BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

In the Matter of the Application of SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) for a Certificate of Public Convenience and Necessity for the Coolwater-Lugo Transmission Project	)))))	A.13-08-XXX

PROPONENT'S ENVIRONMENTAL ASSESSMENT

COOLWATER-LUGO TRANSMISSION PROJECT

Volume 2 of 7

This PEA is being filed separately from the application and is being submitted as an archival DVD and CD ROM

BETH GAYLORD
TAMMY JONES
ANGELA M. WHATLEY

Attorneys for
SOUTHERN CALIFORNIA EDISON COMPANY

2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-6634
Facsimile: (626) 302-1926
E-mail:tammy.jones@sce.com

Dated: **August 28, 2013**

4.0 ENVIRONMENTAL IMPACT ASSESSMENT

This section examines the potential environmental impacts of the Proposed Project and alternatives. The analysis of each resource category begins with an examination of the existing physical setting (baseline conditions as determined pursuant to Section 15125(a) of the CEQA Guidelines) that may be affected by the Proposed Project. The effects of the Proposed Project are defined as changes to the environmental setting that are attributable to project construction and operation.

Significance criteria are identified for each environmental issue area. The significance criteria serve as a benchmark for determining if a project would result in a significant adverse environmental impact when evaluated against the baseline. According to the CEQA Guidelines Section 15382, a significant effect on the environment means "…a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the Project…" According to the Council on Environmental Quality (CEQ) regulations (40 CFR 1508.8 [a-b]), a significant effect on the environment could be either a direct or indirect change to the human environment caused by the action. Evaluating such impacts requires consideration of the temporal scale, spatial extent, and intensity of the change that would be introduced by the Proposed Action and its alternatives (40 CFR 1502.16).

If significant impacts are identified, feasible Mitigation Measures are formulated to eliminate or reduce the level of the impacts and focus on the protection of sensitive resources.

CEQA Guidelines Section 15126.4(a)(3) states that mitigation measures are not required for effects which are not found to be significant. Therefore, where an impact is less than significant no mitigation measures have been proposed. In addition, compliance with laws, regulations, ordinances, and standards designed to reduce impacts to less than significant levels are not considered mitigation measures under CEQA. Where potentially adverse impacts may occur, SCE has proposed Applicant Proposed Measures ("APMs") to minimize the environmental impacts.

This page is intentionally blank.

4.1 Aesthetics

This section examines visual resources in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo") to determine how the project could affect the aesthetic character of the landscape. Visual resources are generally defined as the natural and built features of the landscape that can be viewed. Landforms, water, and vegetation patterns are among the natural landscape features that define an area's visual character, whereas buildings, roads and other structures reflect human modifications to the landscape. These natural and built landscape features are considered visual resources that contribute to the public's experience and appreciation of the environment. This section analyzes whether construction and operation of the Proposed Project and Alternative Project would alter the perceived visual character of the environment and cause visual impacts.

4.1.1 Environmental Setting

This discussion describes the existing visual resources in the Coolwater-Lugo area. Coolwater-Lugo would be located within the Town of Apple Valley, Cities of Hesperia and Barstow, and the community of Lucerne Valley, and in unincorporated San Bernardino County. Approximately 34 percent of the project is on Bureau of Land Management ("BLM") public land.

4.1.1.1 Regional Setting

The regional setting of Coolwater-Lugo is described as the Western Mojave Desert Geographic Region and is located in the Victor Valley Region of San Bernardino County. Victor Valley is a broad valley located in the Mojave Desert lying north of the San Bernardino Mountains, east of the Antelope Valley and west of Lucerne Valley. The valley extends northward along the Mojave River to approximately the community of Helendale. Silver Valley (Barstow) is an extension of the Victor Valley along the Mojave River from Helendale fault eastward to Afton Canyon. Lucerne Valley is east of the Victor Valley, west of and generally including Johnson Valley, and north of the San Bernardino Mountain Range. Elevations in the project area range from a low of less than 2,000 feet at the northeastern end to a high of over 3,300 feet at the southwestern end.

4.1.1.2 Project Area Setting

The majority of Coolwater-Lugo would be located in unincorporated San Bernardino County. Additionally, the majority of the Proposed and Alternative Transmission Line Routes would be located within or adjacent to existing utility corridors. The area is characterized by suburban residential developments, open space public lands, and public utility infrastructure. The open space, however, is interspersed with isolated homesteads. It is visually dominated by vast open desert and mountains.

There are no designated scenic routes in the Coolwater-Lugo area. Interstate 40 ("I-40") and State Route 247 ("SR-247") are considered eligible as state scenic highways, but neither has been officially designated (California Department of Transportation 2013).

4.1.1.3 Bureau of Land Management Visual Resources Setting

A portion of Coolwater-Lugo would be located on BLM-managed land. Therefore, a discussion of the environmental setting in terms of the BLM's management of visual resources is provided. The BLM's visual resources methodology will be used for this analysis. The BLM lands in the Coolwater-Lugo area are within the Barstow Field Office region.

Resource Management Plan

The BLM Barstow Field Office manages land under its jurisdiction according to the goals and policies outlined in its Resource Management Plan ("RMP"). The recent Barstow Field Office Visual Resource Inventory ("VRI"), the information base for designation of Visual Resource Management ("VRM") classes, has not yet been included in the RMP planning process. Because the VRM classification is not included in the RMP, visual resources are currently managed based on the BLM's Multiple Use Class ("MUC") designation.

BLM MUCs are designated under the California Desert Conservation Area ("CDCA") Plan. Public lands in the CDCA under BLM management have been designated geographically into four MUCs. The MUC designation was based on the sensitivity of resources and kinds of uses for each geographic area (BLM 1999).

MUC designations are based on inventories and management decisions that consider the value of resources. Table 4.1-1, *BLM CDCA MUCs*, provides the definitions of the MUCs. The project area includes MUC Limited Use, MUC Moderate Use, and MUC Intensive Use areas. Figure 4.1-1, *BLM CDCA Multiple Use Classes*, portrays the locations of the MUCs for the area within the BLM background distance zone (15 miles) of Coolwater-Lugo. The mapped areas include private lands, State lands, and other Federal lands where MUCs are preempted by surface ownership.

Table 4.1-1 BLM CDCA MUCs

Class C	Class C has two purposes. First, it shows those areas which are being 'preliminarily recommended" as suitable for wilderness designation by Congress. This process is fully explained in the Wilderness Element in this Plan. Second, it will be used in the future to show those areas formally designated as wilderness by Congress. The Class C guidelines are different from the guidelines for other classes. They summarize the kinds of management likely to be used in these areas in the CDCA when and if they are formally designated wilderness by Congress. These guidelines will be considered in the public process of preparing the final Wilderness Study Reports. But the final management decisions depend on Congressional direction in the legislation, which makes the formal designation.

Table 4.1-1 BLM CDCA MUCs

Class L	Class L (Limited Use) protects sensitive, natural, scenic, ecological, and cultural resource values. Public lands designated as Class L are managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished.
Class M	Multiple-Use Class M (Moderate Use) is based upon a controlled balance between higher intensity use and protection of public lands. This class provides for a wide variety or present and future uses such as mining, livestock grazing, recreation, energy, and utility development. Class M management is also designed to conserve desert resources and to mitigate damage to those resources, which permitted uses may cause.
Class I	Class I's (Intensive Use) purpose is to provide for concentrated use of lands and resources to meet human needs. Reasonable protection will be provided for sensitive natural and cultural values. Mitigation of impacts on resources and rehabilitation of impacted areas will occur insofar as possible.

Source: BLM 1999

Visual Resource Inventory

VRI classifications are developed by BLM based on landscape character, scenic quality, sensitivity levels, distance zones, and visual resource inventory classes as outlined in BLM Manual H-8410 (BLM 1986). The VRI for the Barstow Field Office was completed in 2010. Table 4.1-2, *Visual Resource Inventory Designations*, guides the intersections and designations of VRI components and resultant VRI classes. Acreages and percentages associated with each inventory component and CDCA MUC are presented in Table 4.1-3**,** *Visual Resource Inventory and CDCA Multiple Use Classes Summary***.**

Table 4.1-2 Visual Resource Inventory Designations

		Visual Sensitivity Levels						
		High			**Medium**			**Low**
Special Areas		I	I	I	I	I	I	I
Scenic Quality	**A**	II	II	II	II	II	II	II
	B	II	III	III[1] / IV[1]	III	IV	IV	IV
	C	III	IV	IV	IV	IV	IV	IV
		F/M	**B**	**S/S**	**F/M**	**B**	**S/S**	**F/M, B, S/S**
		Distance Zones						

1 If the adjacent area is Class III or lower, assign Class III. If the adjacent area is higher, assign Class IV.
B = background
F/M = foreground middle ground
S/S = seldom seen

This page is intentionally blank.

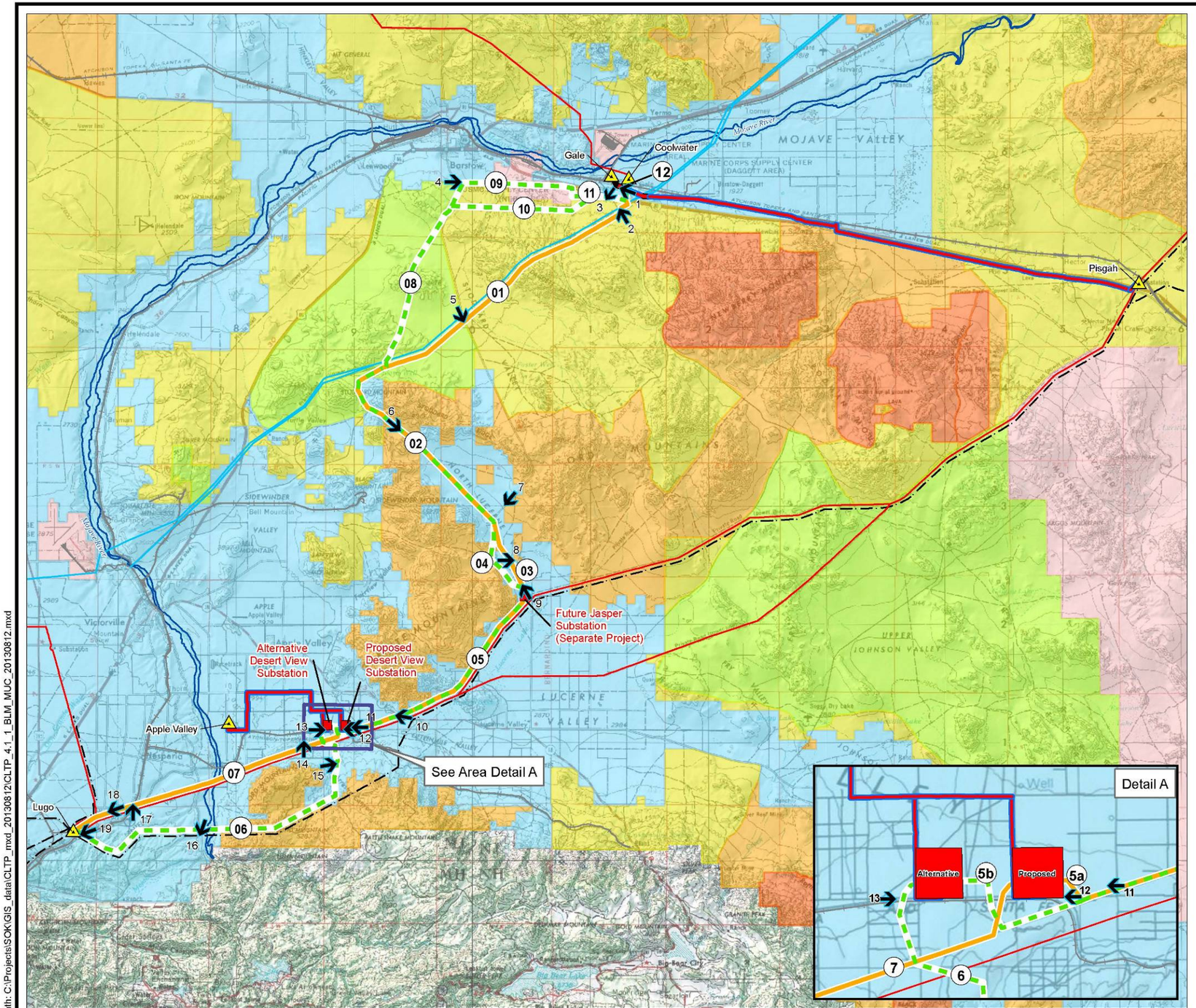
Table 4.1-3 Visual Resource Inventory and CDCA Multiple Use Classes Summary

	BLM - Class A	BLM - Class B	BLM - Class C	No Data	Total
Scenic Quality Evaluation (Acres)	0	187,811	1,069,685	377,490	**1,634,986**
%		11.5	65.4	23.1	100.0
	High	**Moderate**	**Low**	**No Data**	**Total**
Sensitivity Level Analysis (Acres)	217,102	341,653	698,741	377,490	**1,634,986**
%	13.3	20.9	42.7	23.1	100.0
	Foreground-Middleground	**Background**	**Seldom Seen**	**No Data**	**Total**
Distance Zones (Acres)	1,304,144	0	0	330,842	**1,634,986**
%	79.8	0.0	0.0	20.2	100.0

	VRI Class I	VRI Class II	VRI Class III	VRI Class IV	No Data	Total
VRI Classes (Acres)	0	751,711	294,905	210,879	377,490	**1,634,986**
%	0.0	46.0	18.0	12.9	23.1	100.0

	Controlled	Limited	Moderate	Intensive	Military	Unclassified	No Data	Total
MUC Classes (Acres)	33,583	210,713	313,155	97,866	10,069	638,661	330,939	**1,634,986**
%	2.1	12.9	19.2	6.0	0.6	39.1	20.2	100.0

This page is intentionally blank.



Coolwater - Lugo Transmission Project
Figure 4.1-1
BLM CDCA Multiple Use Classes

Proposed Transmission Routes
- Proposed Project
- Alternative Project
- Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

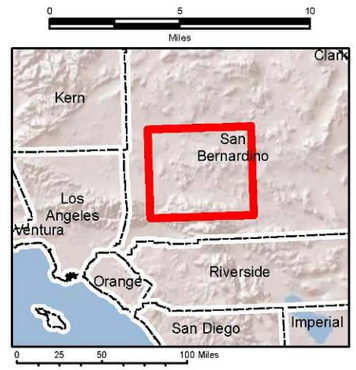
Proposed Telecommunication Routes
- OH
- UG

Water (TBM, 2008)
- Mojave River Active Channel

BLM CDCA Multiple Use Classes
- Controlled
- Limited
- Moderate
- Intensive
- Military
- Unclassified

KOP (showing direction of view)

Source: BLM CDCA, 2013; USGS, 2011; AECOM 2013



Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

This page is intentionally blank.

The VRI components of scenic quality, sensitive viewers, and distance zones, and VRI classes are described below.

Scenic Quality

Scenic quality portrays the aesthetic value of landscapes. Scenic quality is defined by the BLM as the visual appeal of a tract of land (BLM 1986). BLM lands are rated Class A, Class B, and Class C, for highest to lowest scenic quality. Figure 4.1-2, *VRI Scenic Quality Ratings,* shows the locations of Class A, B, and C scenery associated with the Project reference lines.

View distance, vegetation, topographic slopes, and characteristic landscape (particularly, the presence or absence of existing cultural modifications) play important roles in the assessment of change caused by a project on landscape scenery.

Sensitive Viewers

Sensitive viewers analysis and mapping encompasses public and private viewers' concern for landscape scenery. Sensitivity levels are defined by the BLM as the measure of public concern for scenic quality. Public lands are assigned high, medium, or low sensitivity levels (BLM 1986). Figure 4.1-3, *VRI Sensitivity Levels,* shows the locations of mapped sensitivity levels associated with the Coolwater-Lugo reference lines.

Distance Zones

Distance zones are defined by the BLM as relative visibility from travel routes or observation points outward to designated distance thresholds. The three zones are foreground-middleground, background, and seldom seen. The Barstow Field Office VRI shows all distance zones as foreground-middleground throughout the field office area (Figure 4.1-4, *VRI Distance Zones*). The foreground-middleground zone includes areas seen from highways, roads, trails, rivers, or other viewing locations that are less than 3 to 5 miles away. Areas seen beyond the foreground-middleground zone, but usually less than 15 miles away, are in the background zone. Areas not seen (hidden from view) in the foreground-middleground or background are designated as seldom-seen (BLM 1986).

VRI Classes

VRI classes represent the relative value of the visual resources and provide the basis for considering visual values in the resource management planning process. VRI Classes II, III, and IV are determined based on a combination of scenic quality, sensitivity level, and distance-zone overlays. Class II has a higher level of value than Class III, which is moderately valued. Class IV is least valued. A fourth VRI class, Class I, is assigned to special management areas. This includes wilderness areas or wilderness study areas, wild and scenic rivers, national recreation areas and other congressionally and administratively designated areas where decisions have been made to preserve a natural landscape. There are no VRI Class I landscapes in the Barstow Field Office region. The Project reference line extends through VRI Class II, Class III, and Class IV landscapes. Figure 4.1-5,

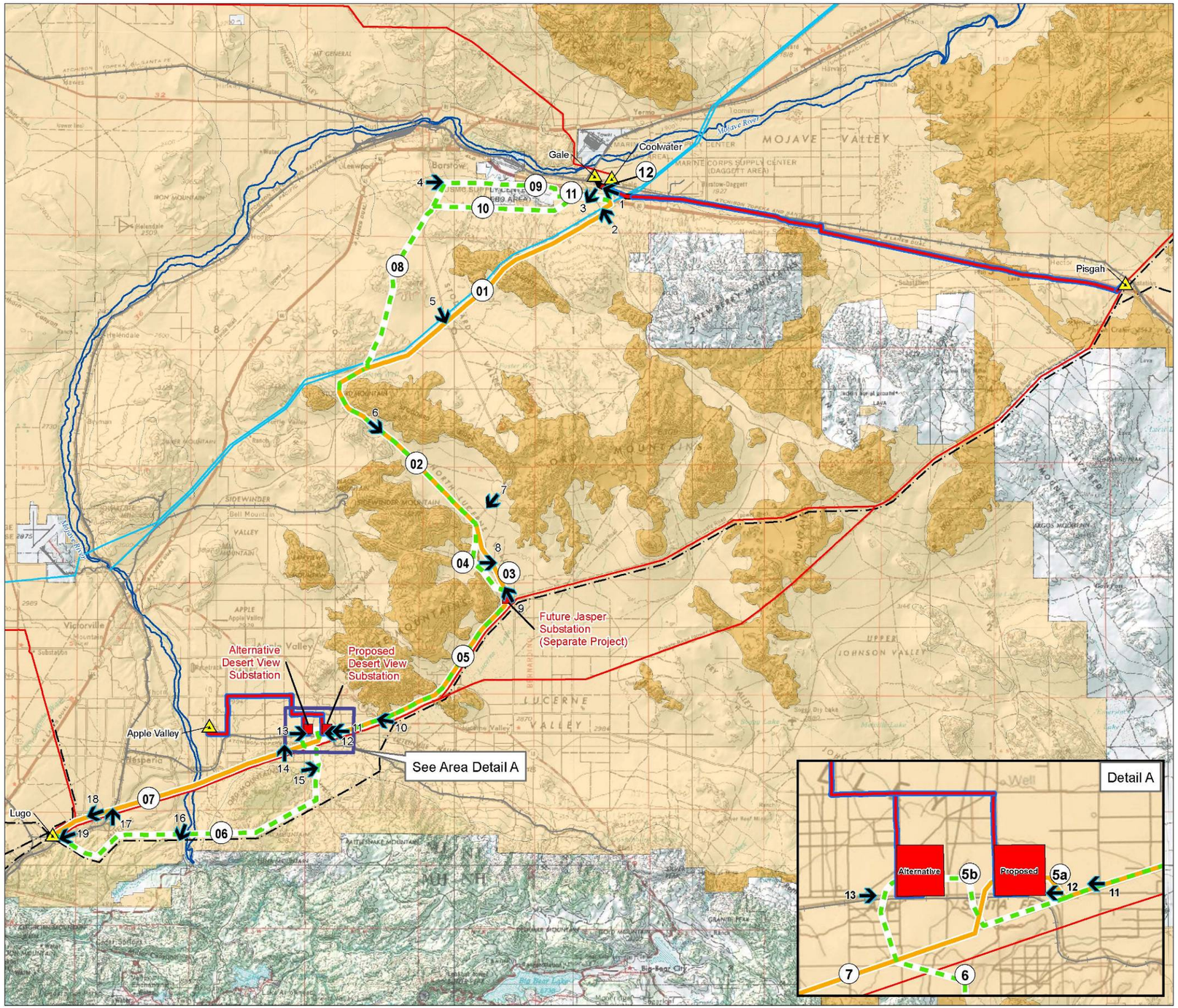
Visual Resources Inventory Classes, shows the locations of VRI classes associated with the Coolwater-Lugo reference lines.

Key Observation Points

Key Observation Points ("KOPs") were selected for the purpose of analyzing and describing existing visual resources in the Coolwater-Lugo area and for preparing visual simulations and contrast rating analyses. The KOPs are located in publicly accessible areas with views of Coolwater-Lugo components. The Coolwater-Lugo KOPs were selected as representative views that are available to the general public. Visual simulations were prepared for views from KOP locations to illustrate the potential visual effects of Coolwater-Lugo on viewers at these locations. The visual simulations present computer-generated, photo-realistic images of the project components as they would appear from each KOP. Figure 4.1-6, *Project Viewshed and KOP Locations*, identifies the locations of the KOPs used in the visual simulation analysis. The "before project" (existing conditions) and "after project" (visual simulation) images from the KOPs are shown in Figures 4.1-7a (the letter "**a**" indicates "before project") through 4.1-25b (the letter "**b**" indicates "after project").

Nineteen KOPs were selected to characterize the local setting. Three KOPs were selected for the Proposed and Alternative Desert View Substation sites and 16 KOPs were selected for the Proposed and Alternative Transmission Line Routes. These KOPs are listed in Table 4.1-4, *Key Observation Points and Project Components*.

