives that would be carried forward in the EIR. This report summarizes the screening of alternatives and provides a record of the screening criteria and results that were reached regarding alternatives carried forward for full EIR analysis. This report is intended to document: (1) the range of alternatives that have been suggested and evaluated; (2) the approach and methods used by the CPUC Energy Division in screening the feasibility of these alternatives according to guidelines established under CEQA; and (3) the results of the alternatives screening (i.e., which alternatives are analyzed in the EIR).

The Alternatives Screening Report is incorporated as Appendix 1 to the EIR, providing the basis and rationale for the selection of each alternative that has been carried forward to full evaluation in the EIR. For each alternative that was eliminated from further consideration, this document explains in detail the rationale for elimination. Since full consideration of the No Project Alternative is required by CEQA, and must automatically be considered fully in the EIR, this report does not address this alternative. The No Project Alternative is described in Section C.

### 1.2 Summary of the Proposed Project

The Proposed Project is described in detail in Section B of this EIR. SCE states that the El Casco System Project is needed to:

- Provide load relief to the Vista and Devers Systems through the transfer of load from the Banning, Maraschino, Mentone, Crafton Hills, and Zanja Substations to the newly created El Casco System; and
- Allow load transfers between the Devers, Vista, and the new El Casco Systems under both normal and abnormal conditions.

The proposed El Casco System Project would include the following major components:

- Construct a new 220/115/12 kilovolt (kV) substation within the Norton Younglove Reserve in the County of Riverside (El Casco Substation), associated 220 kV and 115 kV interconnections, and new 12 kV line getaways.
- Replace approximately 13 miles of existing single-circuit 115 kV subtransmission lines with new, higher capacity double-circuit 115 kV subtransmission lines and replace support structures within existing SCE rights-of-way (ROWs) in the Cities of Banning and Beaumont and unincorporated areas of Riverside County.

- Replace approximately 1.9 miles of existing single-circuit 115 kV subtransmission lines with new, higher capacity single-circuit 115 kV subtransmission lines and replace support structures within existing SCE ROWs in the City of Beaumont and unincorporated Riverside County.
- Replace approximately 0.5 miles of existing single-circuit 115 kV subtransmission lines with new, higher capacity single-circuit 115 kV subtransmission lines on existing support structures within existing SCE ROWs in the City of Beaumont and unincorporated Riverside County.
- Rebuild 115 kV switchracks within Banning and Zanja Substations in the Cities of Banning and Yucaipa, respectively.
- Install telecommunications equipment at the proposed El Casco Substation and at SCE's existing Mill Creek Communications Site.
- Install fiber optic cables within public streets and on existing SCE structures between the Cities of Redlands and Banning.

## 2. OVERVIEW OF ALTERNATIVES EVALUATION PROCESS

The range of alternatives in this report was identified through the CEQA scoping process. The range of alternatives considered in the screening analysis encompasses:

- Alternatives identified by SCE as part of the Proponent's Environmental Assessment (PEA);
- Alternatives identified during the public scoping process that was held in accordance with CEQA requirements; and
- Alternatives identified by the CPUC Energy Division as a result of the agency's independent review of the Proposed Project.

Alternatives for this project were restricted to the general project area, no further south than the Proposed Project Route, but including consideration of routes in other SCE transmission line rights-of-way in the western Riverside County area.

In total, the alternatives screening process has culminated in the identification and screening of five potential alternatives or combinations of alternatives. These alternatives range from alternative routes and substation locations to a non-wires alternative such as demand-side management.

### 2.1 Alternatives Evaluated

A number of alternatives were suggested during the EIR scoping process for consideration in establishing a reasonable range of alternatives. Other alternatives were developed by EIR preparers, or presented by SCE in its PEA. Each category is presented below. Section 3 presents a summary of which alternatives have been selected for full EIR analysis and which have been eliminated based on CEQA criteria. Section 4 presents detailed descriptions of each alternative and detailed explanations of why each was selected or eliminated.

#### 2.1.1 SCE Alternatives

In its PEA, SCE presented the following alternatives:

- **Alternative 2.b: Northerly 115 kV Subtransmission Line Route (Northerly Route Alternative):** An all-overhead route that would follow existing SCE ROW north of the Proposed Project route. This alternative would replace portions of SCE's single-circuit 115 kV line along the Proposed Project route, and would include a new 115 kV double-circuit line between El Casco and the Zanja Break-off.

- **Alternate Substation Site:** SCE's Alternate Substation Site property is a privately owned 68-acre parcel located northeast of San Timoteo Canyon Road, approximately 0.5 miles from the proposed El Casco Substation site. The footprint of the substation would occupy approximately 19.7-acres.
- **Vista System Upgrade (SCE's Alternative 3):** This system upgrade was proposed by SCE as an alternative to building the new El Casco System. An upgrade of the Vista System would require the addition of one 280 Mega Volt-Ampere (MVA), 220/115 kV transformer at Vista Substation, construction of two new 115 kV subtransmission lines to deliver the power, and the addition of a fourth 28 MVA, 115/12 kV transformer and five 12 kV distribution lines at Maraschino Substation.

In addition, in a Response to CPUC Data Request No. 4, dated July 27, 2007 (SCE, 2007f), SCE provided information on two route variations to the Northerly Route Alternative presented in the PEA to offer segment options in the portions of the Northerly Route Alternative where that alternative would impact high-density residential neighborhoods with very limited space in SCE's existing ROW.

### 2.1.2 Alternatives Suggested During Scoping

Following is a summary listing of all written, oral, and agency consultation scoping comments that suggested an alternative to the Proposed Project.

#### Government Agency Suggestions

##### *County of San Bernardino Land Use Services Department*

- The proposed project should include evaluation of the alternative of undergrounding the facilities.

#### Private Citizen Suggestions

##### *Mr. Marvin Friedman (Banning)*

- New construction should be buried underground and properly shielded to remove the EMF risk.

##### *Mr. Osvaldo Henry Tappata (Banning)*

- Re-route the new lines away from the Sun Lakes residential area, or bury them underground within Sun Lakes.

##### *Mr. Tim K. Beach (Banning)*

- Install new lines underground within Sun Lakes.

##### *Mr. Ron Domme (Banning)*

- Require SCE to take an alternate route for their proposed power lines or put the power lines underground for the 1.5 miles it will be going through the Sun Lakes Community.

##### *Mr. Edward H. Leonhardt (Banning)*

- Redesign the proposed project to run the power transmission line underground where the public is impacted by overhead lines. I suggest that the northern route along the Devers-San Bernardino #2 ROW, which is greater than 350 feet wide, be re-reviewed as an alternative to the proposed project. I also suggest that a southern route along the Devers-Valley #1 ROW also be reviewed as an alternative to the proposed project.

##### *Mr. & Mrs. James W. & Nancy R. Brown (Banning)*

- Strongly recommend that SCE be required to either bury or reroute the new 115-kV transmission lines passing through the Sun Lakes retirement community.

### 2.1.3 Alternatives Developed by EIR Preparers

The alternatives listed below were developed by EIR preparers as possible means of avoiding or reducing certain impacts of the Proposed Project. Note that as described in Section 3, not all of these alternatives were carried forward for full analysis in the EIR.

- **CPUC's Northerly Route Alternative Option 1 (Route Alternative Option 1):** This route was recommended by the CPUC and developed further by SCE in an attempt to offer a segment option to SCE's Northerly Route Alternative in the portions where that alternative would impact high-density residential neighborhoods with very limited space in SCE's existing ROW. The CPUC's Northerly Route Alternative Option 1 occurs between Banning Substation and the Zanja Break-off.
- **CPUC's Northerly Route Alternative Option 2 (Route Alternative Option 2):** Similar to Route Alternative Option 1, this route was recommended by CPUC and developed further by SCE in an attempt to offer a segment option to SCE's Northerly Route Alternative in the portions where that alternative would impact high-density residential neighborhoods with very limited space in SCE's existing ROW. The CPUC's Northerly Route Alternative Option 2 occurs between Banning Substation and the Zanja Break-off.
- **CPUC's Northerly Route Alternative Option 3 (Route Alternative Option 3):** Similar to Route Alternative Options 1 and 2, this route was recommended by CPUC and developed further by SCE in an attempt to offer a segment option to SCE's Northerly Route Alternative between Banning Substation and the Zanja Break-off. The intent of this segment re-route is to avoid high-density residential neighborhoods with very limited space in SCE's existing ROW. The CPUC's Northerly Route Alternative Option 3 occurs between Banning Substation and the Zanja Break-off.
- **Partial Underground Alternative:** The Partial Underground Alternative was developed as a partial overhead/underground alternative in response to concerns raised by the Sun Lakes community during the EIR scoping process. This alternative is located where the Proposed Project bisects the Sun Lakes community between approximately Mile 8.9 and 9.9 of the Proposed Project 115 kV Subtransmission Line.
- **Demand-Side Management:** This alternative would not require construction of a major new subtransmission line system in the immediate future, and includes goals of reducing overall electricity use through conservation programs.

## 2.2 Alternatives Screening Methodology

The evaluation of the alternatives identified above was completed using a screening process that consisted of three steps:

- Step 1:** Clarify the description of each alternative to allow comparative evaluation
- Step 2:** Evaluate each alternative using CEQA criteria (defined below)
- Step 3:** Based on the results of Step 2, determine the suitability of the each alternative for full analysis in the EIR. If the alternative is unsuitable, eliminate it from further consideration.

Infeasible alternatives and alternatives that clearly offered no potential for overall environmental advantage were removed from further analysis. In the final phase of the screening analysis, the advantages and disadvantages of the remaining alternatives were carefully weighed with respect to CEQA's criteria for consideration of alternatives. These criteria are discussed in the following section.

## 2.3 CEQA Requirements for Alternatives

One of the most important aspects of the environmental review process is the identification and assessment of reasonable alternatives that have the potential for avoiding or minimizing the impacts of a Proposed Project. In addition to mandating consideration of the No Project Alternative, CEQA Guidelines (Section 15126.6[c]) emphasize the selection of a reasonable range of feasible alternatives and adequate assessment of these alternatives to allow for a comparative analysis for consideration by decision makers. CEQA Guidelines (Section 15126.6[a]) state that:

*An EIR shall describe a reasonable range of alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project.*

In order to comply with CEQA's requirements, each alternative that has been suggested or developed for this project has been evaluated in three ways:

1. Does the alternative meet most of the basic project objectives?
2. Is the alternative feasible (legal, regulatory, technical)?
3. Does the alternative avoid or substantially lessen any significant effects of the Proposed Project (including consideration of whether the alternative itself could create significant effects potentially greater than those of the Proposed Project)?

### 2.3.1 Consistency with Project Objectives

CEQA Guidelines require the consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may "impede to some degree the attainment of project objectives" (Section 15126.6[b]). Therefore, it is not required that each alternative meet all of SCE's objectives.

#### 2.3.1.1 Project Objectives

The objectives of the Proposed Project are defined by SCE in its PEA (Section 1.0), and are described in Section A (Introduction/Overview) of this EIR. This EIR does not adopt or endorse the objectives that SCE has defined for its Proposed Project. SCE's stated objectives are as follows:

- Serve long-term projected electrical load requirements in the Electrical Needs Area (see Figure A-1 in Section A of this EIR);
- Provide enhanced system reliability by constructing the project in a suitable location to serve the Electrical Needs Area;
- Provide greater operational flexibility to transfer load between lines and substations;
- Provide substations with more than one 28 MVA transformer with service from two 115 kV lines;
- Provide safe and reliable electrical service consistent with SCE's planning guidelines and Subtransmission Guidelines;
- Meet project need while minimizing environmental impacts; and
- Meet project need in a cost-effective manner.

### 2.3.1.2 Electrical Supply and System Issues

Under the Federal Energy Regulatory Commission (FERC); North American Electric Reliability Council (NERC); Western Energy Coordinating Council (WECC); and California Public Utilities Commission (CPUC) rules, guidelines and regulations; electrical transmission, subtransmission, and distribution systems must have sufficient capacity to maintain safe, reliable, and adequate service to customers. The safety and reliability of the systems must be maintained both under normal conditions when all facilities are in service, as well as under abnormal conditions when facilities are out of service due to equipment or line failures, maintenance outages, or outages that cannot be predicted or controlled (such as outages caused by weather, earthquakes, traffic accidents, and other unforeseeable events).

SCE utilizes a multi-step planning process to ensure the necessary system facilities are developed in time to meet increased electrical demand. The planning process begins with the development of a peak demand forecast for each substation. Peak demand forecasts are developed using historical data and trends in population data, urbanization data, and meteorological data. Because electrical systems have certain loading limits, technical engineering studies are then conducted to determine whether the forecasted peak demand can be accommodated on the existing transmission, subtransmission, and distribution systems. When projections indicate that these limits will be exceeded within an appropriate planning horizon, a project is proposed to keep the electrical system within specified loading limits. In addition to considering the operating limits of a single substation, SCE evaluates the ability to transfer the load from that single substation to adjacent substations in the system. This process has identified the need for the El Casco System Project as described above in the Project Objectives.

Over the next five years, SCE expects to construct an unprecedented level of electrical projects throughout its service territory. As a result, SCE will be constrained in its ability to construct these projects because of the availability of necessary resources, specifically in the areas of financing and manpower. To manage the impact of the workload on available resources, engineering and construction efforts must be distributed over time. Therefore, the El Casco System Project would be constructed from approximately June 2008 to June 2010, and the project would be operational in two phases. The 115/12 kV portion of the substation would be operational by June 2009. The 220/115 kV portion of the substation and remaining components of the project would be operational by June 2010.

Upon completion of the 115/12 kV portion of the El Casco substation, the substation would serve local load currently served by Maraschino Substation. Upon completion of the 220/115 kV portion of the substation, the new El Casco 115 kV System would be created. This system would serve five existing distribution substations that are currently served by the Vista and Devers 115 kV Systems (Crafton Hills, Maraschino, Mentone, Zanja, and Banning Substations). Electrical supply and system issues currently affect these existing facilities.

### 2.3.2 Feasibility

CEQA Guidelines (Section 15364) define feasibility as:

*. . . capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.*

In addition, CEQA requires that the Lead Agency consider site suitability, economic viability, availability of infrastructure, general plan consistency, other regulatory limitations, jurisdictional boundaries, and proponent's control over alternative sites in determining the range of alternatives to be evaluated in the

EIR (CEQA Guidelines Section 15126.6[f]). The feasibility of potential alternatives has been assessed taking the following factors into account:

- **Legal Feasibility:** Does the alternative have the potential to avoid lands that have legal protections that may prohibit or substantially limit the feasibility of permitting the El Casco System Project?
- **Regulatory Feasibility:** Does the alternative have the potential to avoid lands that have regulatory restrictions that may substantially limit the feasibility of, or permitting of, the El Casco System Project by 2010?
- **Technical Feasibility:** Is the alternative feasible from a technological perspective, considering available technology? Are there any construction, operation, or maintenance constraints that cannot be overcome?
- **Environmental Feasibility:** Would implementation of the alternative cause substantially greater environmental damage than the Proposed Project, thereby making the alternative clearly inferior from an environmental standpoint?

This screening analysis does not focus on relative economic factors or costs of the alternatives (as long as they are found to be economically feasible) since CEQA Guidelines require consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may "impede to some degree the attainment of project objectives or would be more costly" (CEQA Guidelines Section 15126.6[b]). The CPUC's proceedings will separately and specifically consider cost issues.

### 2.3.3 Potential to Eliminate Significant Environmental Effects

CEQA requires that to be fully considered in an EIR, an alternative must have the potential to "avoid or substantially lessen any of the significant effects of the project" (CEQA Guidelines Section 16126.6[a]). If an alternative was identified that clearly does not provide potential overall environmental advantage as compared to the Proposed Project, it was eliminated from further consideration. At the screening stage, it is not possible to evaluate all of the impacts of the alternatives in comparison to the Proposed Project with absolute certainty, nor is it possible to quantify impacts. However, it is possible to identify elements of an alternative that are likely to be the sources of impact and to relate them, to the extent possible, to general conditions in the subject area.

Table Ap-1 presents a summary of the potential significant effects of the Proposed Project. This impact summary was prepared prior to completion of the EIR analysis (i.e., identified at the time of the issuance of the Notice of Preparation [NOP] for the Proposed Project), so it may not be complete in comparison to the detailed analysis now presented in Section D (Environmental Analysis) of this EIR. However, the impacts in the table are representative of those resulting from preliminary EIR preparation and were therefore used to determine whether an alternative met this CEQA requirement. The contents of Table Ap-1 are the same as the contents of Attachment 1 of the NOP (see Appendix 2 of this EIR).

**Table Ap-1 Summary of Potential Issues or Impacts: El Casco System Project**

Environmental Issue Area	Potential Issues or Impacts
Aesthetics	<ul style="list-style-type: none"> <li>• As the Proposed Project transmission line route and the El Casco Substation site would travel through and be located in rural areas with extended views of the natural environment, including hillsides and natural landscape features, there is the potential for the Proposed Project to have an adverse effect on scenic vistas in the immediate vicinity of the Proposed Project route and substation locations or in sufficiently close proximity such that views from and to those vistas would be adversely affected by the Proposed Project.</li> <li>• Both the I-10 Freeway and State Route 38 in the vicinity of the Proposed Project transmission line route are designated as Eligible State Scenic Highways. There is the potential for the</li> </ul>

**Table Ap-1 Summary of Potential Issues or Impacts: El Casco System Project**

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	<p>Proposed Project to have an adverse effect on scenic vistas in the immediate vicinity of the Proposed Project route or in sufficiently close proximity such that views from and to those vistas would be adversely affected by the Proposed Project.</p> <ul style="list-style-type: none"><li>• The Proposed Project transmission line route and substation site would alter the existing landscape and travel through rural areas with extended views of the natural environment, including hillsides and natural landscape features. In addition, the proposed El Casco substation would result in grading and construction activities permanently altering the existing visual character and quality of the proposed substation site, which is currently open space and part of the Norton Younglove Reserve.</li><li>• Nighttime construction lighting would be used during project construction and the proposed El Casco substation would include operational nighttime security lighting that could be viewed by adjacent residential structures. In addition, reflective parts of construction equipment and transmission facilities and structures could create a new source of daytime glare.</li></ul>
<b>Agricultural Resources, Land Use/Planning, and Recreation</b>	<ul style="list-style-type: none"><li>• The majority of the components comprising the Proposed Project would not be located on or adjacent to Farmland. Portions of the 115 kV subtransmission line, however, would traverse Farmland, particularly between Milepost 3.9 and 4.1 of the El Casco-Banning route and at Milepost 0.3 of the Maraschino Loop South.</li><li>• The El Casco Substation would be constructed within the boundaries of the Norton Younglove Reserve, which is designated for open space and conservation and would utilize 28 acres of the 640 acres of the Reserve.</li><li>• A portion of the 115 kV subtransmission line would be within 4,000 feet of the Banning Municipal Airport and some of the support structures for the subtransmission line would be greater than the maximum permitted height described in the Banning Municipal Airport Land Use Plan and FAA regulations. SCE would be required to file a Notice of Proposed Construction or Alteration with the FAA and submit design of the poles to the Airport Land Use Commission for review.</li><li>• The proposed El Casco Substation Site and portions of the 115 kV subtransmission lines would be within the bounds of the Western Riverside County MSHCP and the Mill Creek Communications Site would be located in a resource conservation area.</li><li>• Construction of the El Casco Substation in this location would not include the construction of recreational facilities and would not require the construction or expansion of recreational facilities. Construction of El Casco Substation within Norton Younglove Reserve, however, could potentially encourage the expanded use of Norton Younglove Reserve.</li></ul>
<b>Air Quality</b>	<ul style="list-style-type: none"><li>• Construction of the Proposed Project (in particular, site grading activities for the El Casco Substation) would generate emissions that could potentially exceed construction and operational emission thresholds, as established by the SCAQMD, potentially contributing to an existing or projected air quality violation.</li><li>• Construction of the Proposed Project would generate emissions that could potentially exceed emission thresholds, as established by the SCAQMD, potentially resulting in a cumulatively considerable net increase of any criteria pollutant for which the SCAQMD is in non-attainment.</li><li>• Construction of the Proposed Project would generate emissions that could potentially exceed emission thresholds, as established by the SCAQMD, potentially exposing sensitive receptors to substantial pollutant concentrations.</li></ul>
<b>Biological Resources</b>	<ul style="list-style-type: none"><li>• Impacts to biological resources could occur at the proposed El Casco Substation, along the 115 kV subtransmission line route, at the Mill Creek Communications Site, and along the fiber optic line during construction and operation of the Proposed Project.</li><li>• Construction of the proposed El Casco Substation would temporarily disturb approximately 7.98 acres and would permanently impact approximately 14.36 acres of habitat. Wildlife species and habitat in San Timoteo Creek could also be impacted by improvement of the substation access road resulting from siltation and sedimentation into the Creek.</li><li>• Horizontal directional drilling (HDD) for the 12 kV getaway duct banks could result in temporary increases in turbidity and sedimentation that could affect amphibians and habitat in San Timoteo Creek.</li><li>• Noise from construction could affect wildlife by impairing communication, impairing foraging success and predator detection, and causing the temporary dispersal of individuals from the area of impacts.</li></ul>

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**Table Ap-1 Summary of Potential Issues or Impacts: El Casco System Project**

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**Biological Resources  
(continued)**

- Construction of the 115 kV subtransmission line and installation of the four new poles for the fiber optic cable could potentially destroy or adversely affect sensitive species as a result of grading previously undisturbed surfaces for pole structure sites or cable pulling, or blading to remove rocks, large shrubs, or other objects from the soil surface. In areas where grading or blading would not occur, habitat could still be damaged by vehicles and staging of materials during construction. Sensitive species could be crushed by the operation of heavy machinery or foot traffic. The establishment of nonnative weeds could suppress or eliminate special status species.
- Permanent impacts to habitat would occur adjacent to the existing communications building at the Mill Creek Communications Site as a result of the installation of the microwave antenna tower and temporary impacts would occur to a 60-foot by 60-foot staging area. While construction would largely affect disturbed habitat and non-native grassland, chaparral habitat would also be disturbed by these activities. Construction of the El Casco Substation and its access road would permanently disturb 3.50 acres of scrub oak chaparral and 0.01 acres of chamise chaparral and would temporarily disturb 3.71 acres of scrub oak chaparral, 0.12 acres of chamise chaparral, and 0.03 acres of southern mixed chaparral.
- Direct impacts to riparian habitat along San Timoteo Creek could occur due to frac-out during HDD
- Grading and road widening for the El Casco Substation access road could cause siltation or sedimentation that could damage riparian habitat along the Creek.
- Construction of the El Casco Substation would indirectly affect wetlands along San Timoteo Creek as a result of improvements to the substation access road. Grading and road widening could cause siltation and sedimentation to be released to San Timoteo Creek. This siltation and sedimentation could disrupt the growth of aquatic plants and interfere with the physiological processes of aquatic animals such as fish, amphibians, and insects.
- Least Bell's vireo, a State and Federally Endangered Species, is known to occur in the vicinity of San Timoteo Creek. Construction of the El Casco substation could remove potential habitat, and project construction activities could impact this and other special status species.
- Construction of the Proposed Project could adversely affect nesting birds covered by the Migratory Bird Treaty Act (MBTA).
- The Proposed Project could require the removal of trees or other vegetation.

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**Cultural Resources**

- The El Casco Substation would be located in the vicinity of the historic Duff Weaver Ranch. As such, construction of the proposed substation could damage or destroy significant cultural resources, including structures and features from the historic Ranch.
- Construction of the El Casco Substation and the 115 kV subtransmission line could potentially affect archaeological resources.
- Components of the Proposed Project, including the El Casco Substation Site and access roads to the 115 kV subtransmission lines, would be located on or within 0.5 miles of paleontological resource localities. Excavation associated with construction of the El Casco Substation and the 115 kV subtransmission line could impact paleontological resources, including datable organic materials.
- Although no known burial grounds have been identified along the Proposed Project alignment, the possibility of uncovering human remains exists.

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**Geology and Soils**

- The proposed El Casco Substation site would be approximately two miles southwest of the Cherry Valley Fault Zone. Zanja Substation is located approximately 0.3 miles southeast of the South Branch of the San Andreas Fault Zone and the Mill Creek Communications Site is located approximately 0.9 miles northeast of the South Branch of the San Andreas Fault Zone. Banning Substation is located approximately 1.5 miles south of the San Geronio Pass Fault Zone. The 115 kV subtransmission line and fiber optic lines would pass over traces of the Beaumont Plain Fault Zone at Mileposts 6.58 and 7.9 and Milepost 0.76 of the Maraschino Loop West.
  - All of the components of the Proposed Project would be located within the California Building Code (CBC) Seismic Zone IV
  - While the majority of the Proposed Project components would be located on soils that would not be susceptible to seismic-related ground failure or liquefaction, the El Casco Substation site and portions of the 115 kV subtransmission line would be located on soils with a moderate potential for ground failure or liquefaction.
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**Table Ap-1 Summary of Potential Issues or Impacts: El Casco System Project**

Geology and Soils (continued)	<ul style="list-style-type: none"><li>• The majority of the Proposed Project components would not be susceptible to landslides, but El Casco Substation would be located in an area where past landslides have been identified in soil borings. Site preparation for the El Casco Substation would include excavation, which could increase the potential for landslides.</li><li>• Construction of the TSPs, LWS poles, poles for the fiber optic lines, and line stringing activities could potentially result in the disturbance of topsoil as a result of grading for pulling sites or installation of the poles.</li></ul>
Hazards and Hazardous Materials	<ul style="list-style-type: none"><li>• Construction vehicles would require on-site refueling, and may require routine or emergency maintenance that could result in the release of oil, diesel fuel, transmission fluid or other materials.</li><li>• It is unclear at this time if the components of the Proposed Project would be located on a site listed as a hazardous materials site.</li><li>• A portion of the 115 kV subtransmission line would be located approximately 4,000 west of Banning's Municipal Airport runway and within the Banning Municipal Airport Land Use Plan.</li><li>• The Proposed Project would limit roadway access for short-term periods during construction of the 115-kV transmission line. The Mill Creek Communications Site, El Casco Substation site, portions of the fiber optic lines, and portions of the 115 kV subtransmission line route would be located in high fire risk areas. Short-term fire hazard impacts could result during the construction of the Proposed Project.</li></ul>
Hydrology and Water Quality	<ul style="list-style-type: none"><li>• During construction activities, there is a possibility that excavated material could be eroded into local drainages or San Timoteo Creek. Construction would also require the use of potential sources for water quality degradation such as diesel fuel, lubrication oil, hydraulic fluids, antifreeze, and other construction-related materials. If unchecked, these materials could be carried by runoff into drainages or San Timoteo Creek. Excavation for transmission structures could also require dewatering to ensure the stability of the structures.</li><li>• The Horizontal Directional Drilling proposed for installation of the 12 kV distribution line getaways and fiber optic duct bank from the El Casco Substation would have the potential to affect water quality in San Timoteo Creek. Vertical leakage of drilling fluids in the formation over the boring could occur or hazardous materials from equipment during the boring could be transmitted to the Creek. Drilling fluids could also reach the surface through existing natural fractures, induced fractures, or porous and permeable zones and could degrade water quality.</li><li>• Operation and maintenance of the Proposed Project could also result in accidental mineral oil releases from oil-filled electrical equipment at the El Casco Substation or the accidental release of diesel fuel, lubrication oil, hydraulic fluids, antifreeze, or other vehicle related hazardous materials during maintenance and inspection activities.</li><li>• Due to the Proposed Project's creation of impermeable surfaces, potential impacts to groundwater recharge could occur.</li><li>• Construction and operation of the 115 kV subtransmission lines could potentially affect drainage as new TSPs and LWS poles would be sited in the same area as existing wood poles but could require the grading of new site pads. Construction and operation of the new structures for the 220 kV transmission lines and fiber optic lines could also require grading, and therefore could potentially alter existing drainage patterns.</li><li>• Drainage at the El Casco Substation would be altered significantly due to the large amount of site grading required.</li><li>• The proposed El Casco Substation and the 220 kV transmission towers could be affected by 500-year flood flows.</li><li>• The Proposed Project could potentially create or contribute substantial new sources of runoff water that would exceed the capacity of stormwater drainage systems. Construction and operation of the proposed El Casco Substation site, in particular, would create a new source for polluted runoff draining into San Timoteo Creek.</li><li>• Short-term erosion could occur during excavation and construction activities, which could adversely affect surface water quality from runoff water. Construction equipment and vehicles may potentially leak contaminants during construction activities and electrical equipment could potentially leak during operation, increasing the possibility of washing contaminated runoff into nearby waterbodies.</li></ul>

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**Table Ap-1 Summary of Potential Issues or Impacts: El Casco System Project**

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Noise	<ul style="list-style-type: none"><li>• On-site noise during construction would occur primarily from heavy-duty diesel and gasoline-powered construction equipment. Off-site noise would be generated from trucks delivering materials and equipment to the job-sites, as well as from vehicles used by workers commuting to and from the job sites.</li><li>• Operational noise would occur as a result of corona noise discharge from active electrical lines, noise generated from substation activities, and noise generated from maintenance activities.</li><li>• On-site groundborne vibration and groundborne noise during construction would occur primarily from heavy-duty diesel and gasoline-powered construction equipment. Off-site groundborne vibration and groundborne noise would be generated from trucks delivering materials and equipment to the job-sites.</li></ul>
Public Services and Utilities	<ul style="list-style-type: none"><li>• Fire protection could be required at a project construction site in the event of a construction accident. The likelihood of an accident requiring such a response would be moderate, as project construction would occur in areas of high fire danger. Furthermore, Proposed Project construction may require the temporary blockage or closure of roadway facilities affecting emergency access and response times to the area. Once operational, the proposed electrical facilities could generate an increase in fire risk, and new towers could potentially affect firefighting helicopter operations.</li><li>• Police service could be required at a Project construction site in the event of a construction accident. Furthermore, Proposed Project construction may require the temporary blockage or closure of roadway facilities affecting emergency access and response times to the area.</li><li>• During construction, construction workers and any potential change in stormwater drainage could generate additional wastewater to the treatment facilities serving the area.</li><li>• During construction, grading activities and a change in the amount of permeable surface area associated with new tower footings and Proposed Project facilities could change the amount of stormwater drainage.</li><li>• The Proposed Project may require water during site grading for dust suppression purposes. Due to the short-term nature of construction, the water consumed is expected to be minimal.</li><li>• Construction of the transmission and subtransmission lines would result in the generation of various waste materials including wood, soil and vegetation, and sanitation waste.</li></ul>
Transportation and Traffic	<ul style="list-style-type: none"><li>• There are three primary categories of traffic impacts that would occur as a result of the Proposed Project. The first category would be the impacts associated with construction traffic on the roadways that provide access to the project route and construction sites. During the construction activities, a number of vehicles would be traveling to and from the project site, including trucks delivering materials to the site, trucks transporting waste material away from the site, and construction workers' vehicles commuting to and from the site. The second category of traffic impacts would be the physical impacts of the construction activities that would occur within the ROW of the affected public roadways (i.e., lane closures, detours, driveway blockages, loss of parking, and disruptions to traffic, transit, and pedestrian movements in the construction area). The third category of traffic impacts would be the impacts associated with the operation of the Proposed Project after construction is complete.</li><li>• Once operational, the proposed electrical facilities would include new towers that could potentially affect firefighting helicopter operations.</li><li>• Construction of the Proposed Project across, along, and within public street ROW areas could potentially result in increased hazards to motorists, bicyclists, and pedestrians because the construction activities would occur within the travel lanes of various roadways.</li><li>• The Proposed Project could potentially result in a significant impact relative to emergency access due to construction activities across, along, and within public street ROWs which could increase the response times for emergency vehicles (police, fire, and ambulance/paramedic units) and block or disrupt access to adjacent properties.</li><li>• The Proposed Project could potentially result in parking capacity impacts due to construction activities along and within public street ROWs that could block or disrupt street parking.</li><li>• The project could potentially result in temporary impact to bus routes and bicycle lanes due to construction activities within public street ROW.</li></ul>

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### **3. SUMMARY OF ALTERNATIVE SCREENING RESULTS**

Proposed alternatives identified by the Applicant, agencies, and the public are listed below according to the determination made for EIR analysis (i.e., whether each is analyzed in the EIR or eliminated from EIR analysis). Section 4 describes each of the listed alternatives in detail, and presents the rationale for elimination of each alternative that is not analyzed. This section presents a summary of the conclusions of Section 4, identifying alternatives that were eliminated and those that are carried forward for full EIR analysis.

#### ***Criterion 1: Project Objectives***

Most alternatives described in Section 4 are modifications to SCE's proposed transmission line route or alternatives presented in the PEA. The majority of these alternatives meet all of SCE's project objectives.

The route alternatives evaluated meet all project objectives. However, some of these alternatives may provide a reduced reliability benefit (Objective #2) due to the siting of a longer subtransmission line route.

#### ***Criterion 2: Feasibility***

The alternatives vary in their ability to meet legal, regulatory, and technical feasibility criteria described in Section 2.3.2 above. All of the alternatives evaluated are technically feasible. Some of the alternatives had regulatory feasibility problems such as conflicts with existing plans.

#### ***Criterion 3: Environmental Effects***

The potentially significant environmental impacts of the Proposed Project are summarized in Table Ap-1, above, and detailed in Section D of this EIR. Each alternative is evaluated as to its overall ability to reduce or avoid significant effects of the Proposed Project. In some cases, an alternative may eliminate a Proposed Project effect, but it may create a new significant effect in a different resource or geographic area. In these cases, the aggregate environmental effects of the Proposed Project segment and the alternative segment have been compared to determine whether the alternative meets the overall CEQA requirement.

Table Ap-2 provides a summary of the alternatives evaluated in this report and whether the alternative has been chosen for detailed analysis in the EIR or has been eliminated from further consideration.

### **4. ALTERNATIVES DESCRIPTIONS AND DETERMINATIONS**

#### **4.1 Introduction**

The alternatives presented in this section range from alternate routes to SCE's proposed El Casco System Project route location, alternative substation locations, as well as system designs. After initial screening, if a potential alternative was proven infeasible or if it did not appear to reduce or avoid potentially significant impacts of the Proposed Project without creating other significant impacts of its own, then it was eliminated from full evaluation. The alternatives that have been determined to meet all three of CEQA's criteria have been retained for full analysis in the EIR. Each alternative includes a discussion of compliance with each of CEQA's alternatives screening criteria.