Coolwater - Lugo Transmission Project
Figure 4.1-2
VRI Scenic Quality Ratings



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Water (TBM, 2008)
- Mojave River Active Channel

VRI Scenic Quality Rating
- B - 12 to 18 Total Score for Scenic Quality
- C - 11 or Less Total Score for Scenic Quality

KOP (showing direction of view)

Source: BLM CDCA, 2013; USGS, 2011; AECOM 2013

0 5 10 Miles

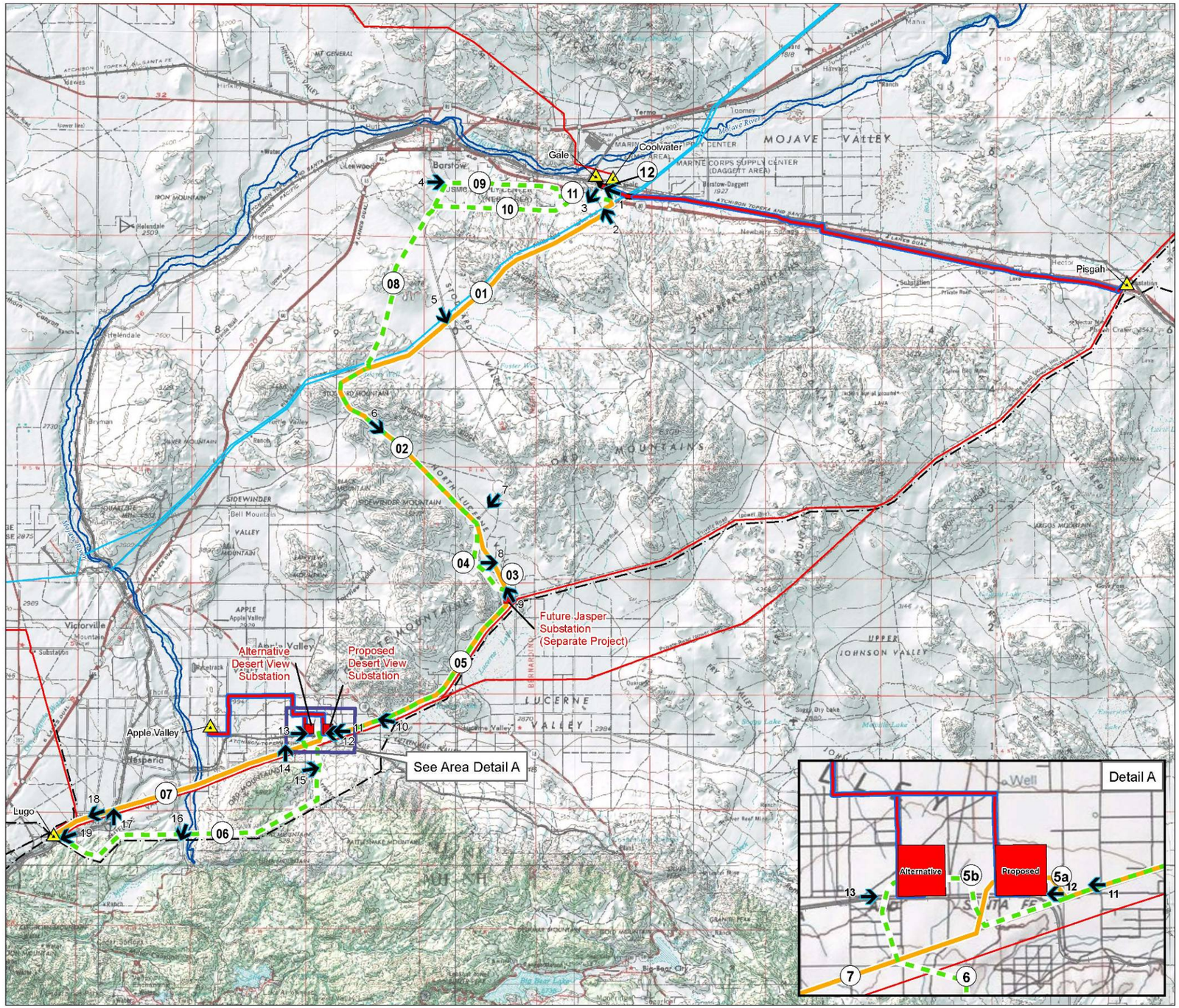
Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.
© Corporate Real Estate Department, REO – Survey and Mapping

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SCK\GIS_data\CLTP_mxd_20130812\CLTP_4.1_2_VRI_ScenQualRate_20130812.mxd

Coolwater - Lugo Transmission Project
Figure 4.1-3
VRI Sensitivity Levels



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

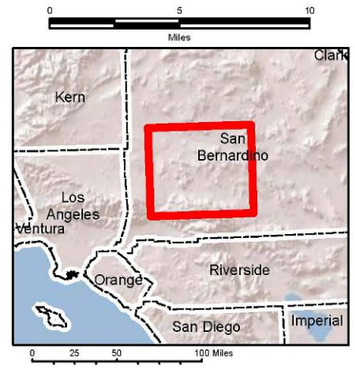
Proposed Telecommunication Routes
- OH
- UG

Water (TBM, 2008)
- Mojave River Active Channel

VRI Sensitivity Level Rating
- Maintenance of Visual Quality has High Value
- Maintenance of Visual Quality has Moderate Value
- Maintenance of Visual Quality has Low Value

KOP (showing direction of view)

Source: BLM CDCA, 2013; USGS, 2011; AECOM 2013



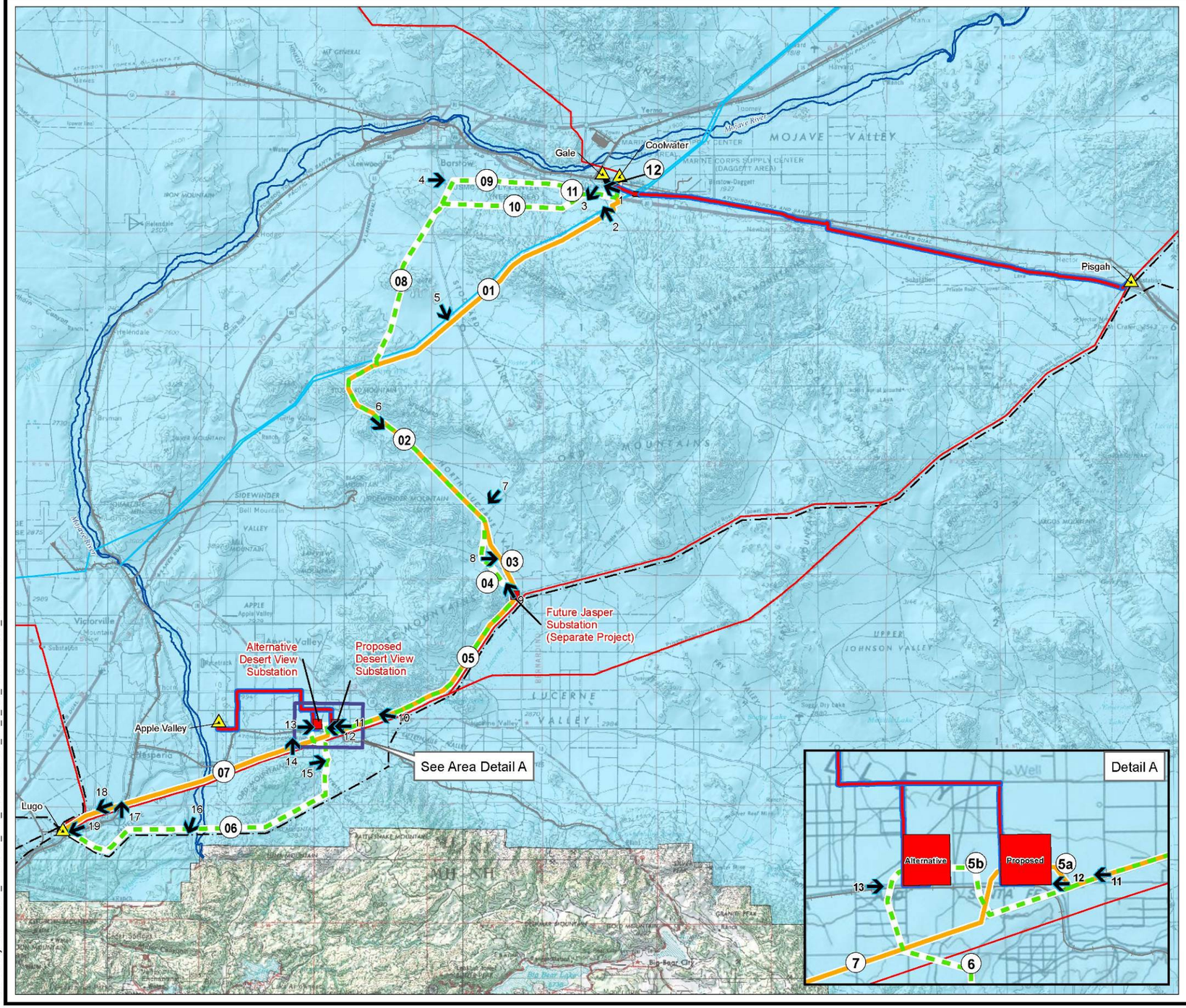
Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.1_3_VRI_SensitivityLevels_20130812.mxd

Coolwater - Lugo Transmission Project
Figure 4.1-4
VRI Distance Zones



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Water (TBM, 2008)
- Mojave River Active Channel

VRI Visual Distance Zone
- Foreground-Middleground. Visibility generally up to 5 miles

KOP (showing direction of view)

Source: BLM CDCA, 2013; USGS, 2011; AECOM 2013

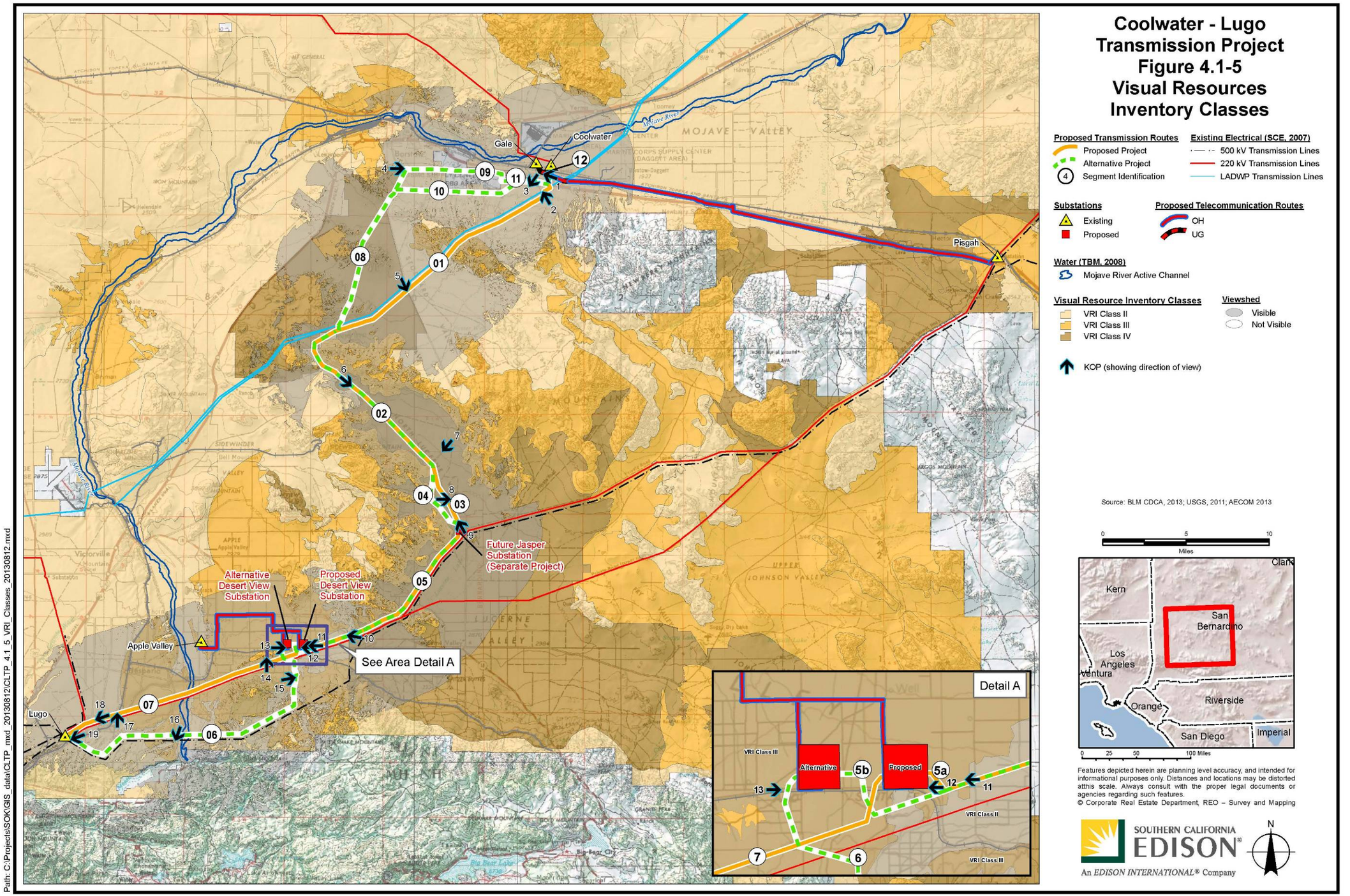
0 5 10 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

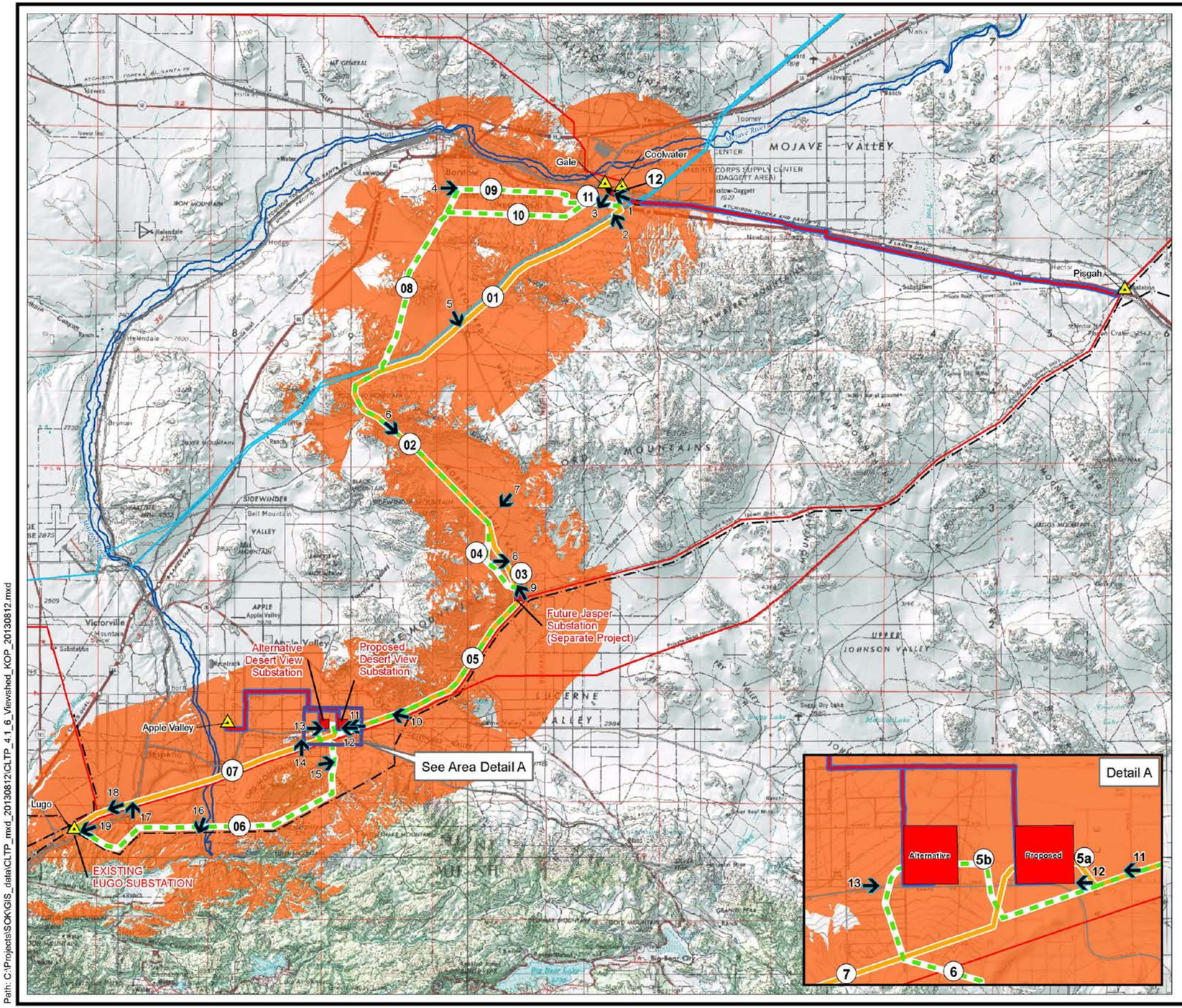
SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SCK\GIS_data\CLTP_mxd_20130812\CLTP_4.1_4_VRI_DistanceZones_20130812.mxd


Coolwater - Lugo
Transmission Project
Figure 4.1-5
Visual Resources
Inventory Classes
Proposed Transmission Routes
Proposed Project
Alternative Project
Segment Identification
Existing Electrical (SCE, 2007)
500 kV Transmission Lines
220 kV Transmission Lines
LADWP Transmission Lines
Substations
Existing
Proposed
Proposed Telecommunication Routes
OH
UG
Water (TBM, 2008)
Mojave River Active Channel
Visual Resource Inventory Classes
VRI Class II
VRI Class III
VRI Class IV
Viewshed
Visible
Not Visible
KOP (showing direction of view)
Source: BLM CDCA, 2013; USGS, 2011; AECOM 2013
Miles
Clark
Kern
San Bernardino
Los Angeles
Ventura
Orange
Riverside
San Diego
Imperial
Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.
© Corporate Real Estate Department, REO – Survey and Mapping
SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company
Coolwater
Gale
Pisgah
Future Jasper Substation (Separate Project)
Alternative Desert View Substation
Proposed Desert View Substation
Apple Valley
Lugo
See Area Detail A
Detail A
Alternative
Proposed
VRI Class III
VRI Class II
Mojave River
MOJAVE VALLEY
Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.1_5_VRI_Classes_20130812.mxd

Coolwater - Lugo Transmission Project
Figure 4.1-6
Project Viewshed and KOP Locations



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Water (TBM, 2008)
- Mojave River Active Channel

Viewshed
- Visible
- Not Visible

KOP (showing direction of view)

Source: BLM CDCA, 2013; USGS, 2011; AECOM 2013

0 5 10 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

This page is intentionally blank.

Table 4.1-4 Key Observation Points and Project Components

KOP	Location	Project Component
1	National Trails Highway	Proposed and Alternative Segment 12
2	Camp Rock Road	Proposed Segment 1
3	Camp Rock Road (near I-40)	Alternative Segment 11
4	SR-247 south of Barstow	Alternative Segment 9
5	SR-247 at Slash X Café	Proposed Segment 1
6	Lucerne Valley Cutoff	Proposed and Alternative Segment 2
7	SR-247 Call Box	Proposed and Alternative Segment 2 and Proposed Segment 3
8	Spinel Street	Proposed Segment 3
9	SR-247 near Haynes Road	Proposed Segment 3
10	SR-18	Proposed and Alternative Segment 5
11	Milpas Drive	Proposed Desert View Substation
12	Desert View Road at Proposed Substation	Proposed Desert View Substation
13	Desert View Road at Dover Road	Alternative Desert View Substation
14	Ocotillo Way	Proposed Segment 7
15	Bowen Ranch Road	Alternative Segment 6
16	Arrowhead Lake Road South	Alternative Segment 6
17	Hesperia Airport	Proposed Segment 7
18	Kimball Road	Proposed Segment 7
19	Summit Valley Road	Alternative Segment 6

The Coolwater-Lugo setting, as seen from each of these KOP locations, is described as follows.

KOP 1 – View from National Trails Highway that includes one existing subtransmission line and one distribution line

KOP 1 is a view west from the National Trails Highway, in the Mojave Valley, in the direction of the City of Barstow. The photograph from KOP 1 is representative of views along the National Trails Highway. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as low. However, the National Trails Highway is known for high-level cultural and historic values. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The Project reference line in the view from KOP 1 is located within private land, and thus, is not under the jurisdiction of the BLM.

The photograph from KOP 1 shows the flat terrain of the surrounding area and angular ridges in the background. Light brown to tan soils are apparent in the foreground.

The vegetation of this view consists of irregularly rounded creosote bush shrubs and interspersed grasses visible in the foreground and middleground. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are fine textured. The vegetation creates an overall horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

Structures in the foreground consist of rectilinear shapes, horizontal and vertical lines, white to light tan and brown colors, and fine textures.

KOP 2 – View from Camp Rock Road that includes four existing transmission lines

KOP 2 is a view northwest from Camp Rock Road, in the Mojave Valley, in the direction of the community of Daggett. The photograph from KOP 2 is representative of views along Camp Rock Road. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as low. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The Project reference line in the view from KOP 2 is located within a BLM MUC Moderate Use area.

The photograph from KOP 2 shows the flat terrain of the surrounding area and angular landforms and ridges in the middleground and background. Very light tan to light brown soils are apparent in the foreground.

The vegetation of this view consists of irregularly rounded creosote bush shrubs and interspersed grasses visible in the foreground and middleground. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are fine textured. The vegetation creates an overall

horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

Structures in the middleground consist of rectilinear shapes, horizontal and vertical lines, white to light tan and brown colors, and fine textures.

Four existing transmission lines are seen in this view. These lattice steel structures are medium to dark gray in color, planar in form, horizontal, vertical, and angular in line, and smooth textured.

KOP 3 – View from Camp Rock Road that includes one existing subtransmission line

KOP 3 is a view southwest from Camp Rock Road in the Mojave Valley. The photograph from KOP 3 is representative of views along Camp Rock Road. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as low. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The Project reference line in the view from KOP 3 is located within a BLM MUC Moderate Use area.

The photograph from KOP 3 shows the flat terrain of the surrounding area and angular landforms and ridges in the middleground and background. Very light tan to light brown soils are apparent in the foreground.

The vegetation of this view consists of irregularly rounded creosote bush shrubs and interspersed grasses visible in the foreground and middleground. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are fine textured. The vegetation creates an overall horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

Structures in the middleground consist of rectilinear shapes, horizontal and vertical lines, white to light tan and brown colors, and fine textures.

One existing subtransmission line is seen in this view. These wooden and steel H-frame structures are medium to dark brown and gray in color, planar in form, horizontal and vertical in line, and smooth textured. The power line conductors are seen as broad arcs due to their sags between structures.

KOP 4 – View from SR-247 that includes one existing subtransmission line and one existing distribution line

KOP 4 is a view east from SR-247, approximately 1 mile south of Barstow. The photograph from KOP 4 is representative of views along SR-247 in the vicinity of Barstow. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as moderate. The KOP and associated Project reference lines are located in a foreground-middleground

distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium duration. The Project reference line in the view from KOP 4 is located within a BLM MUC Moderate Use area.

The photograph from KOP 4 shows the flat terrain of the surrounding area and angular landforms and ridges in the middleground and background. Very light tan to light brown soils are apparent in the foreground.

The vegetation of this view consists of irregularly rounded creosote bush shrubs and interspersed grasses visible in the foreground and middleground. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are fine textured. The vegetation creates an overall horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

Structures in the middleground, including a large windmill, consist of rectilinear shapes, horizontal and vertical lines, white to light tan and brown colors, and fine textures. The dirt access road creates a strong linear component of the landscape, light tan color, and fine texture.

One existing subtransmission line is seen in this view. These wooden and steel H-frame structures are medium to dark gray and brown in color, planar in form, horizontal, vertical, and angular in line, and smooth textured. Directly north and parallel to the existing subtransmission line is an existing distribution line seen in this view. The wooden structures are medium to dark brown in color, cylindrical in form, horizontal and vertical in line, and smooth textured. The power line conductors are seen as broad arcs due to their sags between structures.

KOP 5 – View from SR-247 from the Slash X Café Area that includes four existing transmission lines

KOP 5 is a view southeast from SR-247 in the Stoddard Valley. The photograph from KOP 5 is representative of views along SR-247. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as medium. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The Project reference line in the view from KOP 5 is located within a BLM MUC Intensive Use area.

The photograph from KOP 5 shows the flat terrain of the surrounding area and angular landforms and ridges in the background. Very light tan to light and medium brown soils are apparent in the foreground.

The vegetation of this view consists of irregularly rounded trees, shrubs and interspersed grasses visible in the foreground and middleground. The trees are dark olive green, and the shrubs and grasses are light to medium olive green and medium

tans, respectively. The trees and shrubs are medium to coarse textured and the grasses are fine textured. The trees create organic lines and the shrub vegetation creates an overall horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

The roadway is planar in shape, angular and curvilinear in line, white to medium and dark grays in color, and smooth textured. Fence structures in the foreground consist of rectilinear shapes, horizontal and vertical lines, white to light gray colors, and fine textures.

Four existing transmission lines are seen in the foreground of this view. These lattice steel structures are medium to dark gray in color, planar in form, horizontal and vertical in line, and smooth textured. The power line conductors are seen as broad arcs due to their sags between structures.

KOP 6 – View from Lucerne Valley Cutoff

KOP 6 is a view southeast from the Lucerne Valley Cutoff in the North Lucerne Valley. The photograph from KOP 6 is representative of views along the Lucerne Valley Cutoff. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as medium. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium duration. The Project reference line in the view from KOP 6 is located within a BLM MUC Limited Use area.

The photograph from KOP 6 shows the flat to moderately sloping terrain of the surrounding area and angular ridges in the background. Light brown to tan soils are apparent in the foreground.

The vegetation of this view consists of Joshua trees, yucca, creosote bush and other irregularly rounded shrubs and interspersed grasses visible in the foreground and middleground. The Joshua Trees and Yucca are dark olive green and medium textured. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are fine textured. The vegetation creates an overall irregular line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

KOP 7 – View from SR-247 (1.5 Miles North of Lucerne Valley Cutoff)

KOP 7 is a view southwest from SR-247, 1.5 miles north of the intersection with Lucerne Valley Cutoff in the Lucerne Valley. The photograph from KOP 7 is representative of views along this portion of SR-247. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as medium. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The

Project reference line in the view from KOP 7 is located within private land, and thus, is not under the jurisdiction of the BLM.

The photograph from KOP 7 shows the flat terrain of the surrounding area and angular ridges in the background. Light brown to tan soils are apparent in the foreground.

The vegetation of this view consists of Yucca, creosote bush and other irregularly rounded shrubs and interspersed grasses visible in the foreground and middleground. The Yucca are light olive green and medium textured. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are fine textured. The vegetation creates an overall irregular line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

The roadway in the middleground consists of a planar shape, angular lines, white to light and medium gray colors, and fine textures. Structures, visible in the middleground, consist of rectilinear shapes, horizontal and vertical lines, white to light tan and brown colors, and fine textures.

KOP 8 – View from Spinel Street and Residential Area that includes one existing distribution line

KOP 8 is a view southeast from Spinel Street in the Lucerne Valley. The photograph from KOP 8 is representative of views along Spinel Street. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as moderate. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The Project reference line in the view from KOP 8 is located within private land, and thus, is not under the jurisdiction of the BLM.

The photograph from KOP 8 shows the flat terrain of the surrounding area and angular landforms and ridges in the middleground and background. Very light tan to light brown soils are apparent in the foreground.

The vegetation of this view consists of irregularly rounded shrubs and interspersed grasses visible in the foreground and middleground. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are fine textured. The vegetation creates an overall horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

Residential structures in the foreground consist of rectilinear shapes, horizontal and vertical lines, light tan, gray, and brown colors, and fine textures.

One existing distribution line is seen in this view. The wooden structures are medium to dark brown in color, cylindrical in form, horizontal and vertical in line, and smooth

textured. The power line conductors are seen as broad arcs due to their sags between structures.

KOP 9 – View from SR-247 at Haynes Road

KOP 9 is a view northwest from SR-247 at the intersection of Haynes Road in the Lucerne Valley. The photograph from KOP 9 is representative of views along SR-247. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as moderate. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The Project reference line in the view from KOP 9 is located within private land, and thus, is not under the jurisdiction of the BLM.

The photograph from KOP 9 shows the flat terrain of the surrounding area and angular ridges in the middleground and background. Light brown to tan soils are apparent in the foreground.

The vegetation of this view consists of irregularly rounded Desert Saltbush Scrub shrubs and interspersed grasses visible in the foreground and denser creosote bush shrubs in the middleground. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are fine textured. The vegetation creates an overall horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

The roadway in the foreground consists of a planar shape, angular lines, white to light and medium gray colors, and fine textures. Structures in the middleground consist of rectilinear shapes, horizontal and vertical lines, white to light tan colors, and fine textures.

KOP 10 – View from SR-18 that includes one existing transmission line

KOP 10 is a view west from SR-18, toward the Apple Valley area. The photograph from KOP 10 is representative of views along this portion of SR-18. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as moderate. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The Project reference line in the view from KOP 10 is located within private land, and thus, is not under the jurisdiction of the BLM.

The photograph from KOP 10 shows the flat terrain of the surrounding area and foreground angular landforms and ridges. Very light tan to light brown soils are apparent in the foreground.

The vegetation of this view consists of irregularly rounded creosote bush shrubs and interspersed grasses visible in the foreground and middleground. The shrubs and grasses are light to medium olive-green and medium tans, respectively. The shrubs are medium

to coarse textured and the grasses are fine textured. The vegetation creates an overall horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

The roadway in the foreground consists of a planar shape, angular lines, white to light and medium gray colors, and fine textures. The graded pullout/parking area is planar, of horizontal lines, light tan and brown colors, and smooth textured.

Two existing transmission lines are seen in this view, as well as one background subtransmission line. The foreground lattice steel structures are medium to dark gray in color, planar in form, horizontal and vertical in line, and smooth textured. The power line conductors are seen as broad arcs due to their sags between structures.

KOP 11 – View from Milpas Drive and Residential Area that includes two existing transmission lines and one subtransmission line

KOP 11 is a view west from Milpas Drive in the Apple Valley. The photograph from KOP 11 is representative of views along Milpas Drive in the vicinity of Desert View Road. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as high. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The Project reference line in the view from KOP 11 is located within private land, and thus, is not under the jurisdiction of the BLM.

The photograph from KOP 11 shows the flat terrain of the surrounding area. Very light tan to light brown soils are apparent in the foreground.

The vegetation of this view consists of irregularly rounded creosote bush shrubs and interspersed grasses visible in the foreground and middleground. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are fine textured. The vegetation creates an overall horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

Two existing transmission lines and one existing subtransmission line are seen in this view. These lattice steel structures are medium to dark gray in color, planar in form, horizontal, vertical, and angular in line, and smooth textured. The power line conductors are seen as broad arcs due to their sags between structures.

KOP 12 – View from Desert View Road that includes one existing distribution line and one subtransmission line

KOP 12 is a view west from Desert View Road in the Apple Valley area. The photograph from KOP 12 is representative of views along this portion of Desert View Road. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as high. The KOP and associated Project reference lines are located in a foreground-middleground distance

zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium duration. The Project reference line in the view from KOP 12 is located within private land, and thus, is not under the jurisdiction of the BLM.

The photograph from KOP 12 shows the flat terrain of the surrounding area and angular landforms and ridges in the middleground and background. Very light tan to light brown soils are apparent in the foreground.

The vegetation of this view consists of irregularly rounded shrubs, interspersed grasses, and scattered Joshua Trees visible in the foreground and middleground. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are fine textured. The vegetation creates an overall horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

The roadway structure in the foreground consists of a planar shape, angular and horizontal lines, light tan and brown colors, and fine textures.

One existing distribution line is seen in this view and one existing subtransmission line on wooden H-frame structures. The wooden structures are medium to dark brown in color, cylindrical in form, horizontal and vertical in line, and smooth textured. The power line conductors are seen as broad arcs due to their sags between structures.

KOP 13 – View from the intersection of Desert View Road and Dover Road that includes one existing distribution line and one subtransmission line

KOP 13 is a view east from the intersection of Desert View Road and Dover Road in the Apple Valley area. The photograph from KOP 13 is representative of views along both roads. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as high. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The Project reference line in the view from KOP 13 is located within private land, and thus, is not under the jurisdiction of the BLM.

The photograph from KOP 13 shows the flat terrain of the surrounding area. Very light tan to light brown soils are apparent in the foreground.

The vegetation of this view consists of irregularly rounded scrub shrubs and interspersed grasses visible in the foreground and middleground. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are fine textured. The vegetation, including scattered Joshua Trees, creates an overall horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

The roadway structure in the foreground consists of a planar shape, angular and horizontal lines, light tan and brown colors, and fine textures.

One existing distribution line on wood poles and one existing subtransmission line on wooden H-frame structures are seen in this view. The wooden structures are medium to dark brown in color, cylindrical in form, horizontal and vertical in line, and smooth textured. The power line conductors are seen as broad arcs due to their sags between structures.

KOP 14 – View from the intersection of Ocotillo Way and Bonita Vista Street that includes two existing transmission lines

KOP 14 is a view north from Ocotillo Way in the Apple Valley area. The photograph from KOP 14 is representative of views along Ocotillo Way. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as high. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The Project reference line in the view from KOP 14 is located within private land, and thus, is not under the jurisdiction of the BLM.

The photograph from KOP 14 shows the flat terrain of the surrounding area and foreground angular landforms and ridges. Very light tan to light brown soils are apparent in the foreground.

The vegetation of this view consists of Joshua Trees and irregularly rounded scrub shrubs and interspersed grasses visible in the foreground and middleground. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are fine textured. The vegetation creates an overall horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

The roadway in the foreground consists of a planar shape, angular lines, white to light and medium gray colors, and fine textures. The residential structure consists of planar shapes, horizontal, vertical, and angular lines, light to dark brown colors, and fine textures.

Two existing transmission lines are visible in KOP 14, although only one of the transmission structures is seen in this view. Additionally, two background wood pole distribution structures are visible. The foreground lattice steel structures are medium to dark gray in color, planar in form, horizontal and vertical in line, and smooth textured. The power line conductors are seen as broad arcs due to their sags between structures.

KOP 15 – View from Bowen Ranch Road and Valley View Road that includes two existing transmission lines in the far right middleground

KOP 15 is a view east from Bowen Ranch Road in Arrastre Canyon. The photograph from KOP 15 is representative of views along Bowen Ranch Road. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as high. The KOP and associated Project

reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The Project reference line in the view from KOP 15 is located within private land, and thus, is not under the jurisdiction of the BLM.

The photograph from KOP 15 shows the sloped terrain of the surrounding area and foreground angular landforms and ridges. Very light tan to light brown soils are apparent in the foreground and middleground.

The vegetation of this view consists of irregularly rounded shrubs and interspersed grasses visible in the foreground and middleground. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are fine textured. The vegetation creates an overall horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

Two existing transmission lines are seen in the background. The background lattice steel structures are medium to dark gray in color, planar in form, vertical in line, and smooth textured.

KOP 16 – View from Arrowhead Lake Road (South) and Whitehaven Street that includes two existing transmission lines

KOP 16 is a view southwest from the intersection of Arrowhead Lake Road near the Mojave River. The photograph from KOP 16 is representative of views along this portion of Arrowhead Lake Road. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as high. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The Project reference line in the view from KOP 16 is located within private land, and thus, is not under the jurisdiction of the BLM.

The photograph from KOP 16 shows the hilly terrain of the surrounding area. Very light tan to light brown soils are apparent in the foreground.

The vegetation of this view consists of irregularly rounded shrubs and interspersed grasses visible in the foreground and middleground. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are fine textured. The vegetation creates an overall horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

The dirt access road in the foreground consists of a planar shape, angular and horizontal lines, light tan and brown colors, and fine textures.

Two existing transmission lines are seen in the foreground. The lattice steel structures are medium to dark gray in color, planar in form, horizontal, vertical, and angular in line, and

smooth textured. The power line conductors are seen as broad arcs due to their sags between structures.

KOP 17 – View from Hesperia Airport that includes two existing transmission lines and one existing distribution line

KOP 17 is a view north from the Hesperia Airport. The photograph from KOP 17 is representative of views from Hesperia Airport. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as low. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The Project reference line in the view from KOP 17 is located within private land, and thus, is not under the jurisdiction of the BLM.

The photograph from KOP 17 shows the sloped terrain of the surrounding area. Very light tan to light brown soils are apparent in the middleground.

The vegetation of this view consists of irregularly rounded shrubs and scattered Joshua Trees visible in the middleground. The shrubs and trees are dark olive green, medium to coarse textured, and fine textured.

The airport tarmac in the foreground consists of a planar shape, angular and horizontal lines, light grey colors, and fine textures. The water storage tanks are light tan and the airplanes are brightly colored. The cell tower is planar shaped and dark grey in color. The railroad is a moderately strong horizontal line in the middleground.

Two existing transmission lines are seen in the foreground. The lattice steel structures are medium to dark gray in color, planar/pyramidal in form, horizontal, vertical, and angular in line, and smooth textured. One existing distribution line is also seen in the middleground. The wooden distribution structures are medium to dark brown in color, cylindrical in form, horizontal and vertical in line, and smooth textured. The power line conductors are seen as broad arcs due to their sags between structures.

KOP 18 – View from Kimball Road that includes two existing transmission lines

KOP 18 is a view southwest from along Kimball Road, in a residential area at the edge of Hesperia. The photograph from KOP 18 is representative of views from Kimball Road and the residential area. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as low. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium to long duration. The Project reference line in the view from KOP 18 is located within private land, and thus, is not under the jurisdiction of the BLM.

The photograph from KOP 18 shows the flat terrain of the surrounding area. Very light tan to light brown soils are apparent in the foreground.

The vegetation of this view consists of irregularly rounded shrubs visible in the foreground and irregular trees in the middleground. The shrubs and trees are light, silvery olive green and dark green, respectively. The shrubs and trees are medium to coarse textured. The vegetation creates an overall angular line, appearing irregular in the foreground and middleground.

The fence lines and walkway in the foreground comprises planar shapes, angular and horizontal lines, light grey colors, and fine textures.

Two existing transmission lines are seen in the foreground. The lattice steel structures are medium to dark gray in color, planar/pyramidal in form, horizontal, vertical, and angular in line, and smooth textured. The power line conductors are seen as broad arcs due to their sags between structures.

KOP 19 – View from Summit Valley Road that includes two existing transmission lines

KOP 19 is a view southwest from along Summit Valley Road, at the base of Telephone Canyon. The photograph from KOP 19 is representative of views from this portion of Summit Valley Road. The KOP and associated reference line are located in Class C scenic quality (BLM 2010). The KOP is located in a viewer sensitivity level area rated as low. The KOP and associated Project reference lines are located in a foreground-middleground distance zone, based on locations of viewers (BLM 2010). The time period of the view would be of medium duration. The Project reference line in the view from KOP 19 is located within private land, and thus, is not under the jurisdiction of the BLM.

The photograph from KOP 19 shows the hilly terrain of the surrounding area. Very light tan to light brown soils are apparent in the foreground.

The vegetation of this view consists of irregularly rounded shrubs and interspersed grasses visible in the foreground and middleground. The shrubs and grasses are light to medium olive green and medium tans, respectively. The shrubs are medium to coarse textured and the grasses are of a fine texture. The vegetation creates an overall horizontal line, appearing scattered in the foreground and continuous as the foreground transitions to the middleground.

The roadway and rail line embankment in the foreground consist of planar shapes, angular and horizontal lines, light tan, medium grey, and dark brown colors, and fine textures.

Two existing transmission lines are seen in the foreground. The lattice steel structures are medium to dark gray in color, planar/pyramidal in form, horizontal, vertical, and angular in line, and smooth textured. One existing distribution line is visible in the fore and middleground. The wooden distribution structures are medium to dark brown in color, cylindrical in form, horizontal and vertical in line, and smooth textured. The power line conductors are seen as broad arcs due to their sags between structures.

Figure 4.1-7a KOP 1: Existing view west from the National Trails Highway, towards Barstow

Figure 4.1-7b KOP 1: Simulated view west from the National Trails Highway, towards Barstow

Figure 4.1-8a KOP 2: Existing view northwest from Camp Rock Road, towards Daggett

Figure 4.1-8b KOP 2: Simulated view northwest from Camp Rock Road, towards Daggett

Figure 4.1-9a KOP 3: Existing view southwest from Camp Rock Road

Figure 4.1-9b KOP 3: Simulated view southwest from Camp Rock Road

Figure 4.1-10a KOP 4: Existing view east from SR-247, 1 mile south of Barstow

Figure 4.1-10b KOP 4: Simulated view east from SR-247, 1 mile south of Barstow

Figure 4.1-11a KOP 5: Existing view southeast from SR-247 in the Stoddard Valley

Figure 4.1-11b KOP 5: Simulated view southeast from SR-247 in the Stoddard Valley

Figure 4.1-12a KOP 6: Existing view southeast from the Lucerne Valley Cutoff in the North Lucerne Valley

Figure 4.1-12b KOP 6: Simulated view southeast from the Lucerne Valley Cutoff in the North Lucerne Valley

Figure 4.1-13a KOP 7: Existing view southwest from SR-247, 1.5 miles north of the intersection with Lucerne Valley Cutoff in the Lucerne Valley

Figure 4.1-13b KOP 7: Simulated view southwest from SR-247, 1.5 miles north of the intersection with Lucerne Valley Cutoff in the Lucerne Valley

Figure 4.1-14a KOP 8: Existing view southeast from Spinel Street in the Lucerne Valley

Figure 4.1-14b KOP 8: Simulated view southeast from Spinel Street in the Lucerne Valley

Figure 4.1-15a KOP 9: Existing view northwest from SR-247 at the intersection of Haynes Road in the Lucerne Valley

Figure 4.1-15b KOP 9: Simulated view northwest from SR-247 at the intersection of Haynes Road in the Lucerne Valley

Figure 4.1-16a KOP 10: Existing view west from SR-18, toward the Apple Valley area

Figure 4.1-16b KOP 10: Simulated view west from SR-18, toward the Apple Valley area

Figure 4.1-17a KOP 11: Existing view west from Milpas Drive in the Apple Valley area

Figure 4.1-17b KOP 11: Simulated view west from Milpas Drive in the Apple Valley area

Figure 4.1-18a KOP 12: Existing view west from Desert View Road in the Apple Valley area

Figure 4.1-18b KOP 12: Simulated view west from Desert View Road in the Apple Valley area

Figure 4.1-19a KOP 13: Existing view east from the intersection of Desert View Road and Dover Road in the Apple Valley area

Figure 4.1-19b KOP 13: Simulated view east from the intersection of Desert View Road and Dover Road in the Apple Valley area

Figure 4.1-20a KOP 14: Existing view north from Ocotillo Way in the Apple Valley area

Figure 4.1-20b KOP 14: Simulated view north from Ocotillo Way in the Apple Valley area

Figure 4.1-21a KOP 15: Existing view east from Bowen Ranch Road in Arrastre Canyon

Figure 4.1-21b KOP 15: Simulated view east from Bowen Ranch Road in Arrastre Canyon

Figure 4.1-22a KOP 16: Existing view southwest from the intersection of Arrowhead Lake Road near the Mojave River

Figure 4.1-22b KOP 16: Simulated view southwest from the intersection of Arrowhead Lake Road near the Mojave River

Figure 4.1-23a KOP 17: Existing view north from the Hesperia Airport

Figure 4.1-23b KOP 17: Simulated view north from the Hesperia Airport

Figure 4.1-24a KOP 18: Existing view southwest from along Kimball Road, in a residential area at the edge of Hesperia

Figure 4.1-24b KOP 18: Simulated view southwest from along Kimball Road, in a residential area at the edge of Hesperia

Figure 4.1-25a KOP 19: Existing view southwest from along Summit Valley Road, at the base of Telephone Canyon

Figure 4.1-25b KOP 19: Simulated view southwest from along Summit Valley Road, at the base of Telephone Canyon

4.1.2 Regulatory Setting

4.1.2.1 Federal Regulatory Setting

Federal Land Policy and Management Act as amended

The Federal Land Policy and Management Act ("FLPMA") of 1976 (90 Stat. 2743; 43 U.S. Code 1601, et seq.) established BLM as the jurisdictional agency for expanses of land in the West to be managed as multiuse lands. The following sections of the FLPMA relate to the management of visual resources on Federal lands:

> § 102(a): "The public lands [shall] be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values."
>
> § 201(a): "The Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resources and other values (including…scenic values)."
>
> § 202(c)(1-9): ...in developing land use plans, the BLM shall use…the inventory of the public lands; consider present and potential uses of the public lands, consider the scarcity of the values involved and the availability of alternative means and sites for realizing those values; weigh long-term benefits to the public against short term benefits."
>
> § 505(a): "Each right-of-way shall contain terms and conditions which will … (ii) minimize damage to the scenic and esthetic values" (BLM 2001).