**Table Ap-2. Alternatives Evaluated**

Alternative	Project Objectives	Feasible?	Avoid/Reduce Environmental Effects?
Northerly Route Alternative - <i>(Eliminated from further detailed analysis in EIR)</i>	Meets all project objectives	Meets legal, regulatory, and technical feasibility criteria	Visual and land use impacts associated with this alternative would be greater than those of the proposed project due to the siting of approximately five additional miles of 115 kV line infrastructure, two miles of which would be new ROW that does not currently contain any electric infrastructure. With implementation of the Northerly Route Alternative slightly higher levels of impacts would result due to the increase in residential areas exposed to a longer route and the acquisition of new ROW. In addition, the Northerly Route Alternative passes through denser residential areas and through the Gilman Historic Ranch resulting in slightly more adverse impacts to land use, cultural resources, and noise than the Proposed Project.
CPUC's Northerly Route Alternative Option 1 - <i>(Eliminated from further detailed analysis in EIR)</i>	Meets all project objectives	Meets regulatory and technical feasibility criteria. Could have potential legal feasibility issues due to crossing of Morongo Tribal lands.	Visual and land use impacts associated with this alternative would be greater than those of the Proposed Project due to the siting of approximately six additional miles of 115 kV line infrastructure. Route Alternative Option 1 would result in slightly higher levels of impacts than the Proposed Project due to the increase in existing and planned residential areas impacted by the longer route as well as an increase in traffic impacts resulting from restricting activities across Interstate 10 Freeway. This alternative would traverse lands of the Morongo Indian Tribe, which may lead to potential legal feasibility issues as SCE would have to secure the appropriate permits and execute a lease agreement for siting of the Proposed Project through tribal lands.
CPUC's Northerly Route Alternative Option 2 - <i>(Eliminated from further detailed analysis in EIR)</i>	Meets all project objectives	Meets legal, regulatory, and technical feasibility criteria	Visual and land use impacts associated with this alternative would be greater than those of the Proposed Project due to siting of additional 115 kV line infrastructure (approximately six miles more than the Proposed Project). Route Alternative Option 2 would result in slightly higher levels of impacts than the Proposed Project due to the increase in existing and planned residential areas impacted by the longer route as well as an increase in traffic impacts resulting from restricting activities across Interstate 10 Freeway.

Table Ap-2. Alternatives Evaluated

Alternative	Project Objectives	Feasible?	Avoid/Reduce Environmental Effects?
CPUC's Northerly Route Alternative Option 3 - <i>(Retained for full analysis)</i>	Meets all project objectives	Meets legal, regulatory, and technical feasibility criteria.	Route Alternative Option 3 would result in similar types of impacts, but slightly higher levels of impacts than the Proposed Project due to a longer route. This alternative would result in the elimination of Proposed Project activities associated with the six miles of construction of the 115 kV line between Maraschino and Banning Substations for approximately six miles. Even though this alternative would require construction of a longer 115 kV subtransmission route, it would avoid impacts associated with traversing high-density residential areas along the Proposed Project route.
Partial Underground Alternative – <i>(Retained for full EIR analysis)</i>	Meets all project objectives	Meets legal, regulatory, and technical feasibility criteria	Meets environmental criteria. Reduces visual impacts of proposed route through the Sun Lakes community. Construction-related impacts would be greater than those of the Proposed Project.
SCE's Vista System Upgrade Alternative - <i>(Eliminated from further detailed analysis in EIR)</i>	Does not meet four of the seven project objectives	Could have potential regulatory feasibility issues	Visual impacts resulting from the construction and operation of 10 miles of new, single-circuit 115 kV subtransmission line to create the new Vista-Maraschino 115 kV line, and 4.4 miles of new, single-circuit 115 kV subtransmission line to create the new Banning-Maraschino-Zanja 115 kV line and the associated infrastructure including overhead structures; biological, cultural, and noise impacts resulting from the creation of a new transmission line ROW potentially within sensitive habitat; creation of a new transmission line ROW potentially resulting in the displacement of existing residential uses; and potential land use incompatibility issues. When compared to the Proposed Project, it is likely that impacts associated with upgrades to the Vista System would be similar to implementing the El Casco System Project, since both would involve the siting of a subtransmission line system and associated facilities.
SCE's Alternative Substation Site – <i>(Eliminated from further detailed analysis in EIR)</i>	Meets all project objectives	Would not meet regulatory feasibility criteria (conflict with Oak Valley Specific Plan)	Alternative Substation Site would result in slightly higher levels of impacts than the Proposed Project in the areas of aesthetics, utilities, land use, and cultural resources. Also, this alternative would result in nonconformity with the Oak Valley Specific Plan.
Demand-Side Management – <i>(Eliminated from further detailed analysis in EIR)</i>	Does not meet any of the project objectives	Meets legal, regulatory, and technical feasibility criteria	The projected capacity savings of DSM activities would not defer the need of the Proposed Project. While reductions in demand are considered an essential part of SCE's existing and future operations, they are incorporated into its system base and peak load forecasts. The available energy savings from these programs is insufficient to improve the service reliability to the Electrical Needs Area to the level desired and achieved through the El Casco System Project.

The first section below addresses alternative routes to the Proposed Project; all of these alternatives connect to the proposed El Casco Substation. Section 4.2 presents a description of each potential route alternative to the Proposed Project. Sections 4.3 through 4.5 describe other project alternatives. Because CEQA requires the evaluation of the No Project Alternative in the EIR, it is described in Section C of the EIR and is not discussed in this appendix.

## **4.2 Subtransmission Line Route Alternatives**

The discussions below explain the reasons for elimination or retention for full analysis for each potential alternative.

### **4.2.1 SCE's Alternative 2.b: Northerly 115 kV Subtransmission Line Route (Northerly Route Alternative)**

In its PEA, SCE presented an alternative subtransmission line route depicting an alternate line arrangement for the El Casco 115 kV System. The Northerly 115 kV Subtransmission Line Route alternative is also referred to as the Northerly Route Alternative, or SCE Alternative 2.b.

In addition, during the scoping process, several commenters from the Sun Lakes community expressed concern regarding the EMF and visual impacts of the Proposed Project within their community. These commenters requested that an alternate route avoiding the Sun Lakes community be considered. The Northerly Route Alternative would avoid Proposed Project activities in the Sun Lakes community.

#### **Alternative Description**

This alternative would pass through the Cities of Calimesa, Beaumont, and Banning. The Northerly Route Alternative requires the acquisition of additional ROWs for a distance of approximately two miles along the northerly 115 kV subtransmission line route. From mile-marker 0.0 to mile-marker 1.2 (as the line would exit the proposed El Casco Substation) and from mile-marker 9.2 to mile-marker 10.0 (as the line exits SCE's existing transmission line ROW), SCE would need to obtain additional ROW to widen its existing easement by 25 feet (SCE, 2007a).

#### ***Major Components of SCE's Northerly Route Alternative***

The "Phase 1" construction activities described for the Proposed Project in Section B (Project Description) would remain unchanged, in order to loop-in the existing Vista-Maraschino-San Bernardino 115 kV subtransmission line into El Casco Substation, thereby creating the Vista-El Casco-San Bernardino and El Casco-Maraschino 115 kV subtransmission lines (SCE, 2007a).

The Northerly Route Alternative would consist of:

- Rebuilding the entire El Casco-Maraschino 115 kV subtransmission line;
- Rebuilding a portion of the Banning-Maraschino 115 kV subtransmission line; and
- Creating the El Casco-Banning and El Casco-Zanja 115 kV subtransmission lines from a combination of new construction and rebuilding of a portion of the existing Devers-Banning-Windpark-Zanja 115 kV subtransmission line.

Similar to Proposed Project activities (see Section B) this alternative includes the following major components:

- Construct the new 220/115/12 kV El Casco Substation within the Norton Younglove Reserve in the County of Riverside, associated 220 kV and 115 kV interconnections, and new 12 kV distribution line getaways.
- Upgrade existing 115 kV subtransmission lines between El Casco, Maraschino, and Banning.
- Rebuild 115 kV switchracks within Banning and Zanja Substations in the Cities of Banning and Yucaipa, respectively.
- Install telecommunications equipment at the proposed El Casco Substation and at SCE's existing Mill Creek Communications Site.
- Install fiber optic cables within public streets and on existing SCE structures between the Cities of Redlands and Banning.

With implementation of the Northerly Route Alternative, the El Casco System Project would be constructed from approximately June 2008 to June 2010, and the project would be operational in two phases. The 115/12 kV portion of the substation would be operational by June 2009. The 220/115 kV portion of the substation and remaining components of the project would be operational by June 2010.

The 115/12 kV portion of the proposed El Casco Substation would relieve the Maraschino Substation by transferring approximately 10 MVA of 12 kV distribution load to El Casco Substation in 2009. The five new 12 kV distribution line getaways associated with the El Casco Substation would be used to facilitate this load transfer, and would also serve future load growth that would otherwise be served from Maraschino Substation. With this transfer and the majority of the future load growth being served by the new El Casco Substation, demand on the existing transformers at Maraschino Substation would be below operating limits.

SCE's existing 220 kV Devers-San Bernardino No. 2 transmission line would serve as the source for the El Casco System, making it independent of the Vista System. (i.e., having a separate 220 kV transmission source of supply). The El Casco System would tie in with the Vista System and the Devers System through the 115 kV subtransmission system and tie in to the Vista System through the 12 kV distribution system, thereby providing the capability to transfer load between systems under both normal and abnormal conditions. This increases the reliability of all three systems.

The 220/115 kV portion of the proposed El Casco Substation would relieve the Vista 220/115 kV Substation through the transfer of four existing substations from the Vista 115 kV System to the El Casco 115 kV System. These substations (Crafton Hills, Maraschino, Mentone, and Zanja) are located at the eastern end of the existing Vista 115 kV System and will have a combined projected normal weather peak demand of approximately 135 MVA in 2010. After these transfers, demand on the existing transformers at the Vista 220/115 kV Substation would be below operating limits. In addition, the Banning 115/33 kV Substation (with a projected normal weather peak demand of approximately 101 MVA in 2010) would also be transferred from SCE's existing Devers 115 kV System to the El Casco 115 kV System. This allows Banning Substation to be served by more than one 115 kV line.

**El Casco Substation.** With construction of the Northerly Route Alternative, the addition of two additional 115 kV line positions would be required in the 115 kV switchrack and would be built during Phase 2 of construction. As described in Section B (Project Description), the Proposed Project would only require one 115 kV line position in the switchrack. All other activities related to the El Casco Substation would be the same as those described for the Proposed Project.

### ***115 kV Subtransmission Line Upgrades and New Construction***

The most notable difference between the Proposed Project and the Northerly Route Alternative is the 115 kV line work that would occur during the second stage of construction. The northerly 115 kV subtransmission line route consists of various upgrades to existing 115 kV lines or construction of new 115 kV lines as described below and as depicted on Figure Ap-1 (SCE, 2007a and SCE, 2007f).

**Upgrades to the Existing Vista to Maraschino to San Bernardino 115 kV Subtransmission Lines.** The existing portion of SCE's Vista-Maraschino-San Bernardino 115 kV Subtransmission Lines that would eventually be looped into the El Casco Substation would need to be upgraded. This line would be referred to as the El Casco-Maraschino line. The El Casco-Maraschino single-circuit 115 kV line route begins at El Casco Substation and proceeds south, then continues southeast within the existing ROW for approximately five miles. This route then continues east for approximately one mile into Maraschino Substation.

Rebuilding the El Casco-Maraschino 115 kV line would be very similar to the description provided for the Proposed Project (Section B) for this area, except that the new steel poles would be built in a single-circuit configuration, instead of the double-circuit configuration of the Proposed Project. The same number of poles (both LWS and TSP) as detailed for the Proposed Project would be required over this distance, even if the Northerly Route Alternative is implemented. With the Northerly Route Alternative, approximately 5.8 miles of the existing single-circuit 115 kV subtransmission line would be replaced with new, higher capacity single-circuit 115 kV subtransmission lines. The existing single-circuit wood poles would be replaced with single-circuit steel poles within existing SCE ROWs along the El Casco-Maraschino 115 kV line.

**Upgrades to the Existing Banning to Maraschino Subtransmission Line.** The existing Banning-Maraschino 115 kV line route begins at Banning Substation and proceeds south for approximately 0.7 miles to the existing ROW. At this point, the existing single-circuit 115 kV line proceeds west to Maraschino Substation. Rebuilding the Banning-Maraschino 115 kV line in this alternative would be limited to converting the 0.7 miles of the existing single-circuit line to double-circuit from Banning Substation due south to where the line intersects with Wesley Street in the City of Banning. Over this distance, the scope is identical to what is described for the Proposed Project: approximately 0.7 miles of existing 115 kV single-circuit subtransmission lines would be replaced with new, higher capacity double-circuit 115 kV subtransmission lines. Unlike the Proposed Project, however, no construction would be necessary from this point (i.e., Wesley Street) to the west towards Maraschino Substation. With this portion of the Northerly Route Alternative, the existing single-circuit 115 kV Subtransmission Line facilities (i.e., towers, ROW, etc.) would remain unchanged.

**Construction of the New El Casco to Banning Subtransmission Line.** This portion of the Northerly Route Alternative would consist of two main segments, including creating the El Casco-Banning and the El Casco-Zanja 115 kV subtransmission lines. The El Casco-Banning 115 kV line route begins at El Casco Substation and proceeds east for approximately 9.5 miles. The route then proceeds south for approximately 0.2 miles and continues east for approximately 4.3 miles. At this point, the route proceeds south for approximately 0.5 miles into Banning Substation. SCE would construct 9.5 miles of new double-circuit 115 kV subtransmission lines to intercept the 115 kV line between Banning Substation and Zanja Substation within existing SCE ROWs to create the El Casco-Zanja 115 kV line and the El Casco-Banning 115 kV line. In addition, 4.3 miles of existing 115 kV single-circuit subtransmission lines would be replaced with new, higher capacity single-circuit 115 kV subtransmission lines, and support structures would be replaced within new and existing rights-of-way

to increase the capacity of the new El Casco-Banning 115 kV line. Figure Ap-1 illustrates the location and various activities occurring for the Northerly Route Alternative.

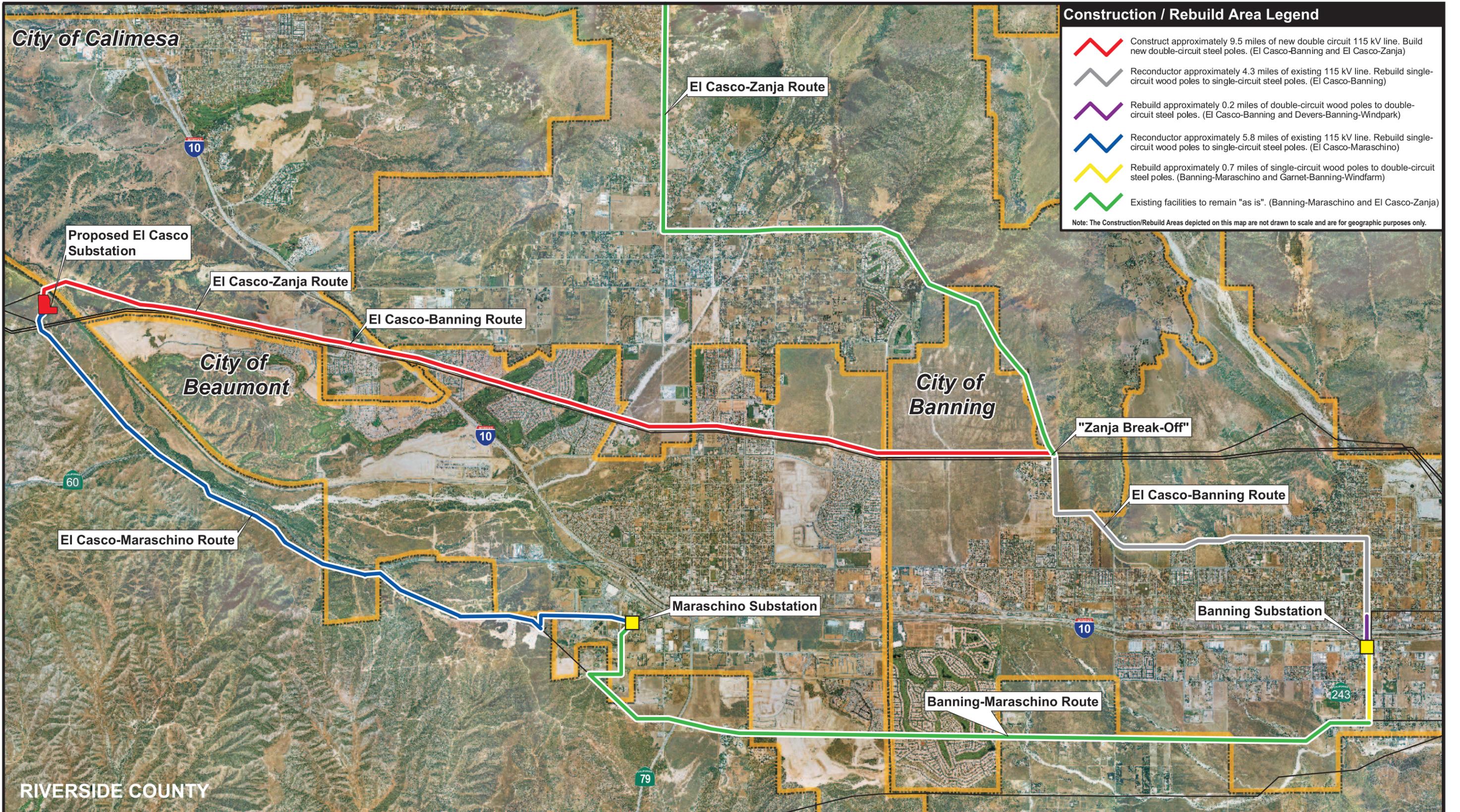
The first segment of this portion of the Northerly Route Alternative would require construction of several double-circuit TSPs to wrap the lines around the east and north sides of the El Casco Substation towards the existing Devers-San Bernardino #2 220 kV transmission line ROW. At that point, double-circuit TSPs would be installed for about 1 mile to take the lines northeast along the south side of that existing 220 kV transmission line ROW. Expansion of ROW would likely be required along this distance to widen that corridor enough to accommodate the new 115 kV lines. Where the Devers-San Bernardino #2 220 kV transmission line ROW joins the ROW for the Devers-Vista #1 and #2 and Devers-San Bernardino #1 220 kV lines, the new double-circuit 115 kV subtransmission line would be installed between the existing single-circuit Devers-San Bernardino #2 220 kV towers and the existing double-circuit Devers-Vista #1 and #2 220 kV towers for approximately 8.5 miles until this route crosses the location of the existing Devers-Banning-Windpark-Zanja 115 kV subtransmission line, near the northern terminus of Mountain Avenue in the City of Banning (the "Zanja breakoff"). See Figure Ap-1 for the location of the route, and see Figure Ap-2 for the location of the proposed towers within SCE's existing ROW. At this location, the El Casco-Zanja 115 kV line would connect to existing single-circuit wood pole structures heading toward Zanja Substation, while the El Casco-Banning 115 kV subtransmission line would continue east along the second segment (described below). From El Casco Substation to the "Zanja breakoff", there would be approximately 90 structures installed, roughly equally split between TSPs and LWSs. However, according to SCE, without the benefit of more in-depth engineering and design analysis it is not feasible at this time to provide specific locations for each of these structures (SCE, 2007a).