4.1.2.2 State Regulatory Setting

California Scenic Highway Program

In 1963, the California Legislature created the Scenic Highway Program to protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to the highways. The State regulations and guidelines governing the Scenic Highway Program are found in the Streets and Highways Code, section 260 et seq. A highway may be designated as "scenic" depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the travelers' enjoyment of the view. No portion of the Proposed or Alternative Project would be visible from a Designated or Eligible State Scenic Highway (Caltrans 2009).

4.1.2.3 Local Regulatory Setting

The California Public Utilities Commission ("CPUC") has sole exclusive State jurisdiction over the siting and design of Coolwater-Lugo, because the CPUC regulates and authorizes the construction of investor-owned public utility facilities. Such projects

are exempt from local land use and zoning regulations and permitting in accordance with General Order No. 131-D, which is applicable to all components of a project including but not limited to the transmission lines, substations, staging yards, and marshaling yards. However, Section XIV.B requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain any non-discretionary local permits." As part of its environmental review process, Southern California Edison ("SCE") considered local aesthetic resource policies, which are described in the following text.

County of San Bernardino General Plan

San Bernardino County is vast and consists of three distinct geographic regions: the Valley, the Mountains, and the Desert (San Bernardino County 2013). The County General Plan addresses the distinctions between the three geographic regions while being mindful of the need to have unified goals and policies that would address countywide issues and opportunities. Most of the policies within the County General Plan address the County in its entirety and are referred to as countywide policies. Countywide policies are presented under each element of the County General Plan.

Land Use Element

The following Land Use Element countywide policy is relevant to the Proposed Project's aesthetic considerations:

- LU 1.2. The design and siting of new development will meet locational and development standards to ensure compatibility of the new development with adjacent land uses and community character

Open Space Element

The following Open Space Element countywide policies are relevant to the Proposed Project's aesthetic considerations:

- OS 1.9. Ensure that open space and recreation areas are both preserved and provided to contribute to the overall balance of land uses and quality of life

- OS 3.6. Consistent with safety and operational considerations, support the use of channels, levees, aqueduct alignments, and similar linear spaces for open space and/or trail use

- OS 5.1. Features meeting the following criteria will be considered for designation as scenic resources:

    a. A roadway, vista point, or area that provides a vista of undisturbed natural areas

    b. Includes a unique or unusual feature that comprises an important or dominant portion of the viewshed (the area within the field of view of the observer)

c. Offers a distant vista that provides relief from less attractive views of nearby features (such as views of mountain backdrops from urban areas)

- OS 7.3. Because open space can promote neighborhood and civic identity by providing a clear definition to districts and neighborhoods, the County supports the use of open space and landscaping to define neighborhoods and district boundaries and to delineate edges between the natural and built environment

Lucerne Valley Community Plan (Unincorporated San Bernardino County)

Conservation Element

The following Lucerne Valley Conservation Element policies are relevant to the Proposed Project (Community of Lucerne Valley 2007).

- GOAL LV/ CO 1: "Conserve and protect the unique environmental features of Lucerne Valley, including native wildlife, vegetation and scenic vistas"

Relevant policies based on Goal LV/ CO 1 include:

- Require future land development to be compatible with the existing topography and scenic vistas, and protect the native vegetation

City of Hesperia General Plan

Land Use Element

The following City of Hesperia Land Use Element policies are relevant to the Proposed Project (City of Hesperia 2010).

- GOAL LU-8: "Provide for a fiscally sound and balanced mix of land uses with the best and most efficient use of infrastructure and services. Development shall occur in an orderly, beneficial manner that does not fiscally impact the existing community"

Relevant policies based on Goal LU-8 include:

- Adopt design standards that will assure land use compatibility and enhance the visual environment, by providing attractive, aesthetically pleasing development sensitive to the unique local characteristics of the Hesperia community

Open Space Element

The following City of Hesperia Open Space Element policies are relevant to Coolwater-Lugo (City of Hesperia 2010).

- GOAL OS-4: "Permit a variety of uses within open space areas, depending upon the natural amenities available"

Relevant policies based on Goal OS-4 include:

- Preserve the aesthetic integrity and usefulness of open space washes by implementing restrictive development standards on projects occurring in or around the wash areas, and ensuring development proposals are compatible

City of Barstow

A portion of the Alternative Transmission Line Route (Segment 9) is located within the City of Barstow. The portion of the Project that lies within the City of Barstow is also entirely within the Marine Corps Logistics Base Barstow. This area is zoned as a Military Zone District and all land uses and activities are under the jurisdiction of the Department of Defense (City of Barstow 1997). Therefore, no other City of Barstow policies would apply to Coolwater-Lugo.

Town of Apple Valley

Land Use Element

The following Town of Apple Valley Land Use Element goal and policy are relevant to Coolwater-Lugo:

- Goal 1: The Town shall respect its desert environment

- Policy 1.D: Areas of biological or aesthetic significance shall be protected from development (Town of Apple Valley 2009)

Open Space and Conservation Element

The following Town of Apple Valley Open Space and Conservation Element goal is relevant to Coolwater-Lugo:

- Goal 2: The Town shall encourage the preservation of significant native trees, native vegetation, landforms and wildlife habitat (Town of Apple Valley 2009)

4.1.3 Significance Criteria

4.1.3.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to aesthetics come from the California Ennvironmental Quality Act ("CEQA") Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Have a substantial adverse effect on a scenic vista

- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway

- Substantially degrade the existing visual character or quality of the site and its surroundings
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area

4.1.3.2 NEPA Analysis

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (40 Code of Federal Regulations 1508.27)

4.1.4 Impact Analysis

This assessment is based on the potential impacts of the Proposed Project on aesthetics. The study area for aesthetics is the Coolwater-Lugo viewshed, shown in Figure 4.1-6, *Project Viewshed and KOP Locations*. The visible height threshold for structures was set at 100 feet, the height of the tallest structures' crossarms. That threshold assumes that a person seeing at least the crossarms would perceive the presence of the Project. The ArcGIS viewshed application was used to determine visibility of the Project out to 5 miles from the Project reference line.

This visual analysis focuses on the Proposed Substation and Proposed Transmission Line Routes, as these would be new structures in the landscape. The Proposed Telecommunication Routes would be located primarily on existing structures and would have minimal visual impact. Therefore, they are not discussed further in this analysis.

Of the 19 KOPs selected for Coolwater-Lugo, 13 KOPs are relevant to the analysis of the Proposed Project: KOPs 11 and 12 for the Proposed Desert View Substation and KOPs 1, 2, 5, 6, 7, 8, 9, 10, 14, 17, and 18 for the Proposed Transmission Lines. Impacts from the Alternative Project are discussed in Section 4.1.6, *Alternative Project*. The analysis of the KOPs was conducted using the BLM methodology for assessing impacts to visual resources. The detailed analysis of the KOPs is presented as part of the NEPA analysis, but the results have also been applied to the CEQA analysis.

As discussed in Chapter 3, *Project Description*, either the Proposed Project or Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. Visual simulations of the Proposed and Alternative Desert View Substation sites were modeled for FBO only.

4.1.4.1 CEQA Impact Assessment

Would the project have a substantial adverse effect on a scenic vista?

Construction Impacts

Because there are no designated scenic vistas within the Proposed Project area or with a view of the Proposed Project area, construction activities would not have the potential to have a substantial adverse effect on a scenic vista. Therefore, no impacts are anticipated from construction of the Proposed Project.

Operation Impacts

Because there are no designated scenic vistas within the Proposed Project area or with a view of the Proposed Project area, none of the components of the Proposed Project would have the potential to have a substantial adverse effect on a scenic vista. Therefore, no impacts are anticipated from operation of the Proposed Project.

Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Construction Impacts

Construction of the Proposed Project would not have an adverse effect on a State-designated scenic highway, as there are no designated State scenic highways within the Project area. Consequently, construction activities would not have the potential to substantially damage scenic resources within a State scenic highway. Therefore, no impacts are anticipated from construction of the Proposed Project.

Operation Impacts

Operation of the Project would not have an adverse effect on a State-designated scenic highway, as there are no designated state scenic highways within the Project area. Consequently, the Proposed Project would not have the potential to substantially damage scenic resources within a state scenic highway. Therefore, no impacts are anticipated from operation of the Proposed Project.

Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Construction Impacts

Based on the evaluation conducted for the KOPs in accordance with the BLM's Visual Contrast Rating System presented in Section 4.1.4.2, *NEPA Impact Assessment*, the Proposed Project at KOPs 6 and 9 would result in a substantial degradation of the existing visual character or quality of the site. No substantial degradation of existing visual character or quality was identified in the evaluation of the other KOPs for the Proposed Project. Construction activities associated with Proposed Transmission Line Segment 2 that would be visible from KOP 6 and Proposed Transmission Line Segment 3 that would be visible from KOP 9 would both result in a significant impact. This is due to the close proximity of Segment 2 and Segment 3 to the roadway and the absence of existing development. Therefore, a significant and unavoidable impact to the existing

visual character or quality of the site and its surroundings is anticipated from construction of the Proposed Project.

Operation Impacts

No additional changes to the visual character or quality of the site and its surroundings would be anticipated during the operation of the Proposed Project as compared to construction of the Proposed Project. Therefore, no additional impact is anticipated from operation of the Proposed Project.

Would the project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Construction Impacts

Construction of the Proposed Project would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. Under normal circumstances construction of the Proposed Project would occur during daylight hours. In the event that temporary construction lighting is needed for nighttime construction for the safety of construction workers, lighting would be directed toward the construction activities. Stand-alone portable light towers/poles may be used to provide illumination at night at the staging yards and/or substation site for safety and security purposes. These lights would be oriented to minimize their effect on any nearby sensitive receptors. Therefore, less than significant impacts are anticipated from construction of the Proposed Project.

Operation Impacts

Proposed Project facilities that may require nighttime lighting include the Proposed Desert View Substation. Substation lighting would consist of light-emitting diode luminaires located in the switchracks, around the transformer banks, the substation perimeter wall, and areas of the yard where emergency activities may be required. The facilities would not be illuminated at night under normal conditions; lighting would be operated by a manual switch and would be used when required for nighttime emergency/scheduled work. A light, indicating the operation of the substation rolling gate, would automatically turn on once the gate begins to open and would turn off shortly after the gate is closed.

Lighting required for the substation would be a new source of lighting in an area that is currently characterized by scattered rural residential development. The lighting would be directed downward and shielded to eliminate off-site light spill at times when the lighting might be in use. Because the substation would not use nighttime lighting during regular operation, the Project would not create a new source of light or glare that would adversely affect day or nighttime views in the area.

As described in Section 3.2.1.5, *FAA Notifications*, SCE would submit electronic notifications to the Federal Aviation Agency ("FAA") based on final engineering for the Proposed Project. FAA would make recommendations regarding marking and lighting.

Should lighting be installed on transmission structures, it would be for aviation safety purposes and not intended for illumination. Tower lighting would not be expected to be a new source of substantial light. Therefore, less than significant impacts are anticipated from operation of the Proposed Project.

4.1.4.2 NEPA Impact Assessment

Because a portion of the Proposed Project would be located on BLM-managed land, the NEPA analysis for aesthetics uses the BLM's methodology for assessing impacts to visual resources. The BLM visual contrast rating criteria of form, line, color, and texture were applied to all KOPs, including those not on BLM-managed land, in order to standardize the analysis of determining the potential impacts of the Proposed Project.

For the purposes of this analysis, the term "Proposed Action" as used in NEPA regulations and analysis is used interchangeably with the "Proposed Project."

Evaluation of KOPs

The KOPs for the Proposed Project were evaluated using the BLM Visual Contrast Rating System and BLM management objectives. The BLM Visual Contrast Rating worksheets that were used in the evaluation of characteristic landscape and impacts to each KOP for both the Proposed Project and Alternative Project are provided in Appendix F.

<u>KOP 1 – View from National Trails Highway that includes one existing subtransmission line and one distribution line</u>

Construction of the Proposed Transmission Line Segment 12 would be visible from KOP 1 in the immediate foreground and would be sky-lined. The observer position would be eye-level, or normal, resulting in typical impacts. Construction would result in short-term changes to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 1. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Proposed Project components would result in long-term changes to the foreground of the existing environment of KOP 1. Long-term visible changes would result from the addition of tower structures and associated power line conductors in the foreground. Areas permanently cleared of vegetation for access roads and transmission line towers could be visible in the foreground of KOP 1. No additional long-term visual changes would result from operation of the Proposed Project.

Implementation of the proposed transmission line in the view from KOP 1 would result in moderate to strong contrasts of form, line, color, and texture of the landform, vegetation, and structures. Impacts to viewers would be moderate based on the view from National Trails Highway, foreground impacts and the predominantly

undeveloped landscape. Impacts to scenery would be moderate based on change to medium quality scenery. The changes to the existing environment in the view from KOP 1 would occur on private land. Thus, the CDCA MUC objectives of the BLM would not apply.

In conclusion, impacts to scenery would be moderate, and impacts to viewers would be moderate. Therefore, less than significant impacts are anticipated during construction and operation of the Proposed Project.

KOP 2 – View from Camp Rock Road that includes four existing transmission lines

Construction of Proposed Transmission Line Segment 1 would be visible from KOP 2 in the immediate foreground and would not be sky-lined at this location. Observer position would be above eye-level, or superior, resulting in lower impacts. Construction activities would result in short-term changes to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 2. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Proposed Project components would result in long-term changes to the foreground of the existing environment of KOP 2. Long-term visible changes would result from the addition of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for access roads and transmission line towers could be visible in the foreground of KOP 2. No additional long-term visual changes would result from operation of the Proposed Project.

Implementation of the proposed transmission line in the view from KOP 2, along with the four existing transmission lines, would result in weak contrasts of form, line, color, and texture of the landform, vegetation, and structures. Impacts to viewers would be low based on low viewer sensitivity and the presence of existing structures. Impacts to scenery would be low based on negligible change to Class C scenery. The changes to the existing environment would be consistent with the MUC Moderate Use assigned to these BLM-managed lands. This class states as follows: “Multiple-Use Class M (Moderate Use) is based upon a controlled balance between higher intensity use and protection of public lands. This class provides for a wide variety or present and future uses such as mining, livestock grazing, recreation, energy, and utility development. Class M management is also designed to conserve desert resources and to mitigate damage to those resources which permitted uses may cause.” Therefore, implementation of the Proposed Transmission Line Segment 1 would be in compliance with BLM management plans.

In conclusion, impacts to scenery would be low, and impacts to viewers would be low. The project would comply with agency management objectives. Therefore, less than significant impacts are anticipated during construction and operation of the Proposed Project

KOP 5 – View from SR-247 from Slash X Café Area that includes four existing transmission lines

Construction of Proposed Transmission Line Segment 1would be visible from KOP 5 in the immediate foreground and sky-lined. Observer position would be eye-level, or normal. Construction activities would result in short-term changes to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 5. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Proposed Project components would result in long-term changes to the foreground of the existing environment of KOP 5. Long-term visible changes would result from the addition of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for access roads and transmission line towers could be visible in the foreground of KOP 5. No additional long-term visual changes would result from operation of the Proposed Project.

Implementation of the proposed transmission line in the view from KOP 5, along with the four existing transmission lines, would result in weak to moderate contrasts of form, line, color, and texture of the landform, vegetation, and structures. Impacts to viewers would be low based on the presence of existing foreground structures. Impacts to scenery would be low based on change to low to medium quality scenery. The changes to the existing environment visible from this KOP would occur on private land. Thus, the CDCA MUC objectives of the BLM do not apply. The remainder of this segment on BLM land to the east would extend through MUC Moderate Use. The remainder of this segment on BLM land to the west would extend through MUC Intensive Use.

In conclusion, impacts to scenery would be low, and impacts to viewers would be low. Therefore, less than significant impacts are anticipated during construction and operation of the Proposed Project

KOP 6 – View from Lucerne Valley Cutoff

Construction of the Proposed Transmission Line Segment 2 would be visible from KOP 6 in the immediate foreground and would be sky-lined. The observer position would be eye-level, or normal. Construction would result in short-term changes to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 6. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Proposed Project components would result in long-term changes to the foreground and middleground of the existing environment of KOP 6. Long-term

visible changes would result from the addition of tower structures and associated conductors in the middleground. Areas permanently cleared of vegetation for access roads and transmission line towers could be visible in the foreground of KOP 6. No additional long-term visual changes would result from operation of the Proposed Project.

Implementation of the proposed transmission line in the view from KOP 6 would result in moderate to strong contrasts of form, line, color, and texture of the landform, vegetation, and structures. Impacts to viewers would be high based on medium viewer sensitivity level, immediate foreground impacts and the absence of existing structures. Impacts to scenery would be moderate based on change to Class C scenery. The changes to the existing environment would be inconsistent with the MUC Limited Use assigned to these BLM-managed lands. The objective for this class states as follows: "Multiple-Use Class L (Limited Use) protects sensitive, natural, scenic, ecological, and cultural resource values. Public lands designated as Class L are managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished." Therefore, implementation of the Proposed Transmission Line Segment 2 would result in non-compliance with BLM management plans. To reduce the degree of contrast associated with KOP 6, structures would be galvanized steel with a dulled finish and would use non-specular conductor.

In conclusion, impacts to scenery would be moderate, and impacts to viewers would be high. The project would not comply with agency management objectives. Therefore, significant and unavoidable impacts are anticipated during construction and operation of the Proposed Project.

KOP 7 – View from SR-247 1.5 Miles North of Lucerne Valley Cutoff

Construction of the Proposed and Alternative Transmission Line Segment 2 and Proposed Transmission Line Segment 3 would be visible from KOP 7 in the middleground, and would not be sky-lined. The observer position would be eye-level, or normal. Construction would result in short-term changes to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 7. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Proposed Project components would result in long-term changes to the foreground of the existing environment of KOP 7. Long-term visible changes would result from the addition of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for access roads and transmission line towers could be visible in the middleground of KOP 7. No additional long-term visual changes would result from operation of the Proposed Project.

Implementation of the proposed transmission line in the view from KOP 7 would result in weak to moderate contrasts of form, line, color, and texture of the landform, vegetation

and structures. Impacts to viewers would be moderate based on middleground impacts. Impacts to scenery would be moderate based on the change to high quality scenery. Although this KOP is located on State Lands Commission Lands, the changes to the existing environment visible from this KOP would occur on private land. Thus, any potential State of California scenery objectives and/or CDCA MUC objectives of the BLM would not apply.

In conclusion, impacts to scenery would be moderate and impacts to viewers would be moderate. Therefore, less than significant impacts are anticipated during construction and operation of the Proposed Project

KOP 8 – View from Spinel Street at SR-247 that includes one existing distribution line

Construction of the Proposed Transmission Line Segment 3 would be visible from KOP 8 in the foreground and would be sky-lined. The observer position would be eye-level, or normal. Construction activities would result in short-term changes to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 8. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Proposed Project components would result in long-term changes to the foreground of the existing environment of KOP 8. Long-term visible changes would result from the addition of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for transmission line towers could be visible in the foreground of KOP 8. No additional long-term visual changes would result from operation of the Proposed Project.

Implementation of the proposed transmission line in the view from KOP 8, along with the one existing distribution line, would result in weak to moderate contrasts of form, line, color, and texture of the landform and vegetation. Impacts to viewers would be moderate based on foreground impacts and the presence of existing structures. Impacts to scenery would be moderate based on change to medium to high quality scenery. The changes to the existing environment visible from this KOP would occur on private land. Thus, the CDCA MUC objectives of the BLM would not apply. There is one short segment northwest of this KOP that would intersect MUC Intensive Use.

In conclusion, impacts to scenery would be moderate and impacts to viewers would be moderate. Therefore, less than significant impacts are anticipated during construction and operation of the Proposed Project.

KOP 9 – View from SR-247 at Haynes Road

Construction of the Proposed Transmission Line Segment 3would be visible from KOP 9 in the foreground and would be sky-lined. Observer position would be eye-level,

or normal. Construction would result in short-term changes to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 9. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Proposed Project components would result in long-term changes to the foreground of the existing environment of KOP 9. Long-term visible changes would result from the addition of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for access roads and transmission line towers could be visible in the foreground of KOP 9. No additional long-term visual changes would result from operation of the Proposed Project.

Implementation of the proposed transmission line in the view from KOP 9 would result in a moderate to strong contrasts of form, line, color, and texture of the landform, vegetation, and structures. Impacts to viewers would be high based on foreground impacts and undeveloped landscape. Impacts to scenery would be high based on the change to medium to high quality scenery. The changes to the existing environment visible from this KOP would occur on private land. Thus, the CDCA MUC objectives of the BLM would not apply. There are two short segments southwest of this KOP that would intersect MUC Intensive Use.

In conclusion, impacts to scenery would be high and impacts to viewers would be high. Therefore, significant and unavoidable impacts are anticipated during construction and operation of the Proposed Project.

KOP 10 – View from SR-18 that includes two existing transmission lines

Construction of the Proposed Transmission Line Segment 5 would be visible from KOP 10 in the immediate foreground and would be sky-lined. Observer position would be eye-level, or normal. Construction activities would result in short-term impacts to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites, as well as the removal of one of the existing transmission lines, could result in temporary clearing of vegetation that would be visible from KOP 10. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period. Construction of the proposed transmission route from KOP 10 would include the removal of one of the existing transmission lines and its replacement with the proposed transmission route.

After construction, the Proposed Project components would result in long-term changes to the foreground of the existing environment of KOP 10. Long-term visible changes would result from the addition of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for transmission line towers

could be visible in the foreground of KOP 10. No additional long-term visual changes would result from operation of the Proposed Project.

Construction and operation of the proposed transmission line in the view from KOP 10, adjacent to one existing transmission line and replacing another existing transmission line, would result in weak to moderate contrasts of form, line, color, and texture of the landform and vegetation. Impacts to viewers would be moderate based on foreground impacts and the presence of existing transmission line structures. Impacts to scenery would be moderate based on the change to medium quality scenery. The changes to the existing environment visible from this KOP would occur on private land. Thus, the CDCA MUC objectives of the BLM would not apply.

In conclusion, impacts to scenery would be moderate, and impacts to viewers would be moderate. Therefore, less than significant impacts are anticipated during construction and operation of the Proposed Project.