The second segment of this portion of the Northerly Route Alternative would replace all existing single-circuit wood poles with single-circuit steel poles to continue rebuilding the El Casco-Banning 115 kV subtransmission line. The route would head due south from the "Zanja breakoff", passing under the three existing SCE 220 kV transmission lines, along the east side of Mountain Avenue for approximately 0.2 miles, then turn due east for approximately 0.2 miles until it intersects with the existing line heading southeast for another 0.2 miles and then east for approximately 3.0 miles on the north side of Gilman Street. Just past the intersection of Gilman Street and Alessandro Road, the route turns due south and continues for approximately 1.0 mile. As the route crosses Williams Street, the Devers-Windpark 115 kV subtransmission line connects from the east and the two circuits continue south, across the Interstate 10 freeway (I-10), into Banning Substation. In this portion, SCE would rebuild approximately 0.2 miles of the existing double-circuit wood poles with double-circuit steel poles. The distance from the Zanja breakoff into Banning Substation would require approximately 45 new steel poles, again roughly equally split between TSP and LWS type structures.

## **Consideration of CEQA Criteria**

### ***Project Objectives***

The Northerly Route Alternative would meet all of the stated objectives of the Proposed Project. However, this alternative results in more miles of 115 kV subtransmission line exposure than the Proposed Project route, thereby potentially leading to reduced system reliability. In addition, the Northerly Route Alternative requires the acquisition of additional ROWs. Specifically, for a distance of approximately two miles along the northerly 115 kV subtransmission line route, SCE would need to obtain additional ROW to widen its existing easement by 25 feet.



**Construction / Rebuild Area Legend**

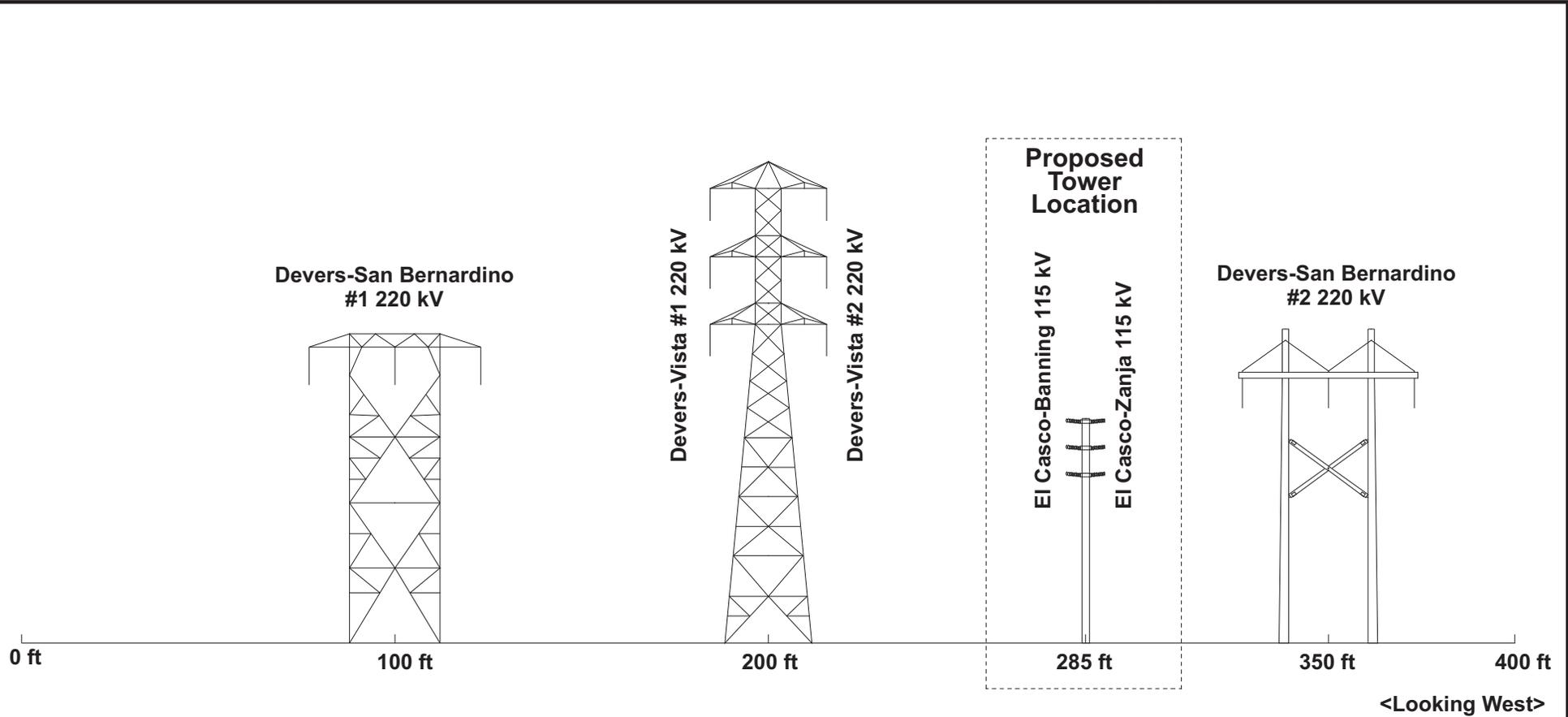
- Construct approximately 9.5 miles of new double circuit 115 kV line. Build new double-circuit steel poles. (El Casco-Banning and El Casco-Zanja)
- Reconductor approximately 4.3 miles of existing 115 kV line. Rebuild single-circuit wood poles to single-circuit steel poles. (El Casco-Banning)
- Rebuild approximately 0.2 miles of double-circuit wood poles to double-circuit steel poles. (El Casco-Banning and Devers-Banning-Windpark)
- Reconductor approximately 5.8 miles of existing 115 kV line. Rebuild single-circuit wood poles to single-circuit steel poles. (El Casco-Maraschino)
- Rebuild approximately 0.7 miles of single-circuit wood poles to double-circuit steel poles. (Banning-Maraschino and Garnet-Banning-Windfarm)
- Existing facilities to remain "as is". (Banning-Maraschino and El Casco-Zanja)

Note: The Construction/Rebuild Areas depicted on this map are not drawn to scale and are for geographic purposes only.

Existing 220 kV Transmission or 115 kV Subtransmission Line	Proposed Substation Site	State Route
Existing Substation	Interstate Highway	

Scale in Miles

**Figure Ap-1**  
**Northerly Route Alternative**



**Figure Ap-2**  
Location of Northerly Route Alternative  
115 kV Subtransmission Lines  
Within Existing SCE ROW (Typical Cross-Section)



Source: SCE, 200f.

### ***Feasibility***

There are no technical, legal, or regulatory feasibility issues associated with implementation of the Northerly Route Alternative. However, SCE would need to expand its ROW by 25 feet for an approximate two-mile portion of this route. This need for additional ROW would not create any feasibility issues.

### ***Lessen Significant Environmental Effects***

The main difference between the Northerly Route Alternative and the Proposed Project route is the routing of the 115 kV subtransmission line and associated infrastructure. The only reduction in environmental impacts associated with the Northerly Route Alternative when compared to the Proposed Project (as shown in Table Ap-1) would be that with implementation of the Northerly Route Alternative approximately six miles of the Proposed Project activities associated with the construction of the 115 kV line between Maraschino and Banning Substations would not occur, and the existing wood poles within that segment of ROW would remain in place (refer to the Green Line on Figure Ap-1). Therefore, construction impacts (i.e., air quality, noise, and traffic nuisances) would not occur to the land uses (predominantly residential including the Sun Lakes community) adjacent to this segment of the Proposed Project existing 115 kV ROW. In addition, the visual character of this six-mile portion would not change from existing conditions. Therefore, a reduction in environmental impacts of the Proposed Project would occur along this segment of the existing 115 kV ROW as a result of the implementation of the Northerly Route Alternative.

### ***Potential New Impacts Created***

With the Proposed Project, impacts of the proposed 115 kV route would occur along a total of 15.4 miles within existing SCE ROWs. As shown on Figure Ap-1, impacts associated with implementation of the Northerly Route Alternative would occur along a total of 20.5 miles. As shown in Figure Ap-1, the main difference between the Northerly Route Alternative and the Proposed Project route is the location of the 115 kV subtransmission line and associated infrastructure. In general, the visual impacts associated with this alternative would be greater than those of the Proposed Project due to siting of an approximate additional five miles of 115 kV line infrastructure. The Northerly Route Alternative would require the acquisition of additional ROWs for a distance of approximately two miles along the northerly 115 kV subtransmission line route. SCE would need to obtain additional ROW to widen its existing easement by 25 feet. As a result of this land acquisition, impacts to land uses along these portions could be slightly greater than the Proposed Project, since the Proposed Project does not require ROW expansion or acquisition.

The following outlines new construction and operational impacts created by the rerouting of the 115 kV line associated with the Northerly Route Alternative on a segment basis (as shown in Figure Ap-1):

#### **El Casco-Banning and El Casco-Zanja (Red Line shown on Figure Ap-1)**

This 9.5-mile segment of the Northerly Route Alternative subtransmission line would occur in existing SCE ROW, which currently consists of the existing Devers-San Bernardino #1 and #2 220 kV transmission lines, and the Devers-Vista #1 220 kV transmission line. The Proposed Project would not include any construction activities within this ROW. However, the Northerly Route Alternative would result in new construction-related (primarily noise, traffic, and air quality) impacts to existing and planned residential communities located along the route within the Cities of Beaumont and Calimesa.

Given that this ROW currently contains three major transmission lines, and that the proposed subtransmission infrastructure would be smaller in scale, it is anticipated that the visual impacts associated with siting a 115 kV line would not be significant. However, as shown in Figure Ap-2, the bulk and mass of transmission line structures within the ROW would increase with this new line resulting in an increase in visual clutter impacts associated with views of electrical infrastructure within the ROW from surrounding residential receptors. Furthermore, within the City of Banning, the majority of the open space adjacent to the ROW is slated for (currently approved) residential development in the near future. Therefore, the increase of bulk and mass of structures resulting visual impacts to existing and planned residential adjacent to this segment of ROW is considered a new impact associated with the Northerly Route Alternative.

### **El Casco-Banning (Grey Line shown on Figure Ap-1)**

For the 4.3-mile portion between Banning Substation and the Zanja Break-off, SCE would need to replace its existing single-circuit wood poles with single-circuit steel poles. Although an SCE 115 kV line already exists within this segment, the ROW is restricted in many places making replacement of poles challenging. This segment of the Northerly Route Alternative is almost entirely adjacent to dense residential uses with limited space in the ROW. In certain locations, land uses such as residences and public roads have encroached upon SCE's ROW, and the existing 115 kV wood poles have very restricted space around them. Therefore, in order to replace towers in this portion, there would be significant construction-related impacts to land uses, including traffic restrictions, air quality impacts, and noise nuisances on sensitive receptors (e.g., residential uses) due to their close proximate locations. These impacts would be focused on receptors located along Drury Lane, Gilman Street, and Mountain Avenue within the City of Banning. While these construction impacts would be temporary, they would be a new impact associated with the Northerly Route Alternative.

Also located along this segment is the Gilman Ranch, which is listed on the National Register of Historic Places and the California Register of Historic Places, and contains significant historic and prehistoric resources that may be impacted by construction activities associated with the Northerly Route Alternative. While construction-related impacts are considered temporary and can be mitigated through standard cultural resources avoidance measures, this impact is considered a new impact associated with the Northerly Route Alternative.

The replacement of wood poles with steel poles within this segment of the Northerly Route Alternative would result in a permanent visual change. The replacement of wood poles to steel poles would make the ROW more industrial in appearance and result in slightly taller poles than existing conditions. Furthermore, this segment of the Northerly Route Alternative would travel through open space land planned for future residential development within the City of Banning, thus ultimately further increasing the amount of residential receptors exposed to an increase in visual impacts. While neighboring receptors already have views of the ROW and related electrical infrastructure within, the visual change from wood poles to steel poles is considered a new impact associated with the Northerly Route Alternative.

### **El Casco-Banning and Devers-Banning-Windpark (Purple Line shown on Figure Ap-1)**

The impacts associated with this 0.2 mile segment of the Northerly Route Alternative would be similar to those discussed above for the El Casco-Banning segment (Grey Line shown on Figure Ap-1). SCE would need to replace its existing double-circuit wood poles with double-circuit steel poles. Although an SCE 115 kV line already exists within this segment, both construction and operational (visual)

impacts within the ROW would occur similar to those discussed above for the El Casco-Banning Segment (Grey Line shown on Figure Ap-1), and are considered new impacts associated with the Northerly Route Alternative. For this segment of the Northerly Route Alternative, these impacts would be focused on receptors located along Drury Lane within the City of Banning. In addition to those impacts, this segment of the Northerly Route Alternative would require restringing activities across the Interstate 10 Freeway, thus resulting in an increase to traffic impacts as compared to the Proposed Project.

#### **Banning-Maraschino and Garnet-Banning-Windfarm (Yellow Line shown on Figure Ap-1)**

The impacts associated with this 0.7 mile segment of the Northerly Route Alternative would be similar to those discussed above for the El Casco-Banning segment (Grey Line shown on Figure Ap-1). SCE would need to replace its existing single-circuit wood poles with double-circuit steel poles. Although an existing SCE 115 kV line already exists within this segment, both construction and operational (visual) impacts within the ROW would occur similar to those discussed above for the El Casco-Banning segment (Grey Line from Figure Ap-1). In addition, the change from single-circuit wood poles to double-circuit steel poles would result in taller poles when compared to existing conditions, and additional visual impacts to receptors adjacent to the ROW. For this segment of the Northerly Route Alternative, these impacts would be focused on receptors located along Drury Lane within the City of Banning. These changes are considered new impacts associated with the Northerly Route Alternative.

#### **El Casco-Maraschino (Blue Line shown on Figure Ap-1)**

In order to implement the Northerly Route Alternative, SCE would need to re-conductor approximately 5.8 miles of its existing 115 kV line between the Maraschino and El Casco Substations. Reconductoring would consist of replacing the existing single-circuit wood poles with single-circuit steel poles. Therefore, impacts along this portion of the ROW would exactly the same as those resulting from the Proposed Project segment in the same portion. The only difference would be the fact that with Proposed Project, the line in this portion would be built as double-circuit. The route alignment, tower placement, tower heights, and construction activities in this portion would be identical to Proposed Project Activities. Although the majority of this portion of the ROW traverses currently open space areas, implementation of the Northerly Route Alternative would offer no advantage over the Proposed Project in this segment.

### **Alternative Conclusion**

***ELIMINATED.*** This alternative would meet all project objectives. In general, both the Proposed Project and the Northerly Route Alternative would result in similar types of construction impacts. However, with implementation of the Northerly Route Alternative slightly higher levels of construction impacts would result due to a longer route and the acquisition of new ROW. Due to the rerouting of the 115 kV line through populated areas of the Cities of Banning, Beaumont, and Calimesa, an increase in the amount of existing and future planned residential and sensitive receptors (including the historic Gilman Ranch) impacted during construction would occur with the Northerly Route Alternative when compared to the Proposed Project. The increase in temporary construction-related adverse impacts would occur to land use, cultural resources, air quality, traffic and noise over those analyzed for the Proposed Project. However, it should be noted that these adverse impacts are short-term construction-related impacts and would be mitigable.