KOP 11 – View from Milpas Drive near Desert View Road that includes two existing transmission lines

Construction of the Proposed Desert View Substation and Proposed Transmission Line Segment 5A would be visible from KOP 11 in the immediate foreground and would be sky-lined. Observer position would be below eye-level, or inferior. Construction activities would result in short-term impacts to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 11. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Proposed Project components would result in long-term changes to the foreground of the existing environment of KOP 11. Long-term visible changes would result from the addition of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for access roads and transmission line towers could be visible in the foreground of KOP 11. No additional long-term visual changes would result from operation of the Proposed Project.

Implementation of the proposed transmission line and substation in the view from KOP 11, along with the two existing transmission lines, would result in weak to moderate contrasts of form, line, color, and texture of the landform and vegetation. Impacts to viewers would be moderate based on foreground impacts and the presence of existing transmission line structures. Impacts to scenery would be moderate based on the change to medium quality scenery. The changes to the existing environment visible from this KOP would occur on private land. Thus, the CDCA MUC objectives of the BLM would not apply.

In conclusion, impacts to scenery would be moderate, and impacts to viewers would be moderate. Therefore, less than significant impacts are anticipated during construction and operation of the Proposed Project.

KOP 12 – View from Desert View Road that includes one existing distribution line and one subtransmission line

Construction of the Proposed Desert View Substation and Proposed Transmission Line Segment 7 would be visible from KOP 12 in the immediate foreground and would be sky-lined. Observer position would be below eye-level, or inferior. Construction activities would result in short-term changes to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 12. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Proposed Project components would result in long-term changes to the foreground of the existing environment of KOP 12. Long-term visible changes would result from the addition of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for transmission line towers could be visible in the foreground of KOP 12. No additional long-term visual changes would result from operation of the Proposed Project.

Implementation of the proposed transmission line and substation in the view from KOP 12, along with the one existing distribution line and one existing subtransmission line, would result in weak to moderate contrasts of form, line, color, and texture of the landform and vegetation. Impacts to viewers would be moderate based on, high sensitivity level, foreground impacts and the presence of existing transmission line structures. Impacts to scenery would be moderate based on the change to Class C scenery. The changes to the existing environment visible from this KOP would occur on private land. Thus, the CDCA MUC objectives of the BLM would not apply.

In conclusion, impacts to scenery would be moderate, and impacts to viewers would be moderate.. Therefore, less than significant impacts are anticipated during construction and operation of the Proposed Project.

KOP 14 – View from the intersection of Ocotillo Way and Bonita Vista Street that includes two existing transmission lines

Construction of the Proposed Transmission Line Segment 7 would be visible from KOP 14 in the immediate foreground and would be sky-lined and observer normal. Construction activities would result in short-term changes to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 14. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers

would become visible as they are erected throughout the construction period. The proposed transmission line would replace the two existing transmission lines in the same right-of-way ("ROW").

After construction, the Proposed Project components would result in long-term changes to the foreground of the existing environment of KOP 14. Long-term visible changes would result from the replacement of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for transmission line towers could be visible in the foreground of KOP 14. No additional long-term visual changes would result from operation of the Proposed Project.

Implementation of the proposed transmission line in the view from KOP 14, in place of the two existing transmission lines, including construction, operation, and decommissioning, would result in weak contrasts of form, line, color, and texture of the landform, vegetation, and structures. Impacts to viewers would be moderate based on high sensitivity level, foreground impacts and the presence of existing transmission line structures. Impacts to scenery would be low based on the change to Class C scenery. The changes to the existing environment visible from this KOP would occur on private land. Thus, the CDCA MUC objectives of the BLM would not apply.

In conclusion, impacts to scenery would be low, and impacts to viewers would be moderate. Therefore, less than significant impacts are anticipated during construction and operation of the Proposed Project.

KOP 17 – View from Hesperia Airport that includes two existing transmission lines and one existing distribution line

Construction of the Proposed Transmission Line Segment 7 would be visible from KOP 17 in the foreground. Construction activities would result in short-term changes to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 17. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Proposed Project components would result in long-term changes to the foreground of the existing environment of KOP 17; however, these would be minimized by the fact that the proposed transmission line is replacing two existing transmission lines in the same ROW. Negligible long-term visible changes would result from the replacement of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for access roads and transmission line towers could be visible in the foreground of KOP 17. No additional long-term visual changes would result from operation of the Proposed Project.

Implementation of the proposed transmission line in the view from KOP 17, in place of the two existing transmission lines, would result in weak contrasts of form, line, color,

and texture of the landform, vegetation, and structures. Impacts to viewers would be low and impacts to scenery would be low. The changes to the existing environment visible from this KOP would occur on private land. Thus, the CDCA MUC objectives of the BLM would not apply.

In conclusion, impacts to scenery would be low, and impacts to viewers would be low. Therefore, less than significant impacts are anticipated during construction and operation of the Proposed Project.

KOP 18 – View from Kimball Road that includes two existing transmission lines

Construction of the Proposed Transmission Line Segment 7 would be visible from KOP 18 in the immediate foreground and would be sky-lined and observer position would be eye-level, or normal. Construction activities would result in short-term changes to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 18. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Proposed Project components would result in long-term changes to the foreground of the existing environment of KOP 18. Long-term visible changes would result from the reduction of the number of tower structures and associated conductors in the foreground. Areas already cleared of vegetation for access roads and transmission line towers could be visible in the foreground of KOP 18. No additional long-term visual changes would result from operation of the Proposed Project.

Implementation of the proposed transmission line in the view from KOP 18, in place of the two existing transmission lines, including construction, operation, and decommissioning, would result in weak contrasts of form, line, color, and texture of the landform, vegetation, and structures. Impacts to viewers would be moderate and impacts to scenery would be moderate. The changes to the existing environment visible from this KOP would occur on private land. Thus, the CDCA MUC objectives of the BLM would not apply.

In conclusion, impacts to scenery would be moderate, and impacts to viewers would be moderate. Therefore, less than significant impacts are anticipated during construction and operation of the Proposed Project.

Construction Impacts

Visual resources would be impacted from construction of the Proposed Project. Direct impacts to visual resources would occur from modifications of the characteristic landscape, and from introductions of contrasting forms, lines, colors and textures of landform, vegetation, and structures needed to accommodate Proposed Project construction activities.

Planar or cylindrical forms of structures, vertical and horizontal lines of structures and conductors, silvery-gray colors, and smooth textures would result from multiple lattice steel structures along the tangents, a single, wider, larger appearing, lattice steel structure at the points of inflection and longer spans, and vegetation clearing, fences, walls and roads. In less developed areas, these elements would contrast with existing characteristic landscapes to a moderate to strong degree. In viewsheds with existing electrical transmission line structures and ground disturbances, contrasts would be weak to moderate, depending on distance from the observer and number and type of structures. In all cases, construction activities occurring in the immediate foreground (1/2-mile) of the observer would cause greater contrasts than those appearing at a further distance.

The introduction of the Proposed Project's construction-related structures, equipment, and areas' cubed forms, horizontal and vertical lines, multiple colors, and smooth textures in less developed areas would contrast with the characteristic landscape to a strong degree. In viewsheds with existing developed activities, contrasts would be weak to moderate, depending on proximity of the Proposed Project with similar activities and distance from observers.

In the short term of construction, impacts to visual resources would be expected to be moderate to high but contrasts would comply with BLM MUC objectives.

Construction would result in a degradation of the existing visual character or quality of the site at KOPs 6 and 9. Therefore, a significant and unavoidable impact is anticipated from construction of the Proposed Project.

Operation Impacts

After construction, the Proposed Project would result in long-term changes to the visual resources of the Project area from the introduction of contrasting forms, lines, colors and textures of landform, vegetation, and structures, as noted under Construction Impacts. Impacts would be expected to be moderate to high and contrasts would comply with BLM VRM Class IV management objectives. Operation of the Proposed Project would include periodic inspections, maintenance and repair work. As a result, no additional long-term visual changes would result from operation of the Proposed Project.

Therefore, no additional impacts are anticipated during operation of the Proposed Project.

4.1.5 Applicant Proposed Measures

No applicant proposed measures that would reduce the significant impact at KOP 6 and KOP 9 were identified; therefore, no applicant proposed measures related to aesthetics are identified.

4.1.6 Project Alternatives

As described in Section 3.14, *Project Alternatives*, either Transmission Line Segment 9 or Segment 10 would be used as part of the Alternative Project, but not both. A separate impact analysis is provided for these two scenarios.

4.1.6.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation, the Alternative Transmission Line Route with Segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6, and the Alternative Apple Valley to Desert View and Gale to Pisgah Telecommunication Routes.

The setting for aesthetics for the Alternative Project with Segment 9 is similar to that for the Proposed Project. No scenic vistas or State-designated scenic highways would be affected by the Alternative Project with Segment 9. As described in Section 3.2.1.5, *FAA Notifications*, as of the time of the preparation of this PEA, SCE anticipates that the FAA may recommend lighting on approximately eight towers on Segment 6 of the Alternative Project. Under the Proposed Project, nine towers would likely have lighting installed. However, the FAA has not yet completed its recommendations as to whether the structures would require lighting. Similar to the Proposed Project, if lighting were to be installed, the towers that would include lighting would be in the vicinity of the Hesperia Area where there are other existing sources of light. Lighting required would be for aviation safety purposes and not intended for illumination. Tower lighting would not be expected to be a new source of substantial light.

Evaluation of KOPs

Ten KOPs were selected for the Alternative Project with Segment 9. These are KOP 13 for the Alternative Desert View Substation and KOPs 1, 3, 4, 6, 7, 10, 15, 16, and 19 for the Alternative Transmission Lines. KOPs along segments common to both the Proposed Project and the Alternative Project with Segment 9 were analyzed under the Proposed Project, and include KOP 1 on Segment 12, KOPs 6 and 7 on Segment 2, and KOP 10 on Segment 5. KOPs 3 (Segment 11), 4 (Segment 9), 15, 16, and 19 (Segment 6) are unique to the Alternative Project and are analyzed in detail below.

KOP 3 – View from Camp Rock Road that includes one existing subtransmission line

Construction of the Alternative Transmission Line Segment 11 would be visible from KOP 3 in the immediate foreground and would be sky-lined. Observer position would be eye-level, or normal, resulting in typical impacts. Construction activities would result in short-term impacts to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 3. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Alternative Project components would result in long-term changes to the foreground of the existing environment of KOP 3. Long-term visible changes would result from the addition of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for transmission line towers

could be visible in the foreground of KOP 3. No additional long-term visual changes would result from operation of the Alternative Project.

Implementation of the proposed transmission line in the view from KOP 3, along with the one existing subtransmission line, would result in moderate contrasts of form, line, color, and texture of the landform, vegetation, and structures. Impacts to viewers would be low based on low viewer sensitivity, foreground impacts and the presence of existing structures. Impacts to scenery would be low based on Class C scenery. The changes to the existing environment would be consistent with the MUC Moderate Use assigned to these BLM-managed lands. This class states as follows: "Multiple-Use Class M (Moderate Use) is based upon a controlled balance between higher intensity use and protection of public lands. This class provides for a wide variety or present and future uses such as mining, live- stock grazing, recreation, energy, and utility development. Class M management is also designed to conserve desert resources and to mitigate damage to those resources which permitted uses may cause." Therefore, implementation of the proposed transmission line would result in compliance with BLM management plans.

In conclusion, impacts to scenery would be low, and impacts to viewers would be low. The project would comply with agency management objectives. Therefore, less than significant impacts are anticipated from construction and operation of the Alternative Project with Segment 9.

KOP 4 – View from SR-247 that includes one existing subtransmission line and one existing distribution line

Construction of the Alternative Transmission Line Segment 9 would be visible from KOP 4 in the middleground and would be slightly sky-lined. The observer position would be above eye-level, or superior. Construction activities would result in short-term impacts to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 4. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Alternative Project components would result in long-term changes to the foreground of the existing environment of KOP 4. Long-term visible changes would result from the addition of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for access roads and transmission line towers could be visible in the foreground of KOP 4. No additional long-term visual changes would result from operation of the Alternative Project.

Implementation of the proposed transmission line in the view from KOP 4, along with the three existing transmission lines, would result in weak to moderate contrasts of form, line, color, and texture of the landform and vegetation. Impacts to viewers would be low based on foreground to middleground impacts and the presence of existing structures.

Impacts to scenery would be low based on change to Class C scenery. The changes to the existing environment would be consistent with the MUC Moderate Use assigned to these BLM-managed lands. Therefore, implementation of the proposed transmission line would result in compliance with BLM management plans and additional mitigation would not be required. The remainder of this segment southward extends through MUC Intensive Use, where the objective states as follows: "Multiple-Use Class I is an "Intensive use" class. Its purpose is to provide for concentrated use of lands and resources to meet human needs. Reasonable protection will be provided for sensitive natural and cultural values. Mitigation of impacts on resources and rehabilitation of impacted areas will occur insofar as possible." Therefore, implementation of the proposed transmission line would result in compliance with BLM management plans.

In conclusion, impacts to scenery would be low, and impacts to viewers would be low. The project would comply with agency management objectives. Therefore, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 9.

KOP 13 – View from the intersection of Desert View Road and Dover Road that includes one existing distribution line and one subtransmission line

Construction of the Alternative Desert View Substation and Alternative Transmission Line Segment 6 would be visible from KOP 13 in the immediate foreground and would be sky-lined. Viewers would be in an observer inferior position. Construction activities would result in short-term impacts to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 13. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Alternative Project components would result in long-term changes to the foreground of the existing environment of KOP 13. Long-term visible changes would result from the addition of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for access roads and transmission line towers could be visible in the foreground of KOP 13. No additional long-term visual changes would result from operation of the Alternative Project.

Implementation of the proposed transmission line and substation in the view from KOP 13, along with the one existing distribution line and one existing subtransmission line, including construction, operation, and decommissioning, would result in weak to moderate contrasts of form, line, color, and texture of the landform and vegetation. Construction, operation, and decommissioning of the proposed transmission line in this view would result in weak contrasts of form, line, color, and texture for structures present in the middleground of the existing environment. Impacts to viewers would be moderate based on high sensitivity level, foreground impacts and the presence of existing transmission line structures. Impacts to scenery would be low to moderate based on a change to Class C scenery. The changes to the existing

environment visible from this KOP would occur on private land. Thus, the CDCA MUC objectives of the BLM would not apply.

In conclusion, impacts to scenery would be low to moderate, and impacts to viewers would be moderate. Therefore, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 9.

KOP 15 – View from Bowen Ranch Road and Valley View Road that includes two existing transmission lines in far right middleground

Construction of the Alternative Transmission Line Segment 6 would be visible from KOP 15 in the immediate foreground and would be sky-lined. Viewers would be in an observer inferior position. Construction activities would result in short-term impacts to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 15. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Alternative Project components would result in long-term changes to the foreground of the existing environment of KOP 15. Long-term visible changes would result from the addition of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for transmission line towers could be visible in the foreground of KOP 15. No additional long-term visual changes would result from operation of the Alternative Project.

Implementation of the proposed transmission line in the view from KOP 15, along with the two existing transmission lines, including construction, operation, and decommissioning, would result in moderate to strong contrasts of form, line, color, and texture of the landform, vegetation, and structures. Impacts to viewers would be moderate based on high sensitivity level, foreground impacts and the presence of existing transmission line structures. Impacts to scenery would be moderate based on change to Class C scenery. The changes to the existing environment visible from this KOP would occur on private land. Thus, the CDCA MUC objectives of the BLM would not apply.

In conclusion, impacts to scenery would be moderate, and impacts to viewers would be moderate. Therefore, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 9.

KOP 16 – View from Arrowhead Lake Road (South) and Whitehaven Street that includes two existing transmission lines

Construction of the Alternative Transmission Line Segment 6 would be visible from KOP 16 in the immediate foreground and would be sky-lined. Viewers would be in an observer inferior position. Construction activities would result in short-term changes to

the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 16. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Alternative Project components would result in long-term changes to the foreground of the existing environment of KOP 16. Long-term visible changes would result from the addition of tower structures and associated conductors in the foreground. Areas permanently cleared of vegetation for access roads and transmission line towers could be visible in the foreground of KOP 16. No additional long-term visual changes would result from operation of the Alternative Project.

Implementation of the proposed transmission line in the view from KOP 16, adjacent to the two existing transmission lines, would result in moderate contrasts of form, line, color, and texture of the landform, vegetation and structures. Impacts to viewers would be moderate and impacts to scenery would be moderate. The changes to the existing environment visible from this KOP would occur on private land. Thus, the CDCA MUC objectives of the BLM would not apply.

In conclusion, impacts to scenery would be moderate and impacts to viewers would be moderate. Therefore, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 9.

<u>KOP 19 – View from Summit Valley Road that includes two existing transmission lines</u>

Construction of the Alternative Transmission Line Segment 6 would be visible from KOP 19 in the immediate foreground and would be sky-lined and adjacent to the two existing transmission lines. Viewers would be in an observer inferior position. Construction activities would result in short-term impacts to the existing environment of this view. Construction of new access roads and preparation of the transmission line tower structure sites could result in temporary clearing of vegetation that would be visible from KOP 19. Construction equipment and/or vehicles would be present during construction, and movement of such vehicles would be visible. Transmission towers would become visible as they are erected throughout the construction period.

After construction, the Alternative Project components would result in long-term changes to the immediate foreground of the existing environment of KOP 19. Long-term visible changes would result from the addition of tower structures and associated conductors above the roadway. Areas permanently cleared of vegetation for access roads and transmission line towers could be visible in the foreground of KOP 19. No additional long-term visual changes would result from operation of the Alternative Project.

Implementation of the proposed transmission line in the view from KOP 19, in addition to the two existing transmission lines, would result in moderate contrasts of form, line,

color, and texture of the landform, vegetation, and structures. Impacts to viewers would be moderate and impacts to scenery would be moderate. The changes to the existing environment visible from this KOP would occur on private land. Thus, the CDCA MUC objectives of the BLM would not apply.

In conclusion, impacts to scenery would be moderate, and impacts to viewers would be moderate. Therefore, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 9.

Based on the evaluation of KOPs, the Alternative Project with Segment 9 would result in a substantial degradation of the existing visual character or quality of the site at KOP 6 on Segment 2. Therefore, a significant and unavoidable impact to the existing visual character or quality of the site and its surroundings is anticipated from construction of the Alternative Project with Segment 9 in the vicinity of KOP 6. No additional impacts are anticipated from operation of the Alternative Project with Segment 9.

4.1.6.2 Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, the Alternative Transmission Line Route with Segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and the Alternative Apple Valley to Desert View and Gale to Pisgah Telecommunication Routes.

There is no significant difference in the setting for aesthetics for Segment 9 and Segment 10. No KOPs were identified for Segment 10. KOP 4 associated with Segment 9 would not be relevant if Segment 10 is selected. Impacts would be the same as for the Alternative with Segment 9. Both the Alternative Project with Segment 9 and the Alternative Project with Segment 10 would result in a substantial degradation of the existing visual character or quality of the site at KOP 6 on Segment 2. Therefore, a significant and unavoidable impact to the existing visual character or quality of the site and its surroundings is anticipated from construction of the Alternative Project with Segment 10 in the vicinity of KOP 6. No additional impacts are anticipated from operation of the Alternative Project with Segment 10.

4.1.7 References

California Department of Transportation. (2013). Officially Designated State Scenic Highways and Historic Parkways. Retrieved from http://www.dot.ca.gov/hq/LandArch/scenic_highways/

Community of Lucerne Valley. (2007). Lucerne Valley Community Plan. [cited September 2012]

City of Barstow. (1997). Title 19: Zoning Ordnance.

City of Hesperia. (2010). Hesperia General Plan.

Town of Apple Valley. (2009). Town of Apple Valley 2009 General Plan.

San Bernardino County (2013). The County of San Bernardino 2007 General Plan.

United States Department of the Interior, Bureau of Land Management (BLM). (1999). California Desert Conservation Area, Multiple Use Classifications.

BLM. (2001). Federal Land Policy and Management Act of 1976 (90 Stat. 2743; 43 United States Code 1601, et seq)

BLM. (1986). Visual Resource Management System Manual. Retrieved from http://www.blm.gov/nstc/VRM/8410.html

BLM. (2010). Barstow Field Office Visual Resource Inventory.

This page is intentionally blank.

4.2 Agriculture and Forestry Resources

This section describes the existing agriculture and forestry resources in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). It analyzes the potential impacts on identified agriculture and forestry resources associated with construction and operation of the Proposed Project and Alternative Project.

4.2.1 Environmental Setting

This discussion describes the existing conditions for agriculture and forestry resources in the Coolwater-Lugo area. For this section, information was obtained from interpretation of aerial photographs, from California Department of Conservation ("CDC") Division of Land Resource Protection Farmland Mapping and Monitoring Program ("FMMP") mapping data and San Bernardino County.

The Coolwater-Lugo area is located in San Bernardino County, in the Town of Apple Valley, cities of Barstow and Hesperia, and unincorporated San Bernardino County. Agriculture has historically been an important part of San Bernardino County's economy. Despite the continued conversion of agricultural land to nonagricultural uses, agriculture is still an integral component of the county's economy. The gross value of agricultural production in the county for 2009 totaled $355,379,500, a 35-percent decrease from the previous year (County of San Bernardino 2009). According to the County of San Bernardino Department of Agricultural/Weights and Measures, this decrease was attributable primarily to the substantial reduction in the price paid for milk and reduced production of milk (County of San Bernardino Department of Agriculture/Weights and Measures 2009). The agricultural industry is facing challenges related to the general economy, the price and availability of water, the increase in regulatory requirements, and a decrease in local support services.

The top 10 agricultural commodities (based on gross value) produced in San Bernardino County are milk, eggs, cattle and calves, alfalfa, replacement heifers, bok choi, oranges, trees and shrubs, indoor decorative plants, and ground covers.

Agricultural farming has not played a prominent role in the City of Hesperia since 1888, when grape vineyards were destroyed by flood. Since then, only a small portion of land along the Mojave River has retained its status as "unique farmland" as defined by the State. This land is currently under cultivation with alfalfa. Lands that were once used for agricultural and crop production are now used for large residential lots and animal keeping and equestrian activities; only a small portion of land in the City is still used for agricultural related productions.

Agriculture has played a major role in the Town of Apple Valley's history. The Town of Apple Valley currently does not have a substantial amount of agricultural acreage; however, approximately 1,992 acres are designated for agricultural uses in its sphere of influence. Of the 1,992 acre, approximately 404 acres are designated for agricultural production, and the rest remains vacant. Lands historically used for agriculture are currently used for husbandry and equestrian activities (Town of Apple Valley 2009).

The portion of Coolwater-Lugo that would be located in the City of Barstow would be located entirely in the Marine Corps Logistics Base Barstow. No agricultural or forestry resources are located on the Base property.

Alternative Transmission Line Segment 6 alignment traverses three Williamson Act contract parcels within San Bernardino County and spheres of influence of the City of Hesperia and Town of Apple Valley. One parcel is approximately 158 acres and is located about 1 mile south of the Desert View Substation. The other two parcels are approximately 40 acres and 6 acres and are located about 4 miles and 7 miles east of Lugo Substation, respectively. These parcels are shown on Figure 4.2-1, *Classified Farmland*.

4.2.2 Regulatory Setting

4.2.2.1 Federal Regulatory Setting

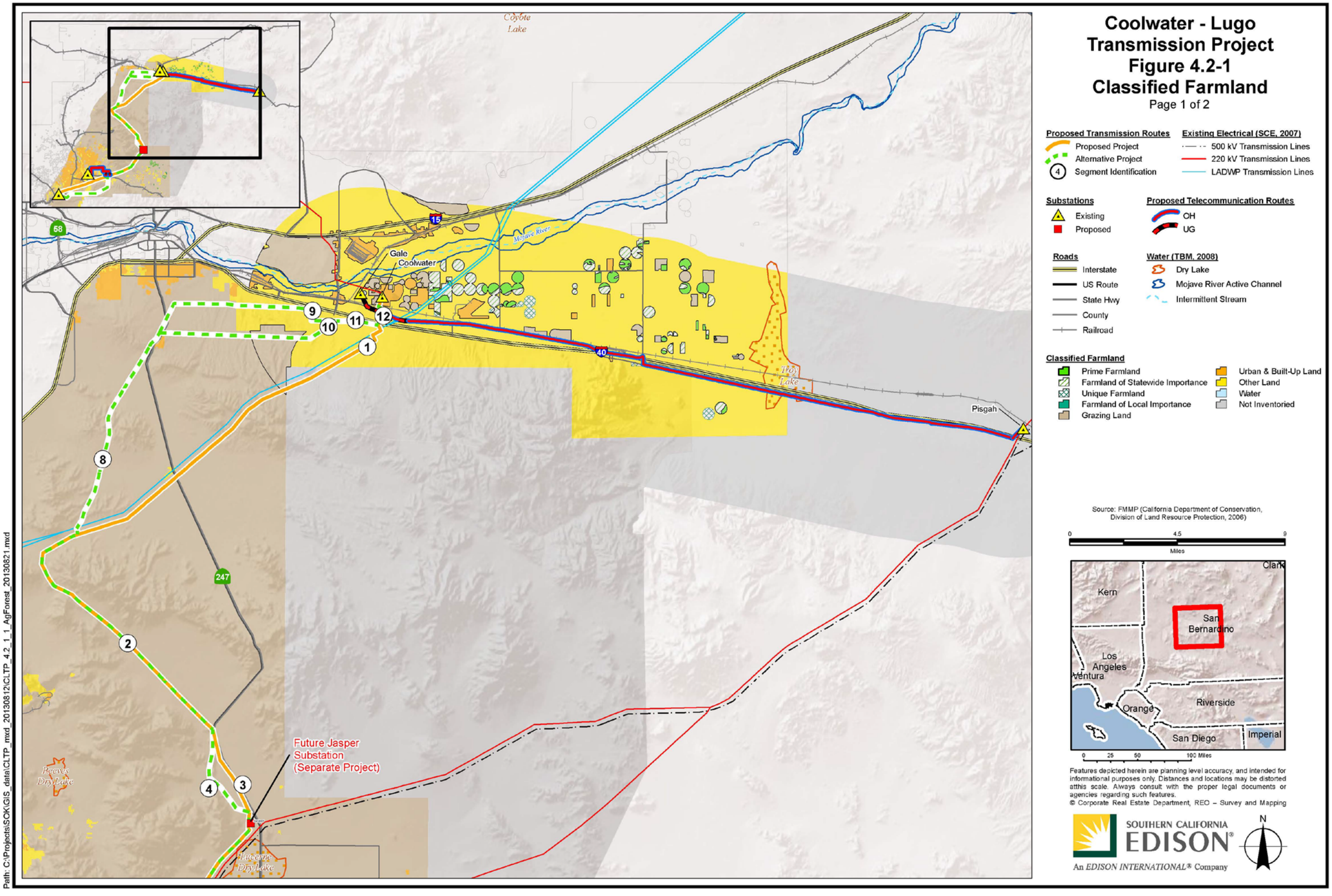
There are no federal regulations related to agricultural and forestry resources that apply to Coolwater-Lugo.

4.2.2.2 State Regulatory Setting

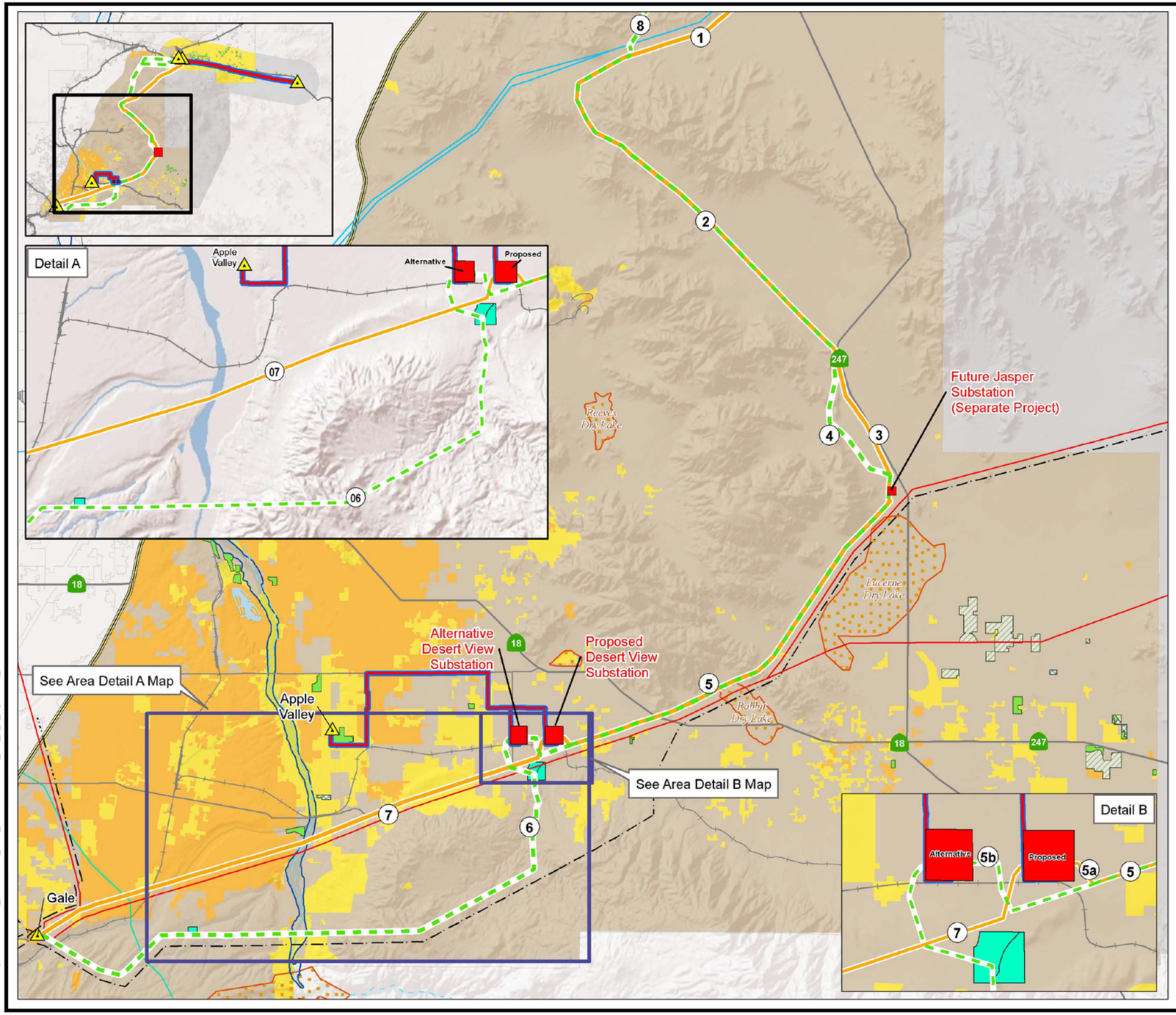
California Land Conservation Act (Williamson Act)

The California Land Conservation Act of 1965, also known as the Williamson Act, is designed to preserve agricultural and open space lands by discouraging their premature and unnecessary conversion to urban uses (California Department of Conservation 2012a). The Act creates an arrangement whereby private landowners contract with counties and cities to voluntarily restrict their land to agricultural and compatible open space uses. In return, the land is assessed for its agricultural productivity rather than its highest and best use. Contracts typically run for a period of 10 years; however, some jurisdictions exercise the option of making them run up to 20 years. Contracts are automatically renewed unless the landowner files for non-renewal or petitions for cancellation. The contracts can be divided into the following categories: Prime Agricultural Land, Non-Prime Agricultural Land, Open Space Easement, Built-Up Land, and Agricultural Land in Non-Renewal.

Section 51238 of the Williamson Act indicates that, unless local organizations declare otherwise, the erection, construction, alteration, and maintenance of gas, electric, water, or communication facilities are compatible with Williamson Act contracts.


Coolwater - Lugo
Transmission Project
Figure 4.2-1
Classified Farmland
Page 1 of 2
Proposed Transmission Routes
Proposed Project
Alternative Project
4 Segment Identification
Existing Electrical (SCE, 2007)
500 kV Transmission Lines
220 kV Transmission Lines
LADWP Transmission Lines
Substations
Existing
Proposed
Proposed Telecommunication Routes
OH
UG
Roads
Interstate
US Route
State Hwy
County
Railroad
Water (TBM, 2008)
Dry Lake
Mojave River Active Channel
Intermittent Stream
Classified Farmland
Prime Farmland
Farmland of Statewide Importance
Unique Farmland
Farmland of Local Importance
Grazing Land
Urban & Built-Up Land
Other Land
Water
Not Inventoried
Source: FMMP (California Department of Conservation, Division of Land Resource Protection, 2006)
0 4.5 9
Miles
Clark
Kern
San Bernardino
Los Angeles
Ventura
Orange
Riverside
San Diego
Imperial
0 25 50 100 Miles
Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.
© Corporate Real Estate Department, REO – Survey and Mapping
SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company
N
Coyote Lake
Gale
Coolwater
Mojave River
Troy Lake
Pisgah
Future Jasper Substation (Separate Project)
Reeves Dry Lake
Harper Dry Lake
15
40
58
247
1
2
3
4
8
9
10
11
12
Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.2_1_1_AgForest_20130821.mxd

Coolwater - Lugo Transmission Project
Figure 4.2-1
Classified Farmland
Page 2 of 2



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- County
- Railroad

Water (TBM, 2008)
- Dry Lake
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Classified Farmland
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Farmland of Local Importance
- Grazing Land
- Williamson Act (Segment 6. Inset A)
- Urban & Built-Up Land
- Other Land
- Water
- Not Inventoried

Source: FMMP (California Department of Conservation, Division of Land Resource Protection, 2006)

0 3 6 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.2_1_2_AgForest_20130821.mxd

California Farmland Mapping and Monitoring Program

The CDC, under the Division of Land Resource Protection, established the FMMP, which monitors the conversion of the State's farmland to and from agricultural use. These farmlands are categorized according to specific criteria, including soil quality and irrigation conditions. FMMP maps are updated every two years using aerial imagery review, field reconnaissance, computer mapping analyses, and public input.

The FMMP generates maps depicting Important Farmland. The map series identifies the following eight land classifications (CDC 2012b):

- Prime Farmland: Prime Farmland has the optimum combination of physical and chemical conditions that are able to sustain long-term agricultural production. The soil quality, growing season, and moisture supply on Prime Farmlands provide conditions to produce sustained high yields. Prime Farmlands must have been used for irrigated production within four years of the mapping date.

- Farmland of Statewide Importance: Farmland of Statewide Importance is similar to Prime Farmland; however, these farmlands have minor shortcomings, such as a higher slope or decreased ability to store soil moisture. Similar to Prime Farmlands, Farmlands of Statewide Importance must have been used for irrigated production within four years of the mapping date.

- Unique Farmland: Unique Farmland has lower quality soils and is used to produce California's leading agricultural products. It typically is irrigated but may also include non-irrigated vineyards or orchards found in certain climatic zones. Unique Farmland must be cropped within four years of the mapping date.

- Farmland of Local Importance: Farmland of Local Importance is vital to the local agricultural economy, as identified by each county's local advisory committee and board of supervisors.

- Grazing Land: Grazing Land is land on which existing vegetation is suitable for livestock grazing.

- Urban and Built-Up Land: Urban and Built-Up Land is defined as land occupied by buildings or other structures at a minimum density of one unit per 1.5 acres (or approximately six structures per 10 acres). This land is used for development purposes, including residential, commercial, industrial, construction, public administration, and institutional uses, as well as transportation yards, airports, cemeteries, golf courses, sewage treatment, sanitary landfills, and water control structures.

- Other Land: Other Land includes all lands that are not in any other map category, such as water bodies smaller than 40 acres; low-density rural developments; confined livestock, poultry, or aquaculture facilities; and brush, timber, wetland, and riparian areas not suitable for livestock grazing.

- Water: Water includes perennial water bodies with an extent of at least 40 acres.

For the purposes of this analysis, "Important Farmlands" include Prime Farmland, Unique Farmland, Farmland of Statewide Importance, and Farmland of Local Importance. No Important Farmlands are located in the Coolwater-Lugo area, which includes the Proposed and Alternative Desert View Substation sites and the rights-of-way ("ROWs") of the Proposed and Alternative Transmission Lines routes, immediately adjacent areas, the proposed telecommunication lines (Gale to Pisgah route and Apple Valley to Desert View route) and immediately adjacent areas, with the exception of a small portion of land along the Mojave River in the City of Hesperia cultivated with alfalfa, designated as Prime Farmland and Farmland of Statewide Importance. Figure 4.2-1, *Classified Farmland*, depicts the farmland categories in the area.

4.2.2.3 Local Regulatory Setting

The California Public Utilities Commission ("CPUC") has sole exclusive State jurisdiction over the siting and design of Coolwater-Lugo because the CPUC regulates and authorizes the construction of investor-owned public utility facilities. Such projects are exempt from local land use and zoning regulations and permitting in accordance with General Order No. 131-D, which is applicable to all components of a project including, but not limited to the transmission lines, substations, staging yards, and marshaling yards. However, Section XIV.B requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain a nondiscretionary local permit." As part of its environmental review process, Southern California Edison ("SCE") considers local and State land use plans and policies and local land use priorities and concerns.

County of San Bernardino General Plan

Policies presented in the *County of San Bernardino 2007 General Plan*, amended in 2013 (San Bernardino County 2013) address county-wide issues that are general in nature and that may apply to numerous locations and land use designations in the county. The Land Use Element, Conservation Element, Open Space Element, and Economic Development Element govern the land use and agricultural resources of the county.

The Land Use Element functions as a guide to planners, the general public, and decision makers for the ultimate pattern of development in San Bernardino County. The Conservation Element provides direction regarding the conservation, development, and use of the county's natural resources. The Open Space Element provides a reference to guide the protection and preservation of open space, recreation, and scenic areas while accommodating future growth in the county. The Economic Development Element is intended to guide the county in expanding the local economy.

<u>Conservation Element</u>

The following Conservation Element (CO) county-wide policies are relevant to agricultural resources:

- CO 6.1. Protects prime agricultural lands from the adverse effects of urban encroachment, particularly increased erosion and sedimentation, trespass, and non-agricultural land development.

- CO 6.2. Allows the development of areas of prime agriculture lands supporting commercially valuable agriculture to urban intensity when it can be demonstrated that there is no long-term viability of the agricultural uses due to encroaching urbanization, creating incompatible land uses in close proximity to each other.

- CO 6.3. Preservation of prime and statewide important soils types, as well as areas exhibiting viable agricultural operations, will be considered as an integral portion of the Open Space element when reviewing development proposals.

Open Space Element

The following Open Space Element (OS) county-wide policies are relevant to agricultural resources:

- OS 1.1. Provides for uses that respect open space values by utilizing appropriate land use categories on the Land Use maps. Land use zoning districts appropriate for various types of open space preservation include: Agriculture (AG), Floodway (FW), Resource Conservation (RC), and Open Space (OS).

- OS 1.2. Supports retention of open space lands by requiring large lot sizes, high percentage of open space or agricultural uses, and clustering within the AG, FW, RC, and OS Land Use Zoning Districts.

Economic Development Element

The following Economic Development Element (ED) countywide policies are relevant to agricultural resources:

- ED 6.1. Retains areas of the County that have long-term agricultural potential to contribute value to the overall economy.

- ED 6.2. Encourages residential and commercial land use planning that respects agricultural production and encourages its continuation.

Chapter 82.03 of the San Bernardino County 2007 Development Code, "Agricultural and Resource Management Land Use Zoning Districts," provides the regulatory framework for agricultural preserves (County of San Bernardino 2012). The Chapter identifies the land uses that may be allowed in the agricultural and resource management land use zoning districts established by the County General Plan and listed in Chapter 82.01 ("Land Use Plan and Land Use Zoning Districts, and Overlays"), determines the type of planning permit and approval required for each use, and provides basic standards for site layout and building size.

City of Barstow

The City of Barstow includes approximately 2,366 acres of Prime Farmland within its corporate limits and 10,133 acres of Prime Farmland within its sphere of influence. The City of Barstow does not foresee continuing agricultural activities in the City because agriculture in the City depends on irrigation. Given the substantial dependency on water, the City policies support water conservation over the continuation of agricultural activities (City of Barstow 1997).

City of Hesperia

Similar to the trend in the City of Barstow, agricultural faming has not played a substantial role in the City of Hesperia since the flood of 1888, which destroyed grape vineyards. Currently, a small portion of land along the Mojave River, cultivated with alfalfa, is designated as Prime Farmland and Farmland of Statewide Importance, as defined by the FMMP. A portion of land near Arrowhead Lake Road is also designated as Unique Farmland. The *City of Hesperia General Plan 2010* does not include policies preserving agricultural lands or promoting farming in the City (City of Hesperia 2010).

Town of Apple Valley

Currently, agricultural land in the Town of Apple Valley encompasses less than 40 acres. However, the sphere of influence includes approximately 1,992 acres of land designated for agricultural uses. The *Town of Apple Valley General Plan* does not include policies preserving agricultural lands or promoting farming in the Town of Apple Valley (Town of Apple Valley 2009).

4.2.3 Significance Criteria

4.2.3.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to agricultural resources come from the California Environmental Quality Act ("CEQA") Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use
- Conflict with existing zoning for agricultural use, or a Williamson Act contract
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined by PRC section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104[g])
- Result in the loss of forest land or conversion of forest land to non-forest use

- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use

4.2.3.2 NEPA Analysis

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27).

4.2.4 Impact Analysis

The assessment is based on the potential impact of implementing the Proposed Project on agricultural and forestry resources. The Proposed Project's consistency with applicable plans and zoning was also considered. The impact assessment was conducted to identify the type and extent of impacts on agricultural and forestry resources that may be affected by implementing the Proposed Project. Impacts were evaluated in an area defined to be within and immediately adjacent to the Proposed Project ROWs. Impacts from the Alternative Project are discussed in Section 4.2.6, *Alternative Project*.

As discussed in Chapter 3.0, *Project Description*, either the Proposed Project or Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. There would be no differences in potential impacts on agriculture and forestry resources under the IBO and FBO scenarios; therefore, the following impact assessment applies to both scenarios. Full build out of either the Proposed or the Alternative Desert View Substation would occur in the disturbance footprint established during the IBO construction; therefore, no disturbance of additional lands would be needed for the FBO of Desert View Substation.

4.2.4.1 CEQA Impact Assessment

Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use?

Construction Impacts

Prime Farmland, Unique Farmland, and Farmland of Statewide Importance, do not occur in the Coolwater-Lugo area, with the exception of a small portion of land along the Mojave River in the City of Hesperia cultivated with alfalfa, designated as Prime Farmland and Farmland of Statewide Importance. The Proposed Desert View Substation site currently consists of vacant, undeveloped land that is not used for agricultural purposes. There are no agricultural land use designations on or adjacent to the Proposed Desert View Substation. In addition, no active agricultural lands are located in the Proposed Transmission Line Route facilities and Proposed Telecommunication Line Route. There is no Prime Farmland, Unique Farmland, and Farmland of Statewide Importance, along the proposed transmission and telecommunication line routes.

Construction of the Proposed Project would not change existing agricultural use or create additional impacts related to conversion of Farmland. Therefore, no impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Operation and maintenance of the Proposed Project would include regular inspection, repair work, and vegetation removal activities, as needed. These activities would not be near or affect Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. Therefore, no impacts are anticipated on during operation of the Proposed Project.

Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

Construction Impacts

The Proposed Project would be built on a combination of existing and newly acquired ROWs. It would not be located on land that is zoned for agricultural use or under a Williamson Act contract. The Proposed Desert View Substation Site is zoned RL; however, agricultural activities do not occur on the proposed site. In addition, no portion of the Proposed Transmission Line facilities and Telecommunications Routes traverses land used for agricultural activities or designated for agricultural use. Construction of the Proposed Project would not conflict with existing zoning for agricultural use or a Williamson Act contract. Therefore, no impacts are anticipated during the construction of the Proposed Project.

Operation Impacts

SCE would acquire property rights to support the Proposed Project as required. The Proposed Project would be located on a combination of existing and newly acquired ROWs. It would not be located on land that is zoned for agricultural use or under a Williamson Act contract. Therefore, no impacts are anticipated during the operation of the Proposed Project.

Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

Construction Impacts

The Proposed Project would not be located on or near areas zoned for forestland or timberland use, and construction activities would not conflict with or cause rezoning of forestland or timberland. Therefore, no impacts are anticipated during the construction of the Proposed Project.

Operation Impacts

SCE would acquire property rights to support the Proposed Project as required. The Proposed Project would be built on a combination of existing and newly acquired ROWs. It would not be located on or near areas zoned for forestland or timberland use, and operation activities would not conflict with or cause rezoning of forestland or timberland. Therefore, no impacts are anticipated during the operation of the Proposed Project.

Would the project result in the loss of forest land or conversion of forest land to non-forest use?