It should be noted that the only advantage of the Northerly Route Alternative is that construction activities of the Proposed Project would not occur between Maraschino Substation east toward Banning Substation (see green line shown on Figure Ap-1), and SCE's existing facilities would remain in place. However, SCE would need to energize the existing 115 kV line if this alternative were to be implemented. While this alternative would result in the elimination of Proposed Project activities associated with the construction of the 115 kV line between Maraschino and Banning Substations for approximately six miles (refer to the green line shown on Figure Ap-2), the amount and density of residential receptors impacted by the Northerly Route Alternative is greater than the residential areas of the Proposed Project that would be avoided (i.e., the Sun Lakes community on the east side of Highland Springs Avenue and the Four Seasons development on the west side of Highland Springs Avenue). The portions of the Proposed Project ROW that would be avoided also have wider ROWs in residential areas than the residential areas traversed by the Northerly Route Alternative. Therefore, while the construction and visual impacts would be somewhat similar between the Proposed Project and the Northerly Route Alternative, the amount of receptors exposed to construction impacts and permanent visual impacts would be greater under this alternative.

In general, operational visual and land use impacts associated with this alternative would be greater than those of the Proposed Project due to siting of an approximate additional five miles of 115 kV line infrastructure, two miles of which would be new ROW that does not currently contain any electric infrastructure. Furthermore, the Northerly Route Alternative would result in both more industrial and taller electrical poles as well as an increase in the bulk and mass of electrical infrastructure within existing ROWs. These changes would be considered adverse visual impacts greater than those associated with the Proposed Project due to the greater number of receptors exposed to this visual change within the Cities of Banning, Beaumont, and Calimesa due to the siting of the Northerly Route Alternative. Given that this alternative has slightly greater overall construction and visual impacts on residential sensitive receptors as compared to the Proposed Project, SCE's proposed Northerly Route Alternative was eliminated from further consideration.

#### **4.2.2 CPUC's Northerly Route Alternative Option 1**

This route was recommended by CPUC and developed further by SCE in an attempt to offer a segment option to SCE's Northerly Route Alternative in the portions where that alternative would impact high-density residential neighborhoods with very limited space in SCE's existing ROW. The CPUC's Northerly Route Alternative Option 1 is also referred to as Route Alternative Option 1, and occurs between Banning Substation and the Zanja Break-off (SCE, 2007f).

#### **Alternative Description**

The majority of this route alternative would be exactly the same as SCE's Northerly Route Alternative described in detail above in Section 4.2.1 and depicted in Figures Ap-1 (Northerly Route Alternative) and Ap-3 (CPUC Route Alternatives). The differences between SCE's Northerly Route Alternative and CPUC's Northerly Route Alternative Option 1 are delineated below, and on Figure Ap-3 (CPUC Route Alternatives). Route Alternative Option 1 is shown as a green line on Figure Ap-3.

As described for SCE's Northerly Route Alternative, this route would begin at the "Zanja breakoff" near the northern terminus of Mountain Avenue in the City of Banning (SCE, 2007f). However, instead of heading south and then east to replace existing facilities primarily along Gilman Street, this route would continue due east, with new single-circuit TSPs and LWSs within the existing Devers-Vista 220 kV transmission line ROW for approximately 3.5 miles. When the route reaches San Gorgonio Avenue,

the new line construction would continue for approximately 1.0 mile farther to the east to tower M17-T1 (located on land owned by the Morongo Indian Tribe) before turning south and east toward the northern terminus of Hargrave Street. In this area, the route would parallel the Proposed Project fiber optic communication line route described in detail in Section B.8.2.1.1, (Routing) as the “Banning-M17-T2” fiber optic circuit. This route would then proceed south on Florida Street, then turn east on Repplier Road, then proceed south on the west side of Hargrave Street, then turn west on the south side of Williams Street, and then south along the existing line route and across the I-10 into Banning Substation, as described above in Section 4.2.1 for SCE’s Northerly Route Alternative.

## **Consideration of CEQA Criteria**

### ***Project Objectives***

This alternative would meet all of the stated objectives of the Proposed Project. However, this alternative would result in more miles of 115 kV subtransmission line exposure than the Proposed Project route, thereby potentially leading to reduced system reliability.

### ***Feasibility***

There are no technical or regulatory feasibility issues associated with implementation of Route Alternative Option 1. There is a potential for legal feasibility issues associated with siting of the subtransmission line route through Morongo Tribal lands where the route would need to connect to the M17-T1 Tower to join SCE’s existing transmission line ROW.

### ***Lessen Significant Environmental Effects***

The only reduction in environmental impacts associated with Route Alternative Option 1 would be that approximately six miles of the Proposed Project activities associated with the construction of the 115 kV line between Maraschino and Banning Substations would not occur, and the existing wood poles would remain in place (refer to the green line on Figure Ap-1). Therefore, the Proposed Project impacts within the 115 kV line between Maraschino and Banning Substations associated with construction (i.e., air quality, noise, and traffic nuisances) would not occur to the land uses (predominantly residential including the Sun Lakes community) adjacent to the existing 115 kV ROW along this segment. In addition, the visual character of this six-mile portion would not change from existing conditions. Therefore, a reduction in environmental impacts would occur along this segment of existing 115 kV ROW as a result of the Route Alternative Option 1.

### ***Potential New Impacts Created***

The impacts associated with this alternative would be similar to those discussed for SCE’s Northerly Route Alternative, as presented above in Section 4.2.1. However, this route is approximately one mile longer than the Northerly Route Alternative, as shown in Figure Ap-3. The majority of this longer portion is located within existing SCE ROW, which currently consists of the existing Devers-San Bernardino #2 220 kV transmission lines and the Devers-Vista #1 220 kV transmission line. The Proposed Project route would occur along a total of 15.4 miles along existing ROWs, while the Route Alternative Option 1 route would occur along a total of approximately 21.5 miles.



**City of  
Banning**

M17 T1 Transmission Tower

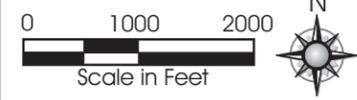
Banning Substation

RIVERSIDE COUNTY



Source: SCE, 2007f.

CPUC's Northerly Route Alternative, Option 1	SCE's Northerly Route Alternative	Existing 220 kV Transmission Line	SCE Transmission Tower
CPUC's Northerly Route Alternative, Option 2	Proposed Project Route	City Boundary	Existing Substation
CPUC's Northerly Route Alternative, Option 3			



**Figure Ap-3**  
**CPUC Route Alternatives**

Similar to the Northerly Route Alternative, a large portion of Option 1 would be located adjacent to dense residential areas with construction-related impacts including traffic restrictions, air quality impacts, and noise nuisances focused on receptors located along Drury Lane, Williams Street, Hargrave Street, and Florida Street within the City of Banning (as shown in Figure Ap-3). Route Alternative Option 1 would also travel through open space land planned for future residential development within the City of Banning, thus further increasing the amount of residential receptors exposed to potential impacts. In addition to identified construction impacts, Route Alternative Option 1 would require restringing activities across the Interstate 10 Freeway, thus resulting in an increase to traffic impacts as compared to the Proposed Project.

While construction impacts would be temporary, they would be a new impact associated with Route Alternative Option 1 as compared to the Proposed Project. Furthermore, transmission line upgrades and new pole erection within the Option 1 corridor (as shown in Figure Ap-3) would result in an intensification of visual prominence of electrical infrastructure over existing conditions to neighboring receptors that already have views of the ROW. This visual change is considered a new impact associated with this alternative when compared to the Proposed Project.

Route Alternative Option 1 also has potential legal feasibility issues due to routing of the line through approximately 0.5 miles of Morongo Tribal land. SCE would be required to obtain appropriate permits and initiate lease agreements for implementing the Proposed Project through tribal lands.

In addition, it should be noted that with implementation of this alternative, SCE would need to energize its existing 115 kV line between Banning and Maraschino Substations (see green line shown on Figure Ap-1).

### **Alternative Conclusion**

***ELIMINATED.*** This alternative would meet all project objectives. However, similar to the Northerly Route Alternative, the visual and land use impacts associated with this alternative would be greater than those of the Proposed Project due to the siting of approximately six additional miles of 115 kV line infrastructure when compared to the length of the Proposed Project route. In general, both the Proposed Project and the Route Alternative Option 1 would result in similar types of impacts. However, Route Alternative Option 1 would result in slightly higher levels of impacts than the Proposed Project due to a longer route and number of residential receptors subject to construction and operational impacts. For a visual depiction of this route, please refer to the aerial map Figure Ap-3.

While this alternative would result in the elimination of Proposed Project activities associated with the construction of the 115 kV line between Maraschino and Banning Substations for approximately six miles (refer to the green line in Figure Ap-1), the amount and density of residential receptors impacted by the Route Alternative Option 1 is greater than that avoided. In general, operational visual and land use impacts associated with this alternative would be greater than those of the Proposed Project due to siting of additional 115 kV line infrastructure, 2 miles of which would be new ROW required that does not currently contain any electric infrastructure. Furthermore, the Route Alternative Option 1 would result in both more industrial and taller electrical poles as well as an increase in the bulk and mass of electrical infrastructure within exiting ROWs. These changes would be considered adverse visual impacts greater than those associated with the Proposed Project due to the greater number of residential sensitive receptors exposed to this visual change within the City of Banning. This alternative could also result in legal feasibility issues due crossing of Morongo Tribal lands. Given that this alternative has slightly greater overall construction and visual impacts when compared to the Proposed Project, and the

potential for impacts to tribal lands, Route Alternative Option 1 was eliminated from further consideration.

### **4.2.3 CPUC's Northerly Route Alternative Option 2**

Similar to Route Alternative Option 1, this route was recommended by CPUC and developed further by SCE in an attempt to offer a segment option to SCE's Northerly Route Alternative in the portions where that alternative would impact high-density residential neighborhoods with very limited space in SCE's existing ROW. The CPUC's Northerly Route Alternative Option 2 is also referred to as Route Alternative Option 2, and occurs between Banning Substation and the Zanja Break-off.

#### **Alternative Description**

This route would be virtually identical to CPUC's Northerly Route Alternative Option 1 described above in Section 4.2.2, with the exception that at the point where the ROW crosses San Gorgonio Avenue, the route would turn due south, under three 220 kV transmission lines, for approximately 0.1 mile, then turn east to follow an existing distribution pole line (which currently supports a combination of SCE and City of Banning distribution voltages) for approximately 1.0 mile (SCE, 2007f). Then the route would turn south on Hargrave Street. From approximately the northern terminus of Hargrave Street into Banning Substation, this route would be identical to Option 1 described in Section 4.2.2, above. Figure Ap-3 illustrates the location of this route and is shown as a purple line.

#### **Consideration of CEQA Criteria**

##### ***Project Objectives***

This alternative would meet all of the stated objectives of the Proposed Project. However, this alternative would result in more miles of 115 kV subtransmission line exposure than the Proposed Project route, thereby potentially leading to reduced system reliability.

##### ***Feasibility***

There are no technical, legal, or regulatory feasibility issues associated with implementation of Route Alternative Option 2.

##### ***Lessen Significant Environmental Effects***

With implementation of the Route Alternative Option 2, approximately six miles of the Proposed Project activities associated with the construction of the 115 kV line between Maraschino and Banning Substations would not occur, and the existing wood poles would remain in place (refer to the green line on Figure Ap-1). Therefore, the Proposed Project impacts on the land uses (predominantly residential including the Sun Lakes community and Four Seasons Development) adjacent to the existing 115 kV ROW between Maraschino and Banning Substations (i.e., air quality, noise, and traffic nuisances) would not occur along this segment. In addition, the visual character of this six-mile portion would not change from existing conditions. Therefore, a reduction in Proposed Project environmental impacts would occur along this segment of existing 115 kV ROW as a result of Route Alternative Option 2.

### ***Potential New Impacts Created***

The impacts associated with this alternative would be similar to those discussed for the Northerly Route Alternative. However, this route is approximately one mile longer than the Northerly Route Alternative. The majority of this longer portion is located within existing SCE ROW, which currently consists of the existing Devers-San Bernardino #2 220 kV transmission lines and the Devers-Vista #1 220 kV transmission line. Similar to the Northerly Route Alternative, a large portion of Option 2 would be located adjacent to dense residential uses with construction-related impacts to land uses, including traffic restrictions, air quality impacts, and noise nuisances focused on receptors located along Drury Lane, Williams Street, Hargrave Street, Florida Street, and Summit Drive within the City of Banning (as shown in Figure Ap-3). The Northerly Route Option 2 Alternative would also travel through open space land planned for future residential development within the City of Banning, thus further increasing the amount of future residential sensitive receptors exposed to potential impacts. In addition to identified construction impacts, Route Alternative Option 2 would require restringing activities across the Interstate 10 Freeway, thus resulting in an increase to traffic impacts as compared to the Proposed Project. While these construction impacts would be temporary, they would be a new impact associated with implementation of this alternative as compared to the Proposed Project. Furthermore, transmission line upgrades and new pole erection within the alternative corridor (as shown in Figure Ap-3) would result in an intensification of visual prominence of electrical infrastructure over existing conditions to neighboring receptors that already have views of the ROW. This visual change is considered a new impact associated with Route Alternative Option 2 as compared to the Proposed Project.

It should be noted that although construction activities of the Proposed Project would not occur between Maraschino Substation east toward Banning Substation (see green line shown on Figure Ap-1), and SCE's existing facilities would remain in place, SCE would need to energize the existing 115 kV line if this alternative were to be implemented.

### **Alternative Conclusion**

***ELIMINATED.*** This alternative would meet all project objectives. However, similar to the Northerly Route Alternative and Alternative Route Option 1, the visual and land use impacts associated with this alternative would be greater than those of the Proposed Project due to siting of additional 115 kV line infrastructure (approximately six miles more than the Proposed Project).

While this alternative would result in the elimination of Proposed Project activities associated with the construction of the 115 kV line between Maraschino and Banning Substations for approximately six miles (refer to the green line in Figure Ap-1), the amount and density of residential receptors impacted by the Route Alternative Option 2 is greater than that avoided. In general, operational visual and land use impacts associated with this alternative would be greater than those of the Proposed Project due to the siting of additional 115 kV line infrastructure 2 miles of which would be new ROW that does not currently contain any electric infrastructure. Furthermore, this alternative would result in both more industrial and taller electrical poles as well as an increase in the bulk and mass of electrical infrastructure within existing ROW. These changes would be considered adverse visual impacts greater than those associated with the Proposed Project due to the greater number of residential receptors exposed to this visual change within the City of Banning. Given that this alternative has slightly greater overall construction and visual impacts as compared to the Proposed Project, Route Alternative Option 2 was eliminated from further consideration.

#### 4.2.4 CPUC's Northerly Route Alternative Option 3

This route was recommended by CPUC, and refined by SCE in an attempt to offer a segment option to SCE's Northerly Route Alternative in the portions where that alternative would impact high-density residential neighborhoods with very limited space in SCE's existing ROW. The CPUC's Northerly Route Alternative Option 3 is also referred to as Route Alternative Option 3, and occurs between Banning Substation and the Zanja Break-off (SCE, 2007j).

##### Alternative Description

The majority of this route alternative would be exactly the same as SCE's Northerly Route Alternative described in detail above in Section 4.2.1 and depicted in Figures Ap-1 (Northerly Route Alternative) and Ap-3 (CPUC Route Alternatives). The differences between SCE's Northerly Route Alternative and CPUC's Northerly Route Alternative Option 1 are delineated below, and on Figure Ap-3 (CPUC Route Alternatives). Route Alternative Option 3 is shown as a pink line on Figure Ap-3.

Similar to SCE's Northerly Route Alternative, this route option would be located between Banning Substation and the "Zanja breakoff" (SCE, 2007j). From Banning Substation north, SCE would construct the new 115 kV subtransmission line where its existing 115 kV subtransmission line is within existing easements up to Williams Street. On Williams Street, the route would follow the existing SCE subtransmission line (within existing easements), which is currently on the south side of Williams Street, to Hathaway Street. On Hathaway Street, the subtransmission line would likely overbuild on the existing City of Banning distribution line that currently exists on the east side of Hathaway Street up to Morongo Road, where the subtransmission line would need to cross Hathaway Street and continue overbuilding on the west side of Hathway Street on City of Banning's distribution line. The subtransmission line route would turn west from Hathaway Street onto Gilman Street, then turning north again on Blanchard Street. The route would continue north on Blanchard Street to Reppelier Street. On Reppelier Street, the subtransmission line would be overbuilt on poles that support the Banning distribution line, as well as an SCE 33 kV distribution line, on the north side of the street. SCE may need to obtain additional easement rights (or franchise rights) within this area. The route would then turn north on Florida Street, where it would need to be overbuilt on existing City of Banning distribution poles on the east side of the street. Accordingly, SCE would need to obtain easement rights (or franchise rights) along Florida Street from the City of Banning. The route would then turn west onto Summit Drive, west of Florida Street and then proceed north along San Gorgonio Avenue up to SCE's existing 220 kV transmission right of way similar to CPUC's Alternative Route Option 2 (purple line on Figure Ap-3) to avoid Morongo tribal land north of the Banning city limits. Where the route intersects SCE's existing Devers-Vista 220 kV transmission ROW and turns west towards the El Casco Substation, the new line would be located within the ROW as previously described above in Section 4.2.1 (SCE's Northerly Route Alternative).

##### Consideration of CEQA Criteria

###### *Project Objectives*

This alternative would meet all of the stated objectives of the Proposed Project. However, this alternative would result in more miles of 115 kV subtransmission line exposure than the Proposed Project route, thereby potentially leading to reduced system reliability.

### ***Feasibility***

There are no technical, legal, or regulatory feasibility issues associated with implementation of Route Alternative Option 3.

### ***Lessen Significant Environmental Effects***

There would be a reduction in environmental impacts associated with Route Alternative Option 3, because this route would avoid approximately six miles of the Proposed Project activities associated with the construction of the 115 kV line between Maraschino and Banning Substations. In this area, the existing SCE wood poles would remain in place (refer to the green line on Figure Ap-1). Therefore, the Proposed Project impacts between Maraschino and Banning Substations associated with construction of the Proposed Project (i.e., air quality, noise, and traffic nuisances) would not occur to the residential land uses along the Proposed Project route, including the Four Seasons Development located to the west side of Highland Springs Avenue, and the Sun Lakes community located on the east side of Highland Springs Avenue. In addition, the visual character of this six-mile portion would not change from existing conditions. Therefore, a reduction in environmental impacts could occur along this segment of existing 115 kV ROW as a result of the Alternative Route Option 3. In addition, unlike the Northerly Route Alternative, Option 3 is routed through less dense residential areas between the Banning Substation and “Zanja Breakoff.”

### ***Potential New Impacts Created***

The impacts associated with this alternative would be similar to those discussed for SCE’s Northerly Route Alternative, as presented above in Section 4.2.1. However, this route is approximately 2 miles longer than the Northerly Route Alternative, as shown in Figure Ap-3. The majority of this longer portion is located within existing SCE ROW, which currently consists of the existing Devers-San Bernardino #2 220 kV transmission lines and the Devers-Vista #1 220 kV transmission line. The Proposed Project route would occur along a total of 15.4 miles along existing ROWs, while the Route Alternative Option 3 route would occur along a total of approximately 23.2 miles.

Transmission line upgrades and new pole erection within the Option 3 corridor (as shown in Figure Ap-3) would result in construction nuisances to adjacent land uses, and an intensification of visual prominence of electrical infrastructure over existing conditions to neighboring receptors that already have views of the ROW. In addition to construction impacts, Route Alternative Option 3 would require restringing activities across the Interstate 10 Freeway, thus resulting in an increase to traffic impacts as compared to the Proposed Project.

There are some potential private property and access issues with the routing of Option 3. The portion of Alternative Route Option 3 that turns west from Hathaway Street onto Gilman Street, then north on Blanchard Street would be located on private property, so additional rights would have to be obtained from the property owner. In addition, the subtransmission line would need to be overbuilt on the City of Banning’s existing distribution facilities on the north side of Reppelier Street just south of the Robertson’s Ready Mix fence line. For this portion of the route, SCE would also need to obtain easement rights (or franchise rights) from the City of Banning.

In addition, it should be noted that with implementation of this alternative, SCE would need to energize its existing 115 kV line between Banning and Maraschino Substations (see green line shown on Figure Ap-1).

## Alternative Conclusion

**RETAINED FOR ANALYSIS.** This alternative would meet all project objectives. In general, both the Proposed Project and the Route Alternative Option 3 would result in similar types of impacts. However, Route Alternative Option 3 would result in slightly higher levels of impacts than the Proposed Project due to a longer route. For a visual depiction of this route, please refer to the aerial map Figure Ap-3.

This alternative would result in the elimination of Proposed Project activities associated with the construction of the 115 kV line between Maraschino and Banning Substations for approximately six miles (refer to the green line in Figure Ap-1). In general, operational visual and land use impacts associated with this alternative would be greater than those of the Proposed Project due to siting of additional 115 kV line infrastructure 2 miles of which would be new ROW required that does not currently contain any electric infrastructure.

Even though this alternative would require construction of a longer 115 kV subtransmission route, it would avoid impacts associated with traversing high-density residential areas along the Proposed Project route. Due to the elimination of six miles of Proposed Project adjacent to high-density residential areas, this alternative was retained for full evaluation in the EIR.

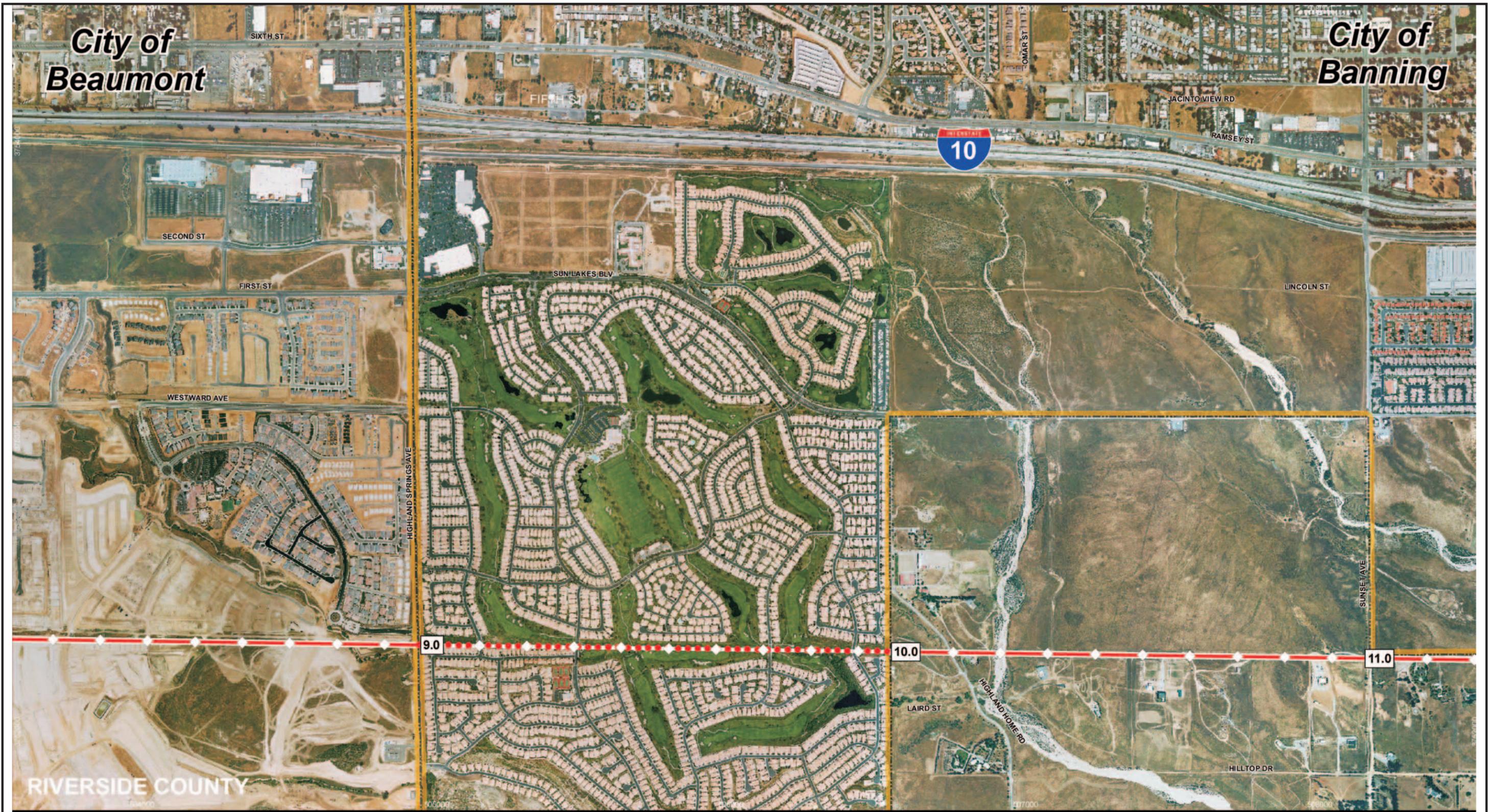
### 4.2.5 Partial Underground Alternative

#### Alternative Description

The Partial Underground Alternative, shown in Figure Ap-4, was developed as a partial overhead/underground alternative in response to scoping comments voicing concerns about impacts in and around the Sun Lakes community, where the Proposed Project bisects the Sun Lakes community between approximately Mile 9.0 and 10.0 of the Proposed Project 115 kV Subtransmission Line.

This alternative would contain the same elements as the proposed El Casco System Project (see Section B, Project Description), except for the approximately one-mile portion of the alignment through the Sun Lakes community beginning just east of Highland Springs Avenue and ending just east of S. Riviera Avenue and west of S. Highland Home Road. For the Partial Underground Alternative, the existing H-frame wood poles for the overhead single-circuit 115 kV subtransmission line would be removed, and a new double-circuit 115 kV subtransmission line would be installed underground through the Sun Lakes community within the existing SCE ROW beginning at approximately Mile 9.0 (see Figure Ap-4). Road crossings associated with this underground portion (from west to east) would include Pine Valley Road, Birdie Drive, Fairway Oaks Avenue, and S. Riviera Avenue. Once through the Sun Lakes community, at approximately Mile 9.9, the new double-circuit 115 kV subtransmission line would transition back to overhead construction as described for the Proposed Project. This alternative would require approximately 10 fewer new steel poles (assuming one pole every 400 to 800 feet, which is the same as the current spacing), as the subtransmission lines would be placed underground rather than on overhead infrastructure (SCE, 2007i).

The technology that would be used for the underground portions of this alternative would consist of Solid Dielectric Cables (XLPE) with each circuit installed in a separate concrete-encased duct bank.



RIVERSIDE COUNTY



**Proposed 115kv Route**

-  Replace single circuit with double circuit and replace structures
-  Replace single circuit with underground double circuit and remove structures

-  Proposed 115kV Mileposts 0.1 mile
-  City Boundaries



**Figure Ap-4**  
**Partial Underground Alternative**



It should be noted that there is a high-pressure natural gas line co-located with SCE's existing 115 kV subtransmission line through the Sun Lakes community. These two utilities are within a 100-foot utility corridor that runs east to west through the Sun Lakes community. SCE retains an easement along the northern 50 feet of the corridor, while the Southern California Gas Company retains the easement along the southern 50 feet of the corridor. These distances provide adequate separation between the existing high-pressure gas line and any proposed underground electric facilities (i.e., new ducts and vaults).

The specific components of undergrounding, as well as the construction equipment necessary for underground construction, are described below.

### ***Construction of Underground Subtransmission Line***

**Riser Pole.** The riser pole is the point at which overhead lines transition to underground lines. For the Partial Underground Alternative, the riser poles would be approximately 75 to 80 feet tall. Since there are two sets of conductors (i.e., a double circuit with three wires on each circuit), two riser poles would be required at each transition point, similar to those shown in Figure Ap-5. The underground cables would be routed down from the pole cross arms through rigid conduits. A set of two riser poles would be constructed within the existing corridor just east of the intersection with Highland Springs Avenue, and another set would be constructed east of S. Riviera Avenue and west of S. Highland Home Road.

**Trenching/Duct Bank Installation.** To match the current carrying capacity of the Proposed Project's overhead double-circuit 115 kV subtransmission lines, the underground system would require the installation of two cables for each phase of the 115 kV lines resulting in six underground cables per circuit. Each underground cable would utilize cross-linked, polyethylene-insulated (XLPE) solid-dielectric insulation with a 1,750 kcmil aluminum conductor core. Each set of cables would be installed in a buried concrete-encased duct bank system, as shown in Figure Ap-6. Each duct bank would be designed to hold eight conduits (two conduits wide by four conduits deep), where six would be filled and two would be spares. The two duct banks would be approximately two feet wide and seven feet deep. The total excavation footprint for each duct bank would be approximately 4 feet wide by 7.5 feet deep over the length of the one-mile segment (minus those areas where vaults would be located). Total excavated material for the one-mile segment associated with duct bank construction would amount to approximately 14,080 cubic yards. Conduit installation would proceed at a rate of approximately 100 to 125 feet per day (SCE, 2007h).

During operations, underground power cables generate a significant amount of heat. The electric current carrying capacity of underground cables is directly related to the amount of this cable heat that can be dissipated through the surrounding soil. Therefore, in order to minimize heat build-up, the two parallel duct banks would be placed six feet apart as shown in Figure Ap-7.

During construction, road closures and detours would be required as trenching crossed existing roadways, including Pine Valley Road, Birdie Drive, Fairway Oaks Avenue, and S. Riviera Avenue. During non-work hours, any open trench would be covered by either heavy-duty plywood (in non-traffic areas) or steel plates (in roadways) (SCE, 2007h).

A permanent access road through the portion of the ROW through the Sun Lakes community would not be required; however, unencumbered access to the underground structures and the duct bank route must be readily available to SCE crews at all times (SCE, 2007h). Therefore, restrictions would be in place limiting the placement of any structures or permanent or deep-rooted vegetation along the ROW to ensure that future access for regular maintenance and emergency repairs is not impeded (SCE, 2007h).

If necessary, SCE would implement methods such as the installation of turfblock or other permeable pavers in certain areas to allow SCE crews to drive along the ROW without causing substantial damage to the grass (SCE, 2007h).

**Vault Installation.** Cable splice vaults would be installed at regular intervals below grade (i.e., below the ground surface) along the one-mile alignment for this alternative. These vaults would house equipment and splices for the underground circuits. Because there is a practical limit to the length of cable supplied on a reel, vaults generally would be located a maximum of every 1,500 feet to allow splicing of the cable ends. In addition, due to the requirements for cable pulling to the steel riser poles, the first set of splicing vaults must be placed within 150 feet of the riser poles (SCE, 2007h).

A total of five locations through the Sun Lakes community have been identified by SCE where vaults would be required (see Figure Ap-7), for a total of ten vaults (two vaults at each location – one for each duct bank). Vaults would pre-fabricated and would be constructed of steel-reinforced concrete, with dimensions of approximately 20 feet long by 8 feet wide by 9.5 feet deep (SCE, 2007h). The vaults would be designed to withstand the maximum credible earthquake in the project area. During operations, manholes located at finished grade level would provide for access to the vaults so that operations personnel could access the underground cables for maintenance, inspections, and repairs.

The total excavation footprint for a vault would be approximately 26 feet long by 12 feet wide and 12 feet deep. Total excavated material for the ten vaults along the one-mile segment would amount to approximately 2,345 cubic yards. Installation of each vault would take place over an approximately three-day period as follows (SCE, 2007h):

- Surveying and marking (1 day),
- Excavation and shoring of the vault pit (1 day),
- Delivery and installation of the vault (1/2 day),
- Backfill and compaction (1/2 day), followed by re-contouring and re-vegetating the excavation area, which may take several months before it would be fully restored.

**Cable Pulling.** After the conduit system and the riser poles have been constructed, the cable would be installed. Starting at one end, cable is pulled from the first vault up through the riser pole. Cable is then pulled through to the next vault, and so on, until the last length of cable has been pulled through the last riser pole. Once installed, the cable is ready to be spliced, terminated, tested, and energized. This would require the installation of two cables per phase, resulting in the use of six of the available conduits in each duct bank leaving two additional spare conduits in each duct bank.

**Cable Splicing and Termination.** After cable installation is completed, the cables would be spliced at all vaults. A splice trailer would be located directly above the vaults' manhole openings for easy access by workers. A mobile power generator would be located directly behind the trailer.

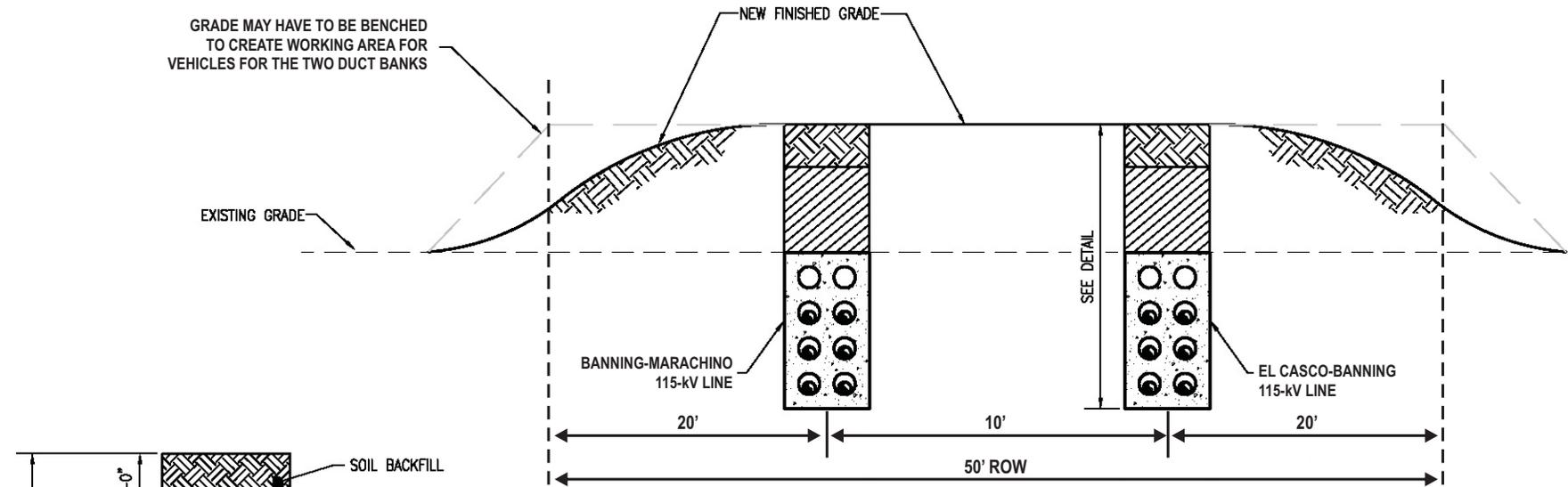
The dryness of the vault must be maintained 24 hours per day to ensure that unfinished splices are not contaminated with water or impurities. Normal splicing hours would be 8 to 10 hours per day with some workers remaining after hours to maintain splicing conditions and guard against vandalism and theft. These conditions are essential to maintaining quality control through completion of splicing. As splicing is completed at a vault, the splicing apparatus setup is moved to the next vault location and the splicing is resumed.