Construction Impacts

The Proposed Project would not be located on or near forest land or timberland. No forestland or timberland would be lost or converted to non-forest use because of Proposed Project construction. Therefore, no impacts are anticipated during the construction of the Proposed Project.

Operation Impacts

The Proposed Project would not be located on or near forestland or timberland. Operation of the Proposed Project would not result in the loss or conversion of forestland to non-forest use. Therefore, no impacts are anticipated during the operation of the Proposed Project.

Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Construction Impacts

The Proposed Project would not be located on or adjacent to farmland or forestland. Construction of the Proposed Project would not involve changes in the existing environment that could result in conversion of farmland to non-agricultural use or conversion of forestland to non-forest use. Therefore, no impacts are anticipated during the construction of the Proposed Project.

Operation Impacts

The Proposed Project is being built on a combination of existing and newly acquired ROWs. It would not be located on or adjacent to farmland or forestland. Operation of the Proposed Project would not involve changes in the existing environment that could result in conversion of farmland to non-agricultural use or conversion of forestland to non-forest use. Therefore, no impacts are anticipated during operation of the Proposed Project.

4.2.4.2 NEPA Impact Assessment

Based on the analysis performed, it is anticipated that the Project would not result in significant effects under NEPA.

4.2.5 Applicant Proposed Measures

No potentially significant impacts to agriculture and forestry resources are expected from the Proposed Project; therefore no applicant proposed measures related to agriculture and forestry resources are identified.

4.2.6 Alternative Project

As described in Section 3.14, *Project Alternatives*, either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Route, but not both. Separate impact analyses are provided for these two scenarios.

4.2.6.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation, the Alternative Transmission Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6, and the Apple Valley to Desert View and Gale to Pisgah telecommunication routes.

The Alternative Project with Segment 9 has a slightly different setting compared to the Proposed Project. As stated in Section 4.2.1, Alternative Transmission Line Segment 6 route traverses three Williamson Act contract parcels. Based on current aerial maps, none of the parcels is in active agricultural use. Given the temporary nature of the construction activities and the minimal long-term operation and maintenance activities, the impacts on agriculture or forestry resources during the construction and operation of the Alternative Project with Segment 9 are anticipated to be less than significant.

4.2.6.2 Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, the Alternative Transmission Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and the Apple Valley to Desert View and Gale to Pisgah telecommunications routes.

The Alternative Project with Segment 10 has a setting similar to that of the Alternative Project with Segment 9 and is similar in scope. As a result, impacts on agriculture and forestry resources would be similar to those of the Proposed Project. Therefore, impacts on agriculture or forestry resources during the construction and operation of the Alternative Project with Segment 10 are anticipated to be less than significant.

4.2.7 References

California Department of Conservation (CDC). (2012a). Williamson Act Program. Retrieved from http://www.conservation.ca.gov/dlrp/lca/basic_contract_provisions/pages/index.aspx#what is the california land conservation (williamson) act.

CDC. (2012b). Farmland Mapping and Monitoring Program. Retrieved from http://www.consrv.ca.gov/DLRP/fmmp/Pages/index.aspx

City of Barstow Planning Commission. (1997). City of Barstow General Plan.

City of Hesperia Planning Department. (2010). City of Hesperia General Plan.

County of San Bernardino. (2009). *Crop and Livestock Report 2009*.

County of San Bernardino. (2013). *County of San Bernardino 2007 General Plan*. Adopted March 13, 2007; Effective April 12, 2007; and Amended June 18, 2013. San Bernardino, CA. Prepared by URS Corporation, Santa Ana, CA.

County of San Bernardino. (2012). *County of San Bernardino 2007 Development Code*. Adopted March 13, 2007. Amended April 26, 2012. San Bernardino, CA.

County of San Bernardino Department of Weights and Measures. (2009). *County of San Bernardino Crop and Livestock Report 2009*.

Town of Apple Valley. (2009). *Town of Apple Valley General Plan*.

This page is intentionally blank.

4.3 Air Quality

This section describes air quality in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). It analyzes the potential impacts on air quality associated with the construction and operation of the Proposed Project and the Alternative Project.

4.3.1 Environmental Setting

The environmental setting describes air quality for the Coolwater-Lugo area, which lies within the Mojave Desert Planning Area. This is a sub-region of the Mojave Desert Air Basin ("MDAB"), an assemblage of mountain ranges and valleys with a geographic area that incorporates most of San Bernardino County and parts of Los Angeles County, Kern County, and Riverside County. The San Gabriel Mountains and the San Bernardino Mountains, which are split by the Cajon Pass, separate the area from the San Bernardino Valley and the South Coast Air Basin.

The Coolwater-Lugo area is under the jurisdiction of the Mojave Desert Air Quality Management District ("MDAQMD"), which regulates air quality improvement programs within the desert portion of the MDAB and works to improve regional air quality to achieve Federal and State standards. The MDAQMD has the authority to comment on all air quality-related matters within its jurisdiction and may provide comments regarding air impacts from projects.

The Clean Air Act of 1970 required the United States Environmental Protection Agency ("EPA") to adopt ambient air quality standards. The National Ambient Air Quality Standards ("NAAQS") are the maximum levels, given a margin of safety, of pollution that are considered safe for public health and welfare. Air quality standards developed by individual states must be at least as stringent as those set forth by the EPA. The California Air Resources Board ("CARB") has developed California Ambient Air Quality Standards ("CAAQS").

Areas that fail to meet NAAQS (and CAAQS in California) are identified as nonattainment areas. When an area is designated as nonattainment, regional air quality management agencies are required to develop detailed plans that will lower the emissions of pollutants in order to reach attainment, and sources of pollutants are typically subject to more stringent air permitting requirements than similar sources in attainment areas.

Presently, the ambient air in the MDAB is classified by both EPA and CARB as nonattainment for ozone ("O_3") and suspended particulate matter measuring less than 10 microns ("PM_{10}"), and classified by CARB as nonattainment for suspended particulate matter measuring less than 2.5 microns ("$PM_{2.5}$"). The attainment status of each CAAQS and NAAQS pollutant is shown in Table 4.3-1, *Federal and California Ambient Air Quality Standards and MDAB Attainment Status.*

Table 4.3-1 Federal and California Ambient Air Quality Standards and MDAB Attainment Status

Pollutant	Federal Primary Standard Averaging Time and Concentration	Designation/ Classification	State Standard Averaging Time and Concentration	Designation/ Classification
Ozone	8-hour average 0.075 ppm (147 µg/m³)	Nonattainment (Severe 15)	8-hour average 0.070 ppm (137 µg/m³)	Nonattainment
			1-hr average 0.09 ppm (180 µg/m³)	
Respirable Particulate Matter ("PM10")	24-hour average 150 µg/m³	Nonattainment (Moderate)	Annual Arithmetic Mean 20 µg/m³	Nonattainment
			24-hour average 50 µg/m³	
Fine Particulate Matter ("PM2.5")	Annual Arithmetic Mean 12.0 µg/m³	Unclassified/ attainment	Annual Arithmetic Mean 12 µg/m³	Nonattainment
	24-hour average 35 µg/m³			
Carbon Monoxide	8-hour average 9 ppm (10 mg/m³)	Attainment	8-hour average 9 ppm (10 mg/m³)	Attainment
	1-hour average 35 ppm (40 mg/m³)		1-hour average 20 ppm (23 mg/m³)	
Nitrogen Dioxide	Annual Arithmetic Mean 0.053 ppm	Unclassified/ attainment	Annual Arithmetic Mean 0.030 ppm (57 µg/m³)	Unclassified/ attainment
	0.100 ppm (188 µg/m³)		1-hour average 0.18 ppm (339 µg/m³)	

Table 4.3-1 Federal and California Ambient Air Quality Standards and MDAB Attainment Status

Pollutant	Federal Primary Standard Averaging Time and Concentration	Designation/ Classification	State Standard Averaging Time and Concentration	Designation/ Classification
Sulfur Dioxide	None	Unclassified/ attainment	24-hour average 0.04 ppm (105 µg/m³)	Unclassified/ attainment
	1-hour average 75 ppb (197 µg/m³)		1-hour average 0.25 ppm (655 µg/m³)	
Lead	Rolling 3-month average 0.15 µg/m³	Attainment	30-day average 1.5 µg/m³	Attainment
	Calendar quarter average 1.5 µg/m³			
Hydrogen Sulfide	None	--	1-hour average 0.03 ppm (42 µg/m³)	Unclassified
Sulfates	None	--	24-hour average 25 µg/m³	Attainment
Visibility Reducing Particles	None	--	See note (1) below	Unclassified
Vinyl Chloride	None	--	24-hour average 0.01 ppm 0.02 (26 µg/m³)	Not reported

Source: CARB 2012a; CARB 2012b
µg/m³ = microgram per cubic meter
mg/m³ = milligram per cubic meter
ppm = parts per million
ppb = parts per billion
Notes: [1] State criterion for nonattainment of visibility-reducing particles is the amount of particles present to produce an extinction coefficient of 0.23 per kilometer when relative humidity is less than 70 percent.

MDAQMD gathers a variety of air quality data from a variety of monitoring sites. The most recent available data are from monitoring during 2011. The air quality monitoring station closest to Coolwater-Lugo is the Hesperia site at 17288 Olive Street, where O_3 and PM_{10} are monitored. The following exceedances were measured between 2010 and 2012 (CARB 2013):

- The 8-hour O_3 NAAQS was exceeded on 42 days during 2010, 67 days during 2011, and 55 days during 2012
- The 8-hour O_3 CAAQS was exceeded on 66 days during 2010, 101 days during 2011, and 93 days during 2012
- The 1-hour O_3 CAAQS was exceeded on 15 days during 2010, 24 days during 2011, and 21 days during 2012

The PM_{10} NAAQS and CAAQS were not exceeded at the Hesperia site from 2010 through 2012.

The air quality monitoring station closest to Coolwater-Lugo where carbon monoxide and nitrogen dioxide are monitored is the Barstow Station at 1301 W. Mountain View Street. Neither pollutant exceeded the respective NAAQS or CAAQS from 2010 through 2012.

The air quality monitoring station closest to Coolwater-Lugo where $PM_{2.5}$ and sulfur dioxide are monitored is the Victorville Station at 14306 Park Avenue. The $PM_{2.5}$ NAAQS and CAAQS and sulfur dioxide CAAQS were not exceeded at this station from 2010 through 2012.

4.3.2 Regulatory Setting

4.3.2.1 Federal Regulatory Setting

Clean Air Act and Amendments

The Federal Clean Air Act ("CAA") provides the EPA with the authority to set ambient air quality standards and motor vehicle emission standards and grant a waiver for California to set stricter motor vehicle emission standards. Other states have the choice of adopting Federal motor vehicle emission standards or the more stringent California standards. The EPA also requires a State Implementation Plan ("SIP") that outlines the state regulations and programs that will be implemented to demonstrate how a state will attain or maintain the ambient air quality standards within a given period of time. Through the Clean Air Act and Amendments, the EPA also implements on-road and off-road engine emission reduction programs that periodically phase in engine efficiency requirements and/or ancillary engine or exhaust equipment that result in clean emissions from on-road and off-road equipment.

General Conformity Rule

The General Conformity Rule ("GCR") was established under the Federal CAA (section 176(c)(4)) to ensure that actions taken by federal agencies in nonattainment and maintenance areas do not interfere with applicable SIPs. The rule was first promulgated in 1993, with the most recent revisions adopted in March 2010.

The GCR requires that Federal actions that may result in direct and indirect emissions of criteria pollutants for which the action area is designated nonattainment or maintenance conduct an air quality conformity analysis and determination to ensure that the action would not interfere with the applicable SIP. However, in order to limit the need to conduct conformity determinations for actions with minimal emission increases, the GCR also provides applicability "*de minimis*" emissions levels for criteria pollutants and precursor pollutants such as volatile organic compounds ("VOC") and nitrogen oxides ("NOx"). It is assumed that if an action's annual emissions are less than the applicable *de minimis* levels the action would not interfere with implementation of the SIP.

A portion of the Proposed and Alternative Transmission Lines and the Proposed Gale to Pisgah Telecommunication Line would be located on land under the jurisdiction of the Federal Bureau of Land Management ("BLM"), and BLM would need to grant a right-of-way ("ROW") to locate these lines on BLM land. Because the MDAB is classified nonattainment for the O_3 and PM_{10} NAAQS, BLM would need to conduct an air quality conformity analysis and determination prior to granting the ROW for the Proposed or Alternative Project if the emission levels during construction and operation of the Proposed or Alternative Project on BLM land would exceed the *de minimis* levels.

A portion of the Alternative Transmission Line Segment 9 would be located on the Marine Corps Logistics Base ("MCLB") Barstow, and the Department of Defense ("DOD") would need to grant a ROW to locate Alternative Transmission Line Segment 9 on the MCLB. DOD would need to conduct an air quality conformity analysis and determination prior to granting the ROW for Alternative Transmission Line Segment 9 if the emission levels during construction and operation of the Alternative Transmission Line Segment 9 on the MCLB would exceed the *de minimis* levels.

4.3.2.2 State Regulatory Setting

California Clean Air Act

CARB is given the authority through the California Clean Air Act to develop ambient air quality standards for the State. CARB is also responsible for setting vehicle emission standards and fuel specifications, and for regulating emissions from other sources such as consumer products and certain types of mobile equipment (e.g., vegetation management equipment, industrial forklifts, etc.). CARB also implements the Off-road Mobile Sources Emission Reduction Program to reduce emissions from off-road equipment, and the Portable Equipment Registration Program, a program that evaluates portable equipment and provides a registry for qualifying equipment to be exempt from obtaining separate air quality permits to operate within each individual air basin.

California's Diesel Programs

Risk Reduction Plan

CARB intends to reduce diesel particulate matter ("DPM") emissions from on- and off-road vehicle operations by 85 percent from year 2000 levels by 2020. As part of California's Diesel Risk Reduction Plan, CARB has passed numerous regulations including retrofit regulations and new engine standards for diesel-fueled vehicles to reduce diesel emissions from vehicles and equipment that are already in use.

Diesel Fuels

California Diesel Fuel Regulations (13 California Code of Regulations ["CCR"] Sections 2281–2285; 17 CCR Section 93114) provide standards for diesel fuel.

Regulation for In-Use, Off-Road Diesel-Fueled Fleets

CARB's In-Use Off-road Diesel-Fueled Fleets Regulation (13 CCR Sections 2449, 2449.1, and 2449.2) establishes various requirements for owners of off-road diesel vehicles with engines having a minimum power of 25 horsepower ("HP"), including reporting and recordkeeping, limits on nonessential idling, and emission performance requirements, effective January 2014. The purpose of this regulation is to reduce NOx, DPM, and other criteria pollutant emissions from in-use, off-road diesel-fueled vehicles.

4.3.2.3 Local Regulatory Setting

Mojave Desert Air Quality Management District

The MDAQMD adopts rules in accordance with Chapter 6.5 of Part 3 of Division 26 of the California Health and Safety Code (Section 40725-40731). The MDAQMD has dedicated assets to reviewing projects to ensure that they will not: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any Federal attainment plan. Under the California Environmental Quality Act ("CEQA"), the MDAQMD is an expert commenting agency on air quality and related matters within, or impacting on, its jurisdiction.

Mojave Desert Air Quality Management District Air Quality Management Plans

In addition to supporting the CARB and EPA air quality programs, under the Federal Clean Air Act, the MDAQMD has adopted Federal attainment plans for O_3 and PM_{10}. The most recently adopted MDAQMD attainment plans applicable to the Proposed Project area are the 2008 Federal 8-Hour Ozone Attainment Plan (Western Mojave Desert Non-attainment Area) and the 1995 Mojave Desert Planning Area Federal Particulate Matter Attainment Plan. These plans outline policies and practices intended to achieve attainment levels for these pollutants and avoid future levels that exceed applicable standards.

Mojave Desert Air Quality Management District Rule 403-Fugitive Dust and Rule 403.2-Fugitive Dust Control for the Mojave Desert Planning Area

These rules prohibit construction activities from generating visible dust in the atmosphere beyond the property line. Rule 403 requires construction activities to take reasonable precautions to minimize fugitive dust emissions. These actions are required for all projects within the MDAB capable of generating fugitive dust, except those related to agricultural operations.

Rule 403.2 is applicable to various types of sources of fugitive particulate matter, including construction/demolition activities, within the Mojave Desert Planning Area. It specifies control measures that must be implemented to reduce fugitive dust emissions.

Mojave Desert Air Quality Management District Rule 1160-Internal Combustion Engines

This rule specifies emission limits recordkeeping requirements for stationary internal combustion engine rated at 500 or more HP, when located within the Federal Ozone Nonattainment Area. However, emergency internal combustion engines, such as the standby emergency generator at the Proposed and Alternative Desert View Substations, are exempt from the provisions of this rule (Rule 1160 (D)(3)).

4.3.3 Significance Criteria

4.3.3.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to air quality come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

The MDAQMD has adopted CEQA and Federal Conformity Guidelines (MDAQMD 2011) to assist persons preparing environmental analysis or reviewing documents for any project within the jurisdiction of the MDAQMD by providing background information and guidance on the preferred analysis approach. For the purposes of evaluating the air

quality impacts of a project under CEQA, the MDAQMD CEQA Guidelines include quantitative thresholds that are used to evaluate the project's impacts. These significance thresholds are listed in Table 4.3-2, *MDAQMD Air Quality Significance Thresholds*. Although these are guidelines only, and their use is not required or mandated by the MDAQMD, they are considered appropriate for evaluating potential air quality impacts from construction and operation of Coolwater-Lugo.

Table 4.3-2 MDAQMD Air Quality Significance Thresholds

Pollutant	Annual Threshold (tons)
Carbon Monoxide	100
Oxides of Nitrogen	25
Volatile Organic Compounds	25
Oxides of Sulfur	25
Particulate Matter (PM_{10})	15
Particulate Matter ($PM_{2.5}$)	15
Hydrogen Sulfide	10
Lead	0.6

Source: MDAQMD 2011

4.3.3.2 NEPA Analysis

Unlike CEQA, NEPA does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27). The MDAQMD CEQA significance criteria are more stringent than the air quality significance criteria generally used in Environmental Impact Statement documents (such as the Prevention of Significant Deterioration 250 ton/year emission thresholds).

4.3.3.3 General Conformity Rule Applicability

As presented previously in Table 4.3-1, *Federal and California Ambient Air Quality Standards and MDAB Attainment Status*, the MDAB is classified as nonattainment for the O_3 and PM_{10} NAAQS. The GCR *de minimis* levels for O_3 precursors VOC and NOx (O_3 is not emitted directly) and for PM_{10} are listed in Table 4.3-3, *General Conformity De Minimis Emissions Applicable to the MDAB*. Emissions of VOC, NOx and PM_{10} on federal lands are compared with the respective *de minimis* levels to evaluate applicability of the GCR and the need for the federal agencies to conduct an air quality analysis and conformity determination.

Table 4.3-3 General Conformity *De Minimis* Emissions Applicable to the MDAB

Pollutant	*De Minimis* Emissions Level (tons/year)
Volatile Organic Compounds [1]	25
Nitrogen Oxides[1]	25
Particulate Matter (PM_{10})[2]	100

Source: Title 40 Code of Federal Regulations Section 93.153(b)(1)
Notes: [1] MDAB is classified as Severe 15 nonattainment for O_3.
[2] MDAB is classified as moderate nonattainment for PM_{10}.

4.3.4 Impact Analysis

This assessment is based on the potential impacts of the Proposed Project on air quality. The impact assessment was conducted to identify impacts to air quality and air quality management plans for the MDAB from implementing the Proposed Project. Impacts from the Alternative Project are discussed in Section 4.3.6, *Alternative Project*.

As discussed in the project description, the Proposed Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. For purposes of air quality impact analysis for both the Proposed Project and Alternative Project, air emissions from IBO were assumed to occur during the first year of project construction. To represent a worst-case scenario of the earliest possible construction start for FBO, air emissions from FBO were assumed to occur during the second year of project construction. Therefore, air emissions from both IBO and FBO construction of the Proposed and Alternative Desert View Substation are included in the air emission calculations that were used in the impact assessment. Operational air emissions include the maintenance and testing of an emergency generator at Desert View Substation.

Emissions anticipated during construction and operation of the Proposed Project and the Alternative Project were estimated for comparison with the significance thresholds.

Construction Emissions

Emissions during construction would be produced by off-road construction equipment, on-road motor vehicles, and earth-moving activities that generate fugitive dust. The methodology used to evaluate sources of construction emissions are discussed below.

Off-Road Construction Equipment. Daily emissions from the operation of diesel-fueled off-road equipment were estimated using equipment-specific emission factors. For purposes of this analysis, the emission factors were calculated using the CARB OFFROAD2007 emissions model (CARB 2007) and represent the fleet-wide average emission factors within the MDAQMD jurisdiction during 2016, the assumed first full year of construction activities. Daily construction emissions, schedule assumptions, hours of operation, equipment type, and detailed emission calculations are provided in Appendix C.

Aircraft Sources. Criteria pollutant emissions from helicopters were estimated using emission factors for all pollutants, except oxides of sulfur ("SOx") and $PM_{2.5}$, obtained from the Swiss Federal Office of Civil Aviation's Guidance on the Determination of Helicopter Emissions (FOCA 2009). Emissions of SOx were estimated based on fuel use and the maximum fuel sulfur content specified for Jet A fuel; emissions of $PM_{2.5}$ are assumed to be equal to emissions of PM_{10}. Daily emissions from helicopters, schedule assumptions, hours of operation, and detailed emission calculations are provided in Appendix C.

On-Road Motor Vehicles. Daily emissions from the operation of gasoline-fueled and diesel-fueled on-road motor vehicles, such as worker commute vehicles, haul trucks, dump trucks and flat-bed trucks, were estimated using emission factors from CARB's On-Road EMFAC2011 mobile source emissions (CARB 2011) model. For the purposes of estimating emissions, it has been assumed that field/construction workers would come from the Barstow and Hesperia areas and travel a roundtrip distance of 58 miles, which is two times the average one-way travel distances from Hesperia and Barstow to the Proposed and Alternative Project components. It has also been assumed that concrete supplies and locations where excavated soil would be hauled would be located on average approximately 30 miles from the Proposed and Alternative Project components, which is a standard industry default assumption. Therefore, it was assumed that concrete trucks and material import and export trucks would travel a roundtrip distance of 60 miles. Travel distances for other vehicles are based on proximity to the material staging yards anticipated to be used during construction activities.