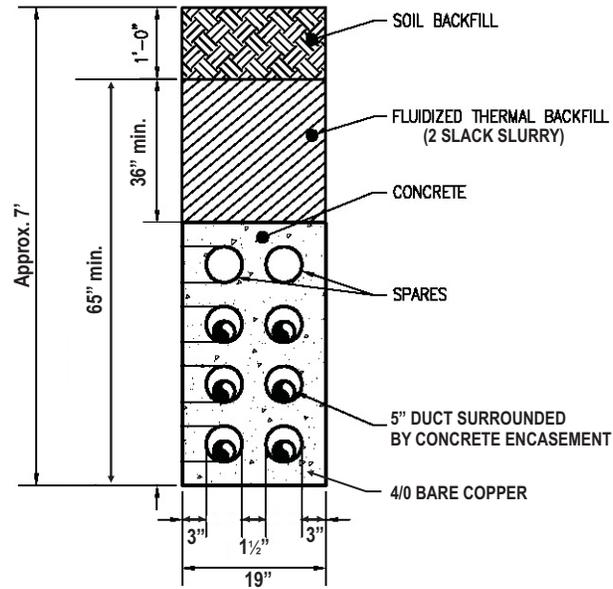
**Figure Ap-5**  
**Example of**  
**Double-Circuit Riser Poles**



Source: SCE, 2007a.



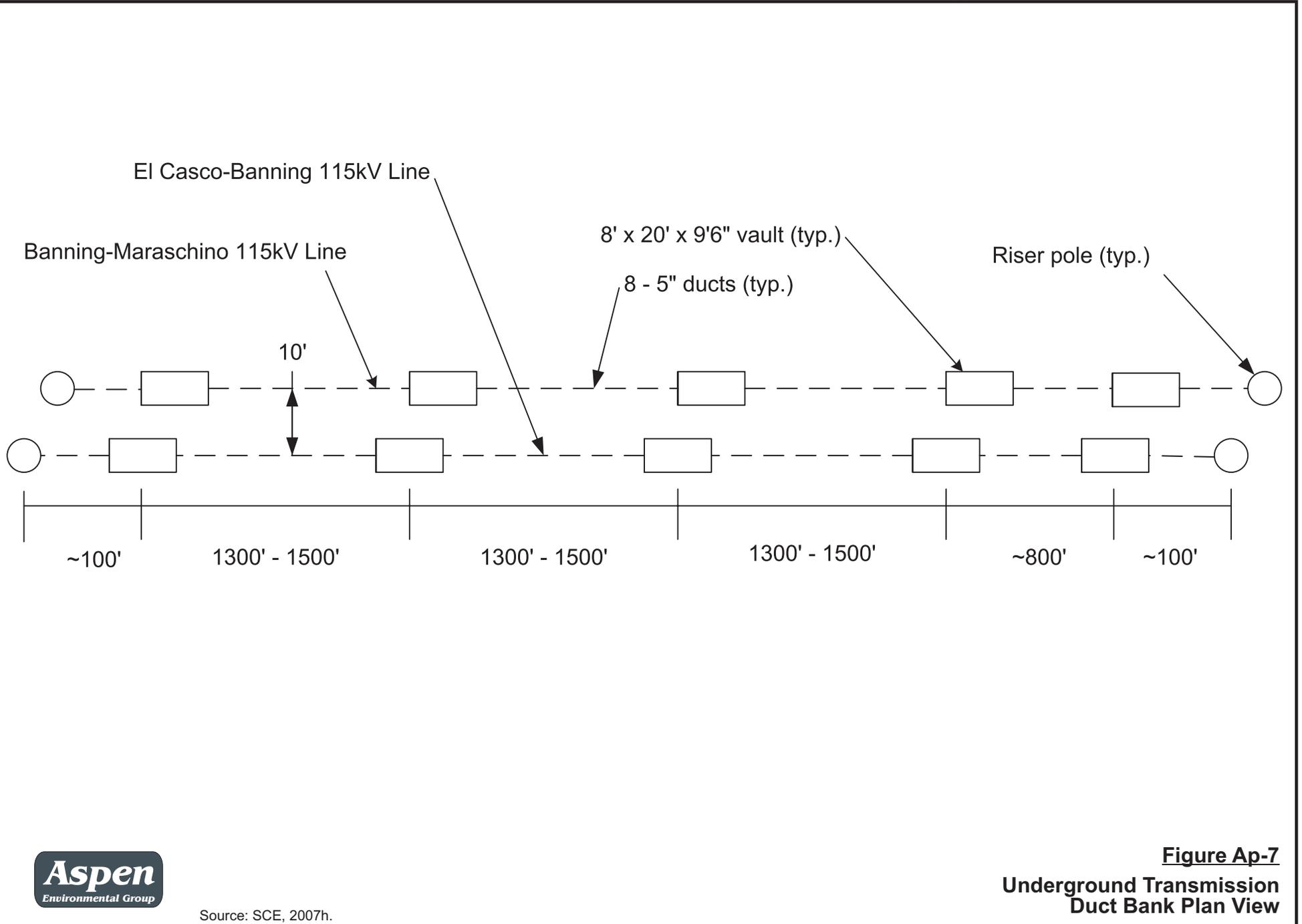
**PROFILE VIEW - LOOKING EAST**  
 115kV DUCTBANK CONSTRUCTION



**DETAIL**  
 115kV DUCTBANK CONSTRUCTION



**Figure Ap-6**  
 Underground Transmission  
 Duct Bank Cross-Section



Source: SCE, 2007h.

**Figure Ap-7**  
**Underground Transmission**  
**Duct Bank Plan View**

**Construction Labor and Equipment**

Anticipated construction personnel and equipment for overhead construction are summarized in Table B-10, Construction Personnel and Equipment Summary (115 kV Subtransmission Lines) in Section B (Project Description). However, the underground segment of the Partial Underground Alternative would require specialized construction equipment for installation of underground facilities. Additional crews for underground construction would also be required for activities associated with underground trench and duct banks, underground vaults, and cable pulling and splicing. The additional construction labor and equipment associated with underground construction activities are provided in Table Ap-3, below. All of this work would be completed during Phase 2 (described in Section B) of the Project (SCE, 2007h).

**Construction Schedule**

SCE estimates that the completion of the underground portion of the Partial Underground Alternative within the Sun Lakes community alone would take approximately 295 days of work effort. However, assuming some of the work would occur simultaneously, the overall length of calendar time to complete installation of the underground portion is estimated to be 10 months (SCE, 2007h). To implement the Proposed Project (overhead construction) in the same one-mile segment within the Sun Lakes Community would take approximately 2 months (SCE, 2007h).

**Table Ap-3 Construction Personnel and Equipment Summary for Underground Construction**

Construction Element	Number of Personnel	Number of Days	Equipment Requirements
Survey	4	5	2 – Pick-ups (Gasoline)
Substructure Installation (vaults, conduits, & riser pole foundations)	10	130	2 – Backhoes (Diesel) 1 – Auger Machine (Diesel) 3 – Concrete Trucks (Diesel) 3 – Pick-ups (Gasoline) 2 – Dump Trucks (Diesel)
Steel Riser Pole Installations	8	10	1 – Line Truck (Diesel) 1 – 80-ton Hydro Crane (Diesel) 2 – Pick-ups (Gasoline) 1 – Bucket Truck (Diesel) 2 – Semi-Tractors (Diesel)
Cable Pulling	8	50	1 – Cable-Pulling Machine (Diesel) 2 – Pick-ups (Diesel) 2 – Semi-Tractors (Diesel) 1 – Line Truck (Diesel)
Cable Makeup (vault splicing)	8	40	2 – Crew Vehicles (Gasoline) 1 – Splicing Van (Diesel)
Pothead Terminations & Surge Arrestors	8	50	2 – Pick-ups (Gasoline) 1 – Bucket Truck (Diesel) 1 – Line Truck (Diesel)
Clean-up & Restoration	4	10	1 – 10-ton Dump Truck (Diesel) 1 – Pick-up (Diesel) 1 – Asphalt Truck (Diesel) 1 – Pavement Compactor (Diesel)

Source: SCE, 2007h, Alt-5.

### ***Operations and Maintenance***

Regular maintenance would be required for the underground system on an annual basis. This would be accomplished through visual inspections of the cable and splices installed in each vault. Inspections would require approximately two full days of work with a two-person crew in a pick-up truck (SCE, 2007h).

In the event of an underground cable failure, it is likely that the failure would cause collateral damage to other cables and/or splices nearby (SCE, 2007h). Such failures typically result in extensive repair efforts, which could include replacing sections of conduit banks. Typically, these repairs require multiple days of construction, as well as the complete replacement of cable sections. During restoration work, restrictions similar to those imposed during construction may be necessary, which would include limited use of the golf course and greenbelt area in the vicinity of construction/repair activities.

The life expectancy of the underground cable, based on projected loading levels for the foreseeable future, is approximately 30 to 40 years (SCE, 2007h).

## **Consideration of CEQA Criteria**

### **Project Objectives**

This alternative would meet most of the stated objectives of the Proposed Project. The Partial Underground Alternative would:

- Add needed capacity to meet the electrical need identified in the Electrical Needs Area,
- Provide for enhanced system reliability,
- Provide for greater operational flexibility to transfer load between lines and substations,
- Provide substations with more than one 28 MVA transformer, and
- Provide safe and reliable service consistent with SCE's planning guidelines and Subtransmission Guidelines.

However, due to the extent of excavation (approximately 16,425 cubic yards) required for underground construction, this alternative would result in greater environmental impacts (see discussion below under "Potential New Impacts Created"). Furthermore, underground construction would be considerably more expensive than overhead construction. Therefore, this alternative would be less cost-effective than the Proposed Project.

### **Feasibility**

The Partial Underground Alternative would require installing double-circuit 115 kV subtransmission lines underground for approximately one mile through the Sun Lakes community. The use of XLPE technology for underground double-circuit 115 kV subtransmission lines would be technically feasible. There are no legal or regulatory feasibility concerns associated with this alternative.

### **Lessen Significant Environmental Effects**

Under the Proposed Project, for the one-mile segment through the Sun Lakes community, the existing 60- to 65-foot tall single-circuit H-frame wood structures would be removed and replaced in generally the same locations with new 75- to 85-foot tall double-circuit light weight steel poles. The Proposed Project would create a visual change from existing conditions due to the taller (10 feet) and more

industrial (steel versus wood) character of the new poles. The Proposed Project would also result in significant air quality impacts related to the grading of access roads and construction of the proposed El Casco Substation; although, these are common features between the Proposed Project and the Partial Underground Alternative.

The Partial Underground Alternative would result in the elimination of the aboveground 115 kV subtransmission line through the Sun Lakes community, which would improve the existing visual character within this portion of the existing ROW. Furthermore, by placing the subtransmission line underground through the golf course, it would no longer obstruct activities associated with the golf course resulting in an improved recreational facility.

### **Potential New Impacts Created**

Construction of an underground subtransmission line would require substantially more construction activity and ground disturbance due to the continuous trenching requirements. The excavation footprint for each of the two duct banks would be 4 feet wide by 7.5 feet deep over the length of the one-mile segment, minus those areas where vaults would be located. The excavation footprint for each vault would be 26 feet long by 12 feet wide by 12-feet deep. Overhead subtransmission line construction would result in construction disturbance primarily at individual structure sites. Underground construction and trenching would involve much greater construction-related impacts as discussed below.

During construction (expected to last approximately ten months as compared to two months for the Proposed Project), access to the golf course, which is bisected by the existing ROW, would be limited. During the construction period, including substructure installation, cable pulling, cable makeup, etc. public access restrictions would be placed on the areas nearest to the work locations on a daily basis to ensure the safety of workers as well as the public (SCE, 2007h). Therefore, the Partial Underground Alternative is expected to result in greater temporary impacts to recreational uses than the Proposed Project, by limiting or restricting golfing activities during construction. Furthermore, due to the amount of earth movement associated with the construction of duct banks and vaults for underground construction (approximately 16,425 cubic yards), air quality impacts during construction also would be substantially greater than for the Proposed Project, and would occur over a longer period of time.

Underground construction would result in ground disturbance to a greater area than overhead construction, resulting in potentially greater impacts in a number of resources areas. However, the existing ROW has been previously disturbed. Currently, the golf course occurs within and adjacent to the ROW area, and no native or protected habitats exist. The greater amount of ground disturbance and activities associated with underground construction activities would increase the potential to encounter buried cultural resources and contaminated soils along the alignment. Furthermore, these activities would also result in greater potential for soil erosion, which could degrade water quality, and would increase noise impacts to the residences located along the alignment within the Sun Lakes community over a longer period of time (ten months versus two months). Trenching activities would also increase traffic impacts as a result of trenching within existing roadways, including Pine Valley Road, Birdie Drive, Fairway Oaks Avenue, and S. Riviera Avenue. As described above (see “Lessen Significant Environmental Effects” discussion), the existing visual character through the Sun Lakes community would be improved with the Partial Underground Alternative. However, the riser poles required on either end of the underground segment would be of greater mass than the Proposed Project double-circuit light weight steel poles, which would reduce the visual quality in these two locations (i.e., east of Highland Springs Avenue and west of S. Highland Home Road) as compared to the Proposed Project.

It should also be noted that the maintenance of underground subtransmission lines is more difficult than overhead lines. As discussed above (see “Operations and Maintenance”), maintenance for the underground system would require approximately two full days of work with a two-person crew, whereas maintenance for the overhead system would take the same two-person crew approximately two hours (SCE, 2007h). Additionally, when a problem occurs underground it can be very difficult to identify the exact location of the problem. When the problem is located, the segment (length between two splicing vaults) of cable on which the problem occurred must be removed and replaced. Typically, these repairs require multiple days of construction (SCE, 2007h). This process would cause circuit restoration to take longer than with overhead subtransmission lines. In contrast, if the overhead conductor fails there is a greater possibility that the failed conductor can be simply spliced back together instead of being completely replaced, which substantially reduces the outage time and the construction effort required (SCE, 2007h). Furthermore, underground lines have been found to have a shorter overall lifespan (30-40 years) than overhead lines (60-70 years) due to the degradation of the insulation resulting from the soils surrounding the cables (SCE, 2007h).

### **Alternative Conclusion**

**RETAINED FOR ANALYSIS.** The Partial Underground Alternative responds to the concerns of the citizens of the Sun Lakes community expressed during the public scoping period for the EIR. This alternative is feasible and meets most of the project objectives, and would result in permanent beneficial visual impacts by removing the existing H-frame wood poles through the Sun Lakes community, and placing the new 115 kV double-circuit line underground. Furthermore, this alternative would remove the subtransmission line, such that it would no longer obstruct activities associated with the golf course resulting in permanent beneficial impacts to an existing recreational facility. The new adverse environmental impacts that would be created by this alternative predominantly would be short-term construction-related impacts associated with underground trenching activities. These impacts are both temporary (once construction ends the impacts go away) and in many respects are mitigable. Because the alternative has the overall potential to reduce the permanent impacts associated with the Proposed Project and responds to the concerns of the Sun Lakes community, and the adverse environmental impacts associated with this alternative are temporary and generally mitigable, this alternative was retained for full analysis in this EIR.

### **4.3 SCE’s Vista System Upgrade Alternative**

In its PEA, SCE presented two system upgrade alternatives. The El Casco System Upgrade Alternative (PEA Alternative 2) is SCE’s preferred alternative and is considered the Proposed Project (described in detail in Section B of this EIR). SCE’s Alternative 3, or the Vista System Upgrade, is described below.

#### **Alternative Description**

An upgrade of the Vista System would require the addition of one 280 MVA, 220/115 kV transformer at Vista Substation, construction of two new 115 kV subtransmission lines to deliver the power, and the addition of a fourth 28 MVA, 115/12 kV transformer and five 12 kV distribution lines at Maraschino Substation. To add one 280 MVA, 220/115 kV transformer at Vista Substation requires adding a new 115 kV bank position, expanding the 220 kV switchrack one bay to the south for a new bank position, and constructing several transmission steel poles and conductors to connect the new transformer. Additionally the 115 kV switchrack would be expanded three bays to the east to create a new bus sectionalizing position, a new bank position, and new 115 kV line position for a new line. Various

upgrades are required to the existing 115 kV switchrack, breakers, disconnects, conductors, and relays. The existing 66 kV switchrack would need to be demolished and rebuilt to make room for the 220/115 kV transformer work. Specifically, the Vista System Upgrades Alternative would consist of the following actions:

- Increase capacity at the Vista 220/115 kV Substation through the addition of one 280 MVA transformer;
- Construct 10 miles of new, single-circuit 115 kV subtransmission lines and replace 13 miles of existing single-circuit 115 kV subtransmission lines with new, higher capacity double-circuit 115 kV subtransmission lines and replace support structures within new and existing ROWs to create the new Vista-Maraschino 115 kV line;
- Construct 4.4 miles of new, single-circuit 115 kV subtransmission lines and replace 4.3 miles of existing single-circuit 115 kV subtransmission lines with new, higher capacity single-circuit 115 kV subtransmission lines and replace support structures within new and existing ROWs to create the new Banning-Maraschino-Zanja 115 kV line;
- Replace 0.7 miles of existing single-circuit 115 kV subtransmission lines with new, higher capacity double-circuit 115 kV subtransmission lines and replace support structures within existing SCE ROWs;
- Increase capacity at the Maraschino 115/12 kV Substation through the addition of one 28 MVA transformer;
- Rebuild 115 kV switchracks within Banning and Zanja Substations in the Cities of Banning and Yucaipa, respectively;
- Install telecommunications equipment at Vista, Maraschino, Banning, and Zanja Substations; and
- Install fiber optic cables within public streets and on existing SCE structures from Vista Substation to Maraschino, Banning, and Zanja Substations.

## Consideration of CEQA Criteria

### *Project Objectives*

The Vista System Upgrade Alternative provides only 280 MVA of additional 220/115 kV capacity. The new 280 MVA, 220/115 kV transformer would be located at Vista Substation. Once completed, the Vista Substation would have no room for future capacity upgrades. The Vista System Upgrade Alternative also provides only 28 MVA of additional 115/12 kV capacity and five 12 kV lines at Maraschino Substation. There would be no room to add additional transformers at Maraschino Substation to serve future load growth, and there would be room in the 12 kV switchrack for the addition of only one or two 12 kV lines. Electrical load growth is projected to increase in the Vista System beyond this increase. Therefore, the Vista System Upgrade Alternative would not provide sufficient capacity to support this load increase in the long-term, thus not achieving the first four project objectives identified above in Section 2.3.1.1 (Project Objectives).

Vista Substation is located approximately 20 miles from the Electrical Needs Area (see Figure A-1 in Section A of the EIR), which would result in greater 115 kV line length and exposure. Furthermore, Maraschino Substation is located farther from the Electrical Needs Area than the proposed El Casco Substation, requiring longer distribution lines than the Proposed Project. The longer distribution lines would impede load transfers between distribution lines and substations and could create reliability problems. Therefore, the Vista System Upgrade Alternative results in significantly less distribution reliability compared with the Proposed Project, thus not meeting the project objective of increased reliability.

As the Vista System Upgrade Alternative does not allow for the increased capability to transfer distribution substations between systems during normal and abnormal conditions, it would not provide the same operational flexibility as the Proposed Project. Therefore, the Vista System Upgrade Alternative would not meet the project objective of providing safe and reliable electrical service consistent with SCE's planning guidelines and Subtransmission Guidelines.

The estimated costs for this alternative are based on order-of-magnitude estimates. Although SCE did not perform a detailed cost analysis for the Vista System Upgrade Alternative, the estimated costs are projected to be higher than the Proposed Project and would not meet the project objective of meeting the project needs in a cost-effective manner.

### ***Feasibility***

Because the Vista System Upgrade Alternative would upgrade existing SCE facilities, there are no technical feasibility limitations. However, it should be noted that this alternative would result in long distribution line length and exposure. While this is not considered infeasible, it is considered undesirable from an electrical system planning perspective.

The Vista System Upgrade Alternative would require the acquisition of new ROW outside of that already possessed by SCE. This alternative would require the construction of 10 miles of new, single-circuit 115 kV subtransmission line to create the new Vista-Maraschino 115 kV line, and 4.4 miles of new, single-circuit 115 kV subtransmission line to create the new Banning-Maraschino-Zanja 115 kV line. As the location of this required new ROW is unknown at this time, it is possible that new ROW could be inconsistent with applicable plans and policies, which would impede the feasibility of this alternative. Furthermore, without knowing the exact location of the required new ROW, it is possible that physical and environmental limitations could occur that would affect the legal, regulatory, and environmental feasibility of the Vista System Upgrade Alternative.

### ***Lessen Significant Environmental Effects***

Construction and operation of the Vista System Upgrade Alternative would not lessen the type or level of impacts of the Proposed Project identified in Table Ap-1, Summary of Potential Issues or Impacts: El Casco System Project, as described above. Both projects would result in the construction and operation of subtransmission lines.

### ***Potential New Impacts Created***

The Vista System Upgrade Alternative requires the acquisition of new ROW, which would result in the creation of potentially new significant impacts in the following resources areas:

- Visual impacts resulting from the construction and operation of 10 miles of new, single-circuit 115 kV subtransmission line to create the new Vista-Maraschino 115 kV line, and 4.4 miles of new, single-circuit 115 kV subtransmission line to create the new Banning-Maraschino-Zanja 115 kV line and the associated infrastructure including overhead structures;
- Biological resources impacts resulting from the creation of a new transmission line ROW potentially within sensitive habitat;
- Noise impacts resulting from the creation of a new transmission line ROW potentially adjacent to sensitive noise receptors;
- Cultural resource impacts resulting from the creation of a new transmission line ROW potentially resulting in disturbance of sensitive cultural and paleontological resources;

- Population and housing impacts resulting from the creation of a new transmission line ROW potentially resulting in the displacement of existing residential uses; and
- Land use impacts resulting from the creation of a new transmission line ROW potentially resulting in land use incompatibility issues.

### **Alternative Conclusion**

***ELIMINATED.*** This alternative would not meet any of the primary project objectives due to the temporary nature of the expanded subtransmission line capacity associated with this alternative. In addition, it would require the establishment of a new utility corridor that would increase overall environmental impacts when compared to the Proposed Project, which would occur entirely within existing SCE ROW. Furthermore, as the location of the new ROW is unknown, this alternative has the potential to conflict with applicable plans and policies thus being potentially infeasible from a regulatory perspective. Therefore, this alternative is eliminated from further analysis in this EIR.

## **4.4 Alternative Substation Site**

In its PEA, SCE presented two substation site alternatives. The El Casco Substation Site is SCE's preferred site and is considered part of the Proposed Project (described in detail in Section B of this EIR). SCE's Alternative Substation Site is described below.

### **Alternative Description**

The Alternate Substation Site property is a privately owned 68-acre parcel located northeast of San Timoteo Canyon Road, approximately 0.5 miles from the proposed El Casco Substation site (SCE, 2007a). Figure Ap-8 shows the locations of both the Proposed Project El Casco and Alternative Substation sites. This site is located in the City of Calimesa in a privately owned undeveloped area currently used for livestock grazing. An abandoned farmhouse dating to the 1800's is located on the property. The Alternative Substation Site is designated as open space under the Oak Valley Specific Plan, with adjacent land designated for residential development. The intent of the open space designation is to preserve the rural character of the area through low-density development such as residences.

The footprint of the substation would occupy approximately 19.7 acres, resulting in the permanent conversion of approximately 15.16 acres of disturbed/ruderal habitat, 2.62 acres of disturbed Riversidean sage scrub, 1.19 acres of developed land, 0.53 acres of southern willow scrub, and 0.20 acres of southern riparian forest. The Alternative Substation Site would be developed using the same general design features and construction methods as those discussed in Section B.4.1, El Casco Substation, for the Proposed Project. Because of space constraints at this Alternative Substation Site, the substation configuration would be altered to approximately parallel an existing drainage channel located along the length of the southern perimeter of the site. While the substation site layout would be altered, it is assumed identical facilities as those described for the proposed El Casco Substation would be constructed.

### **Consideration of CEQA Criteria**

#### ***Project Objectives***

This alternative would meet all of the stated objectives of the Proposed Project.

### ***Feasibility***

The Alternative Substation Site would be developed using the same general design features and construction methods as those discussed in Section B.4.1, El Casco Substation, for the Proposed Project. Therefore, no technical feasibility issues are applicable to the Alternative Substation Site location. However, the Alternative Substation Site would be located within an area designated for open space under the Oak Valley Specific Plan, and the development of a substation at this location would conflict with the intent of the specific plan for the area (i.e., low-density residential development). A substation is considered industrial in character. Therefore, this alternative would not be consistent with the legal and regulatory feasibility criteria identified above in section 2.3.2, Feasibility.

### ***Lessen Significant Environmental Effects***

Both the Proposed Project and the Alternative Substation Site Alternative would result in similar levels of impacts in all resource categories, except the Alternative Substation Site would have slightly greater impacts for Visual Resources, Utilities and Service Systems and Land Use and Planning.

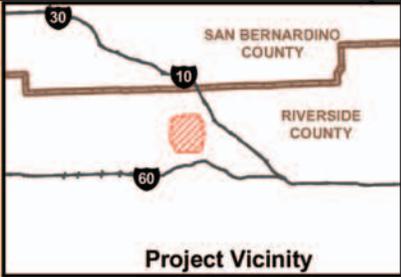
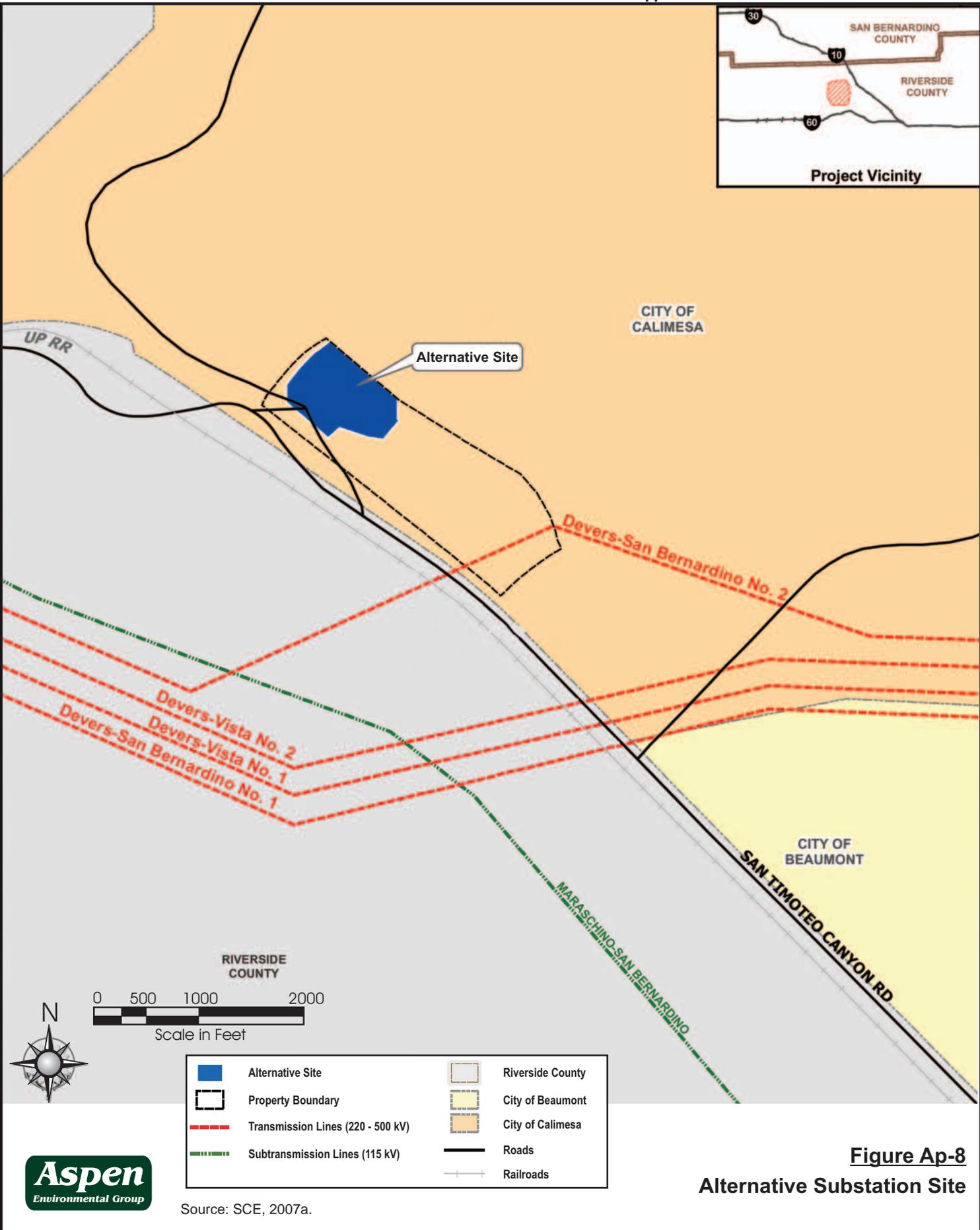
### ***Potential New Impacts Created***

The Alternative Substation Site would be developed within a parcel located along an area of expanding residential development. The location of the new substation northeast of San Timoteo Canyon Road would result in residential development immediately adjacent to the proposed facility. Therefore, visual impacts to this new residential community would be greater under the Alternative Substation Site as compared to the Proposed Project.

Due to the availability of water and wastewater lines in close proximity to the site, the alternative substation site would likely include a restroom facility with water and wastewater connections once the substation is operational. Therefore, the Alternative Substation Site would have a greater impact to Utilities and Service Systems during operation because this site would include a restroom facility with water and wastewater service, thus resulting in an increase to wastewater generation and potable water use.

The Alternative Substation Site would have a potentially significant land use impact. The Alternative Substation Site would be located within an area designated for open space under the Oak Valley Specific Plan, and the development of a substation at this location would conflict with the intent of the specific plan. In comparison, while the Proposed Project El Casco Substation site location is also designated as open space and conservation, the agency with jurisdiction over and ownership of that site (Riverside County acting through the Riverside County Regional Park and Open Space District) has indicated its willingness to override the nonconformity with its General Plan in exchange for replacement parkland to allow a substation at the proposed El Casco Substation site. Conversely, local stakeholders, including the City of Calimesa and adjacent property developers, do not support the use of the Alternative Substation Site for a substation. Therefore, land use and planning impacts would be greater under this Alternative.

The Alternative Substation Site contains an abandoned farmhouse, which dates to the 1800s. The buildings of this ranch are in poor condition, and many have been destroyed. As a result, the visible and known surviving ranch lacks integrity, and the known structures are therefore not eligible for the National Register of Historic Places or for definition as a historic resource under CEQA. Nonetheless, there is a high probability of the presence of buried significant cultural deposits, including building



CITY OF CALIMESA

Alternative Site

UP RR

Devers-San Bernardino No. 2

Devers-Vista No. 2

Devers-Vista No. 1

Devers-San Bernardino No. 1

CITY OF BEAUMONT

SAN TIMOTEO CANYON RD

RIVERSIDE COUNTY

0 500 1000 2000  
 Scale in Feet



Source: SCE, 2007a.

**Figure Ap-8**  
**Alternative Substation Site**

foundations, trash pits, privies, and the like that may yield important information about the lives of early Euro-American settlers in this area. Therefore, cultural resource impacts would be greater under this Alternative.

### **Alternative Conclusion**

***ELIMINATED.*** This alternative would meet all project objectives. In general, both the Proposed Project and the Alternative Substation Site would result in similar types of impacts. However, the Alternative Substation Site would result in slightly higher levels of impacts than the Proposed Project in the areas of aesthetics, utilities, land use, and cultural resources. As the Alternative Substation Site would result in nonconformity with the Oak Valley Specific Plan, this alternative would not be consistent with the legal and regulatory feasibility criteria identified above in section 2.3.2, Feasibility. Therefore, the Alternative Substation Site is eliminated from further consideration.

## **4.5 Demand-Side Management Alternative**

### **Alternative Description**

Demand-side management (DSM) programs are designed to reduce customer energy consumption. Regulatory requirements dictate that supply-side and demand-side resource options should be considered on an equal basis in a utility's plan to acquire lowest cost resources. One goal of these programs is to reduce overall electricity use. Some programs also attempt to shift such energy use to off-peak periods.

The CPUC supervises various DSM programs administered by the regulated utilities, and many municipal electric utilities have their own DSM programs. The combination of these programs constitutes the most ambitious overall approach to reducing electricity demand administered by any state in the nation. In spite of the State's success in reducing demand to some extent, California continues to grow and overall demand is increasing. Economic and price considerations as well as long-term impacts of state-sponsored conservation efforts, such as the Governors 20/20 rebate program and new appliance efficiency standards, are considered in load forecasts.

### **Consideration of CEQA Criteria**

#### ***Project Objectives***

Because this alternative would only reduce energy consumption, it does not meet any of the stated project objectives.

#### ***Feasibility***

DSM is feasible on a small scale, but not on a scale that would be required to replace the Proposed Project. It should be noted that SCE currently implements a DSM program consistent with CPUC guidance.

#### ***Lessen Significant Environmental Effects***

This alternative would reduce energy consumption, thus reducing the need for gas-fired power generation and new transmission lines. However, as the Proposed Project is a subtransmission line providing electrical load to developed areas, another subtransmission line would be required to serve

the Electrical Needs Area eventually, thus all effects of the Proposed Project would likely occur at some point.

### ***Potential New Impacts Created***

No new impacts would result from the implementation of this alternative. However, given that a subtransmission line system similar to the Proposed Project would need to be implemented at some point to supplement SCE's existing DSM efforts, it is likely that impacts similar to those determined for the Proposed Project would be created.

### **Alternative Conclusion**

***ELIMINATED.*** The projected capacity savings of DSM activities would not defer the need of the Proposed Project. While reductions in demand are considered an essential part of SCE's existing and future operations, they are incorporated into its system base and peak load forecasts. The available energy savings from these programs is insufficient to improve the service reliability to the Electrical Needs Area to the level desired and achieved through the El Casco System Project. As a stand-alone alternative to the Proposed Project, energy conservation and load management programs are eliminated from its consideration since they represent a small fraction of the capacity requirements needed to meet SCE's objectives for the Proposed Project.

## **5. REFERENCES**

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