Fugitive Dust. Fugitive dust emissions from earthmoving activities vary as a function of parameters such as soil silt content, soil moisture, and wind speed. Emissions from earthmoving activities are typically associated with material handling activities including haul truck loading and unloading, scraper unloading, bulldozer activity, and grading. Fugitive dust emissions were estimated using EPA's Compilation of Air Pollutant Factors (AP-42, EPA various dates), from Chapters 11 and 13, Section 11.9.1, Western Surface Coal Mining (per Chapter 13.2.3, Heavy Construction Operations) and Section 13.2.4, Aggregate Handling and Storage Piles, and based on material loading (in tons per day), and hours of operation. Additional fugitive dust emissions would be generated due to travel on unpaved roads. The methodology utilized to quantify fugitive dust emissions from travel on unpaved roads is based on EPA's AP-42 Chapter 13, Section 13.2.2, Unpaved Roads. For the purposes of estimating air quality emissions, it has been assumed that access roads used during transmission and telecommunication line installation would be unpaved and that vehicles used during construction of the transmission and telecommunication lines would begin travel at the end of the line segment closest to the work area(s) on a given day and travel a one-way distance equal to one-half the average length of the line segments each day for a daily roundtrip distance, equal to the average length of the line segments. Travel distances on unpaved roads during construction of the other components of the Proposed Project were estimated from the distance to the components from paved roads.

Annual Construction Emissions. Peak annual construction emissions were estimated for comparison with the MDAQMD's annual CEQA emission thresholds (see Table 4.3-2, *MDAQMD Air Quality Significance Thresholds*) and with the General Conformity *de minimis* emissions levels in Table 4.3-3, *General Conformity De Minimis Emissions Applicable to the MDAB.* The following steps were used to estimate peak annual emissions during construction:

- Total emissions during each of the construction activities in the Construction Equipment and Workforce Estimates tables in Chapter 3 were calculated as described above using construction data in Chapter 3, *Project Description* (please see Appendix C, Air Quality Calculations, for details).

- The annual emissions that may occur for each construction activity during each of three 12-month periods (the first 12 months of construction, construction months 1 through 12; the second 12 months of construction, construction months 13 through 24; and the last 12 months of construction, construction months 19 through 30) were estimated by multiplying the total emissions for each construction activity by the fraction of the emissions anticipated to occur during each of the three 12-month periods

- Total annual emissions during each 12-month period were estimated by adding together the emissions for each construction activity during each 12-month period

- Peak total annual emissions during construction of the Proposed Project were estimated as the highest emissions estimated during the three 12-month periods

Operational Emissions

Operational emission sources include worker vehicle trips associated with routine operation and maintenance ("O&M") activities for the Proposed Project. In addition, the diesel-fueled standby emergency generator at the Proposed Desert View Substation would be operated for periodic maintenance and testing.

Criteria pollutant emissions from maintenance trips were estimated using CARB's On-Road EMFAC2011 mobile source emission factors. For the purposes of this air quality analysis, it has been assumed that trips by maintenance personnel would originate within 30 miles from the Proposed Desert View Substation and within 30 miles from the ends of the Proposed Transmission and Telecommunication Lines. Thus, maintenance personnel would travel a roundtrip distance of 60 miles for O&M activities for the Proposed Desert View Substation and 60 miles plus the length of the Proposed Transmission and Telecommunication Lines for O&M activities for the Proposed Transmission and Telecommunication Line Routes. SCE anticipates that 48 trips per year would be made for O&M activities for the Proposed Desert View Substation, two trips per year would be made for O&M activities for the Proposed Transmission Line Routes, and one trip per year would be made for O&M activities for the Telecommunication Line Routes.

Criteria pollutant emission factors for maintenance and testing of the standby emergency generator were assumed to be the emission limits for the air toxics control measure for emergency compression ignition engines established by CARB in Title 17, CCR, Section 93115.6 Table 2. It is anticipated that the standby emergency generator would be operated one hour per day, 52 days per year, assuming a weekly test.

Emissions on Federal Lands

Total annual transmission line construction emissions that would occur on federal lands were estimated by multiplying total annual transmission line construction emissions by the fractions of the length of the transmission lines that would be located on federal lands. The fractions of the transmission line lengths on federal lands would be as follows:

- Fraction of Proposed Project transmission lines on BLM land: 0.240;
- Fraction of Alternative Project with Transmission Line Segment 9 on BLM land: 0.349;
- Fraction of Alternative Project with Transmission Line Segment 9 on MCLB: 0.045; and
- Fraction of Alternative Project with Transmission Line Segment 10 on BLM land: 0.385

Similarly, total annual construction emissions for the Gale to Pisgah Telecommunication Line that would occur on BLM land were estimated by multiplying total annual construction emissions for the Gale to Pisgah Telecommunication Line by the fraction of the length of the Gale to Pisgah Telecommunication Line that would be located on BLM land (0.198).

Annual operation emissions that would occur on federal lands were estimated from the annual distance that vehicles would travel on federal lands for O&M activities.

4.3.4.1 CEQA Impact Assessment

Would the project conflict with or obstruct implementation of the applicable air quality plan?

Construction Impacts

According to the MDAQMD CEQA and Federal Conformity Guidelines (MDAQMD 2011), a project is deemed to be consistent with the air quality plan if it is consistent with the existing land use plan. As indicated in Section 4.10, *Land Use and Planning*, the Proposed Project would be located in unincorporated San Bernardino County, the City of Hesperia, the Town of Apple Valley, and the communities of Lucerne Valley, Daggett, and Newberry Springs. Transmission lines of 34.5 kilovolts ("kV") or greater are a permitted use in all districts (zones/land use designations) in San Bernardino County if they comply with the conditions set forth by the San Bernardino County Development

Code. Within the City of Hesperia, the Proposed Transmission Line Route Segment 7 would be constructed within areas designated as Utility Corridors. SCE will construct and operate the Proposed Project in compliance with all applicable conditions. Therefore, the construction of the Proposed Project would be consistent with the existing land use plans. Furthermore, construction of the Proposed Project would not result in a population increase, and, therefore, the Proposed Project would not conflict with the growth projections used to develop the air quality plans. Please see Section 4.13, *Socioeconomics, Population and Housing, and Environmental Justice* for a discussion of economic and population growth. Construction of the Proposed Project would not conflict with the implementation of the air quality plans. Therefore, no impacts are anticipated from construction of the Proposed Project.

Operation Impacts

Similar to construction, operation of the Proposed Project would be consistent with the existing land use plans. Furthermore, operation of the Proposed Project would not result in a population increase; therefore, the Proposed Project would not conflict with the growth projections used to develop the air quality plans. Please see Section 4.13, *Socioeconomics, Population and Housing, and Environmental Justice* for a discussion of economic and population growth. Construction of the Proposed Project would not conflict with the implementation of the air quality plans. Therefore, no impacts are anticipated during operation of the Proposed Project.

Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Construction Impacts

Peak annual emissions from each construction component are based on the 12-month period with the highest construction emissions. These peak annual component emissions are listed in Table 4.3-4, *Total Annual Construction Emissions*. The sum of each component's emissions are added together to represent the Project's total annual emissions, which are compared to the MDAQMD significance thresholds. These estimates represent a worst-case construction schedule scenario.

The estimated total annual emissions of NOx, PM_{10} and $PM_{2.5}$ during construction activities exceed corresponding MDAQMD annual significance thresholds. Emissions of these pollutants during construction may contribute to air quality violations in the MDAB. These impacts would occur over the duration of construction and would be temporary.

Table 4.3-4 Total Annual Construction Emissions[1]

Construction Component	VOC (tons/year)	CO (tons/year)	NOx (tons/year)	SOx (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Desert View Substation	1.65	7.73	20.18	0.04	569.13	158.79
Distribution for Station Light & Power	0.02	0.07	0.13	0.00	0.13	0.02
Modifications to Existing Substations	0.57	3.50	4.08	0.01	0.81	0.33
Transmission and Potential Subtransmission Line Relocations	13.68	52.12	93.35	7.77	958.85	203.05
Telecommunication System	0.15	0.85	1.56	0.00	1.80	0.25
Total Annual Emissions	16.06	64.26	119.29	7.83	1,530.72	362.43
MDAQMD Annual Threshold (tons/year)	25	100	25	25	15	15
Would the Proposed Project Exceed the MDAQMD Threshold?	No	No	**Yes**	No	**Yes**	**Yes**

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

SCE would implement Applicant-Proposed Measures ("APM") AIR-1 and APM AIR-2 which would reduce VOC, CO, NOx, SOx, PM_{10}, and $PM_{2.5}$ emissions. Construction emissions would further be reduced by complying with CARB's diesel programs, which would include restrictions on off-road equipment engine idling to less than 5 minutes.

In addition, the MDAQMD has developed and implemented Rule 403.2, Fugitive Dust Control for the Mojave Desert Planning Area, to reduce the amount of particulate matter entrained in the ambient air as a result of human-made fugitive dust sources, by requiring actions to prevent, reduce, or mitigate fugitive dust emissions.

Estimated emission reduction that may be achieved by implementing APMs AIR-1 and AIR-2 and the resulting mitigated emissions are listed in Table 4.3-5, *Total Annual Controlled Construction Emissions*. The estimated off-road equipment exhaust emission reductions from implementing APM AIR-1 were based on the reductions in off-road equipment engine exhaust emissions that would be required by APM AIR-1. The estimated PM_{10} and $PM_{2.5}$ reductions from implementing APM AIR-2 were based on limiting vehicle speeds on unpaved roads to 15 miles per hour ("mph") and watering during earthmoving activities to maintain a minimum material moisture content of 10 percent. Limiting vehicle speeds to 15 mph is estimated to reduce fugitive particulate matter emission by 57 percent (SCAQMD 2007). The reductions from maintaining a material moisture content of 10 percent during earthmoving activities were estimated as the difference between emissions calculated using a conservative default moisture content of 0.5 percent and the increased moisture content of 10 percent.

Table 4.3-5 Total Annual Controlled Construction Emissions [1]

Source	VOC (tons/year)	CO (tons/year)	NOx (tons/year)	SOx (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Uncontrolled Total Annual Emissions	16.06	64.26	119.29	7.83	1,530.72	362.43
Controlled Total Annual Emissions	16.06	64.26	102.27	7.83	262.90	34.61
MDAQMD Annual Threshold (tons/year)	25	100	25	25	15	15
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the MDAQMD Threshold?	No	No	**Yes**	No	**Yes**	**Yes**

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

The estimated controlled total annual emissions of NOx, PM_{10} and $PM_{2.5}$ during construction activities exceed corresponding MDAQMD annual significance thresholds. Compliance with the regulatory requirements described above, and implementation of APM AIR-1 and APM AIR-2, would reduce air quality impacts but not to a less than significant level. Therefore, significant and unavoidable impacts are anticipated during

construction of the Proposed Project. These impacts would occur over the duration of construction and would be temporary.

Operation Impacts

Annual emissions during operation of each emission source of the Proposed Project are listed in Table 4.3-6, *Total Annual Operation Emissions*. The estimated total annual emissions during operation of the Proposed Project are much less than the corresponding MDAQMD annual significance thresholds.

Because emissions during operation of the Proposed Project are less than the MDAQMD significance thresholds, operation of the Proposed Project would not contribute to air quality violations. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Table 4.3-6 Total Annual Operation Emissions[1]

Source	VOC (tons/year)	CO (tons/year)	NOx (tons/year)	SOx (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Emergency Generator Testing	0.01	0.11	0.20	<0.005	0.01	0.01
Motor Vehicle Exhaust	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Motor Vehicle Fugitive PM	--	--	--	--	0.04	0.01
Total Annual Emissions	0.01	0.11	0.20	<0.005	0.05	0.01
MDAQMD Annual Threshold (tons/year)	25	100	25	25	15	15
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the MDAQMD Threshold?	No	No	No	No	No	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Construction Impacts

The MDAB is classified as nonattainment for O_3, PM_{10} and $PM_{2.5}$. Table 4.3-4, *Total Annual Construction Emissions*, shows that annual emissions of NOx, PM_{10} and $PM_{2.5}$ exceed the MDAQMD's significance thresholds. Therefore, construction of the Proposed Project could result in a cumulatively considerable net increase of PM_{10}, $PM_{2.5,}$ and O_3 precursor emissions. These impacts would occur over the duration of construction and would be temporary.

Compliance with the regulatory requirements described previously, and implementation of APM AIR-1 and APM AIR-2, would reduce air quality impacts. However, Table 4.3-5, *Estimated Annual Emission Reductions from APMs and Controlled Emissions*, shows that mitigated NOx, PM10 and PM2.5 emissions would still exceed the respective MDAQMD significance thresholds. Therefore, cumulatively significant and unavoidable impacts are anticipated during construction of the Proposed Project. These impacts would occur over the duration of construction and would be temporary.

Operation Impacts

As presented in Table 4.3-6, *Total Annual Operation Emissions*, the Proposed Project would not result in the generation of criteria pollutant emissions that exceed the MDAQMD thresholds for operational activities. The MDAQMD thresholds are designed to identify those projects which may result in significant levels of air pollution and to assist the region in attaining applicable State and Federal ambient air quality standards. In addition, a portion of the Proposed Transmission Route would be sited in locations that already have operating transmission facilities, and Proposed Transmission Line Segment 7 would replace two existing transmission facilities, thus slightly reducing operation-related vehicle trips.

Operation of the Proposed Project would not result in substantial levels of emissions, operation of the Proposed Project would not exceed any MDAQMD air quality significance threshold, and these emissions are not cumulatively considerable or cumulatively significant. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project expose sensitive receptors to substantial pollutant concentrations?

Construction Impacts

Sensitive receptors include residences, schools, daycare centers, playgrounds and medical facilities. Although construction of some of the Proposed Project components could occur in the vicinity of sensitive receptors, particularly residences, Transmission Line and Telecommunications Line construction is short-term and transient in nature at individual

locations and would not occur at a single location for more than a few weeks and would not build up to substantial localized pollutant concentrations. Therefore, emissions from construction of a majority of the Proposed Project would not be expected to expose sensitive receptors to substantial pollutant concentrations.

However, construction of the Proposed Desert View Substation and modifications to the Coolwater Switchyard and the Lugo Substation would occur at individual locations over extended periods and could potentially expose nearby residences to temporary pollutant concentrations in excess of MDAQMD thresholds. Maximum controlled annual on-site CO, NOx, SOx, PM_{10} and $PM_{2.5}$ emissions during construction of the Proposed Desert View Substation and modifications to the Coolwater Switchyard and the Lugo Substation are listed in Table 4.3-7, *Maximum Controlled Annual On-site Emissions during Construction of the Proposed Desert View Substation and Modifications to the Coolwater Switchyard and the Lugo Substation*. The emissions in Table 4.3-7 are estimated emissions reduced by implementation of APMs AIR-1 and AIR-2. VOC emissions are not listed because there are no ambient air quality standards for VOC.

Table 4.3-7 Maximum Controlled Annual On-site Emissions during Construction of the Proposed Desert View Substation and Modifications to the Coolwater Switchyard and the Lugo Substation [1]

Component	CO (tons/year)	NOx (tons/year)	SOx (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Desert View Substation[2]	4.00	6.82	0.02	9.19	3.32
Coolwater Switchyard[3]	0.57	0.58	<0.005	0.02	0.02
Lugo Substation[4]	1.01	1.02	<0.005	0.04	0.03
Maximum Component Emissions	4.00	6.82	0.02	9.19	3.32
MDAQMD Threshold (tons/year)	100	25	25	15	15
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the MDAQMD Threshold?	No	No	No	No	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.
[2] Maximum on-site CO, and SOx emissions occur during the full build-out civil construction activity. Maximum on-site NOx, PM_{10} and $PM_{2.5}$ emissions occur during the initial build-out grading construction activity.
[3] Maximum on-site emissions occur during the civil construction activity.

The MDAQMD's significance thresholds are also shown in Table 4.3-7. As indicated in Table 4.3-7, maximum annual on-site emissions during construction of the Proposed

Desert View Substation and modifications to the Coolwater Switchyard and Lugo Substation are less than the MDAQMD's CEQA significance thresholds. Therefore, construction of the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations.

Less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

As shown in Table 4.3-6, *Total Annual Operation Emissions*, estimated emissions during operation of the Proposed Project are less than the corresponding MDAQMD annual significance thresholds. Additionally, these emissions would primarily be generated by motor vehicles and would be dispersed over distances of 60 miles or more on a single day. Operation of the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project create objectionable odors affecting a substantial number of people?

Construction Impacts

Construction of the Proposed Project would not cause objectionable odors. Some odors associated with construction of the Proposed Project may result during short-term, temporary construction from on- and off-road equipment exhaust, but these emissions would disperse very quickly in the open area. Therefore, less than significant impacts are anticipated from construction of the Proposed Project.

Operation Impacts

Operation of the Proposed Project would not cause objectionable odors and would not create objectionable odors affecting a substantial number of people. Some odors associated with operation of the Proposed Project would result during standby emergency generator maintenance and testing, but these activities would only occur for 1 hour per week. Additional odors would potentially be caused by on-road vehicle exhaust during substation and transmission line O&M activities, but these potential odors would be dispersed over distances of 60 miles or more. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

4.3.4.2 NEPA Impact Assessment

The term "Proposed Action" as used in NEPA regulations and analysis is the Proposed Project, and the Proposed Action is referred to in this NEPA analysis as the Proposed Project.

Construction Impacts

As shown in Table 4.3-5, *Total Annual Controlled Construction Emission,* the estimated controlled total annual emissions of NOx, PM_{10} and $PM_{2.5}$ during construction activities

exceed corresponding MDAQMD annual significance thresholds. Compliance with the regulatory requirements described above, and implementation of APM AIR-1 and APM AIR-2, would reduce air quality impacts but not to a less than significant level. Therefore, significant and unavoidable impacts are anticipated during construction of the Proposed Project. These impacts would occur over the duration of construction and would be temporary.

Operation Impacts

As shown in Table 4.3-6, *Total Annual Operation Emissions*. The estimated total annual emissions during operation of the Proposed Project are much less than the corresponding MDAQMD annual significance thresholds. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

4.3.4.3 Federal General Conformity Rule Applicability

Total annual uncontrolled and controlled construction emissions that would occur on BLM land during construction for the Proposed Project are listed in Table 4.3-8, *Total Annual Controlled Construction Emissions on BLM Land*. Controlled emissions are the emissions after the application of the proposed APMs. The GCR *de minimis* emission levels are also listed in Table 4.3-8. As shown in Table 4.3-8, *Total Annual Controlled Construction Emissions on BLM Land*, total annual VOC, NOx and PM_{10} construction emissions on BLM land are less than the corresponding *de minimis* levels. Therefore, BLM would not be required to conduct an air quality conformity analysis and determination for the construction emissions prior to granting the ROW for the Proposed Project.

Table 4.3-8 Total Annual Controlled Construction Emissions on BLM Land[1]

Item	VOC (tons/year)	NOx (tons/year)	PM_{10} (tons/year)
Total Annual Uncontrolled Construction Emissions	2.95	19.48	229.65
Total Annual Controlled Construction Emissions	2.95	16.65	54.69
GCR De Minimis Level	25	25	100
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the D*e Minimis* Level?	No	No	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

Total annual operation emissions that would occur on BLM land during operation of the Proposed Project are listed in Table 4.3-9, *Total Annual Operation Emissions on BLM Land*. The GCR *de minimis* emission levels are also listed in Table 4.3-9. As shown in

Table 4.3-9, *Total Annual Operation Emissions on BLM Land*, total annual VOC, NOx and PM_{10} operation emissions on BLM land are less than the corresponding *de minimis* levels. Therefore, BLM would not be required to conduct an air quality conformity analysis and determination for the operation emissions prior to granting the ROW for the Proposed Project.

Table 4.3-9 Total Annual Operation Emissions on BLM Land[1]

Item	VOC (tons/year)	NOx (tons/year)	PM_{10} (tons/year)
Total Annual Operation Emissions	<0.005	<0.005	0.01
GCR De Minimis level	25	25	100
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the D*e Minimis* Level?	No	No	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

4.3.5 Applicant Proposed Measures

SCE proposes to implement the following air quality-related APMs to minimize air quality impacts associated with construction of the Proposed Project:

4.3.5.1 APM AIR-1

SCE would prepare an Exhaust Emissions Control Plan to establish a target goal of a project wide fleet average reduction of 20 percent NOx compared to the estimated unmitigated emissions as presented in the PEA for applicable diesel-fueled off-road construction equipment of more than 50 horsepower.

Acceptable options for reducing emissions could include, but are not limited to: the use of newer model engines meeting USEPA Tier 3 standards if available (or better), low emissions diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other similar available options.

4.3.5.2 APM AIR-2

SCE would prepare a Fugitive Dust Control Plan to reduce fugitive dust emissions (fugitive PM_{10} and $PM_{2.5}$). Acceptable control measures for reducing emissions described within the Fugitive Dust Control Plan may include, but are not limited to: limit traffic speeds on unpaved roads to 15 mph; apply water as needed to comply with MDAQMD Rule 403 reqirements or soil stabilizers (e.g., gravel for substation area) on active unpaved access roads, the substation area, and staging areas if construction activity causes persistent visible emissions of fugitive dust beyond the work area; apply soil stabilizers to inactive construction areas as described in the SWPPP; where applicable,

install gravel, shaker plates, or other BMPs to minimize transport of dirt onto public paved surfaces.

The Fugitive Dust Control Plan would describe how the measures would be implemented and monitored during Project construction. Furthermore, as construction details become available, the Fugitive Dust Control Plan would include site-specific mitigation measures for Project areas that could be more likely to generate dust near sensitive receptors.

4.3.6 Alternative Project

As described in Section 3.14, *Project Alternatives*, either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Line Route, but not both. A separate impact analysis is provided for these two scenarios.

4.3.6.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation, the Alternative Transmission Line Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6, and the Alternative Apple Valley to Desert View and Gale to Pisgah telecommunications routes.

Construction Impacts

Total estimated annual emissions during construction of each component of the Alternative Project with Transmission Line Segment 9 during months 1 through 12, which is the 12-month period with the highest construction emissions, and maximum annual emissions during construction of the entire Alternative Project with Transmission Line Segment 9 are listed in Table 4.3-10, *Total Annual Construction Emissions for Alternative Project with Transmission Line Segment 9*. The estimates are based on a worst-case construction schedule scenario. Total estimated annual emissions during construction of the Alternative Project with Transmission Line Segment 9 listed in Table 4.3-10 are higher than total estimated annual emissions during construction of the Proposed Project listed in Table 4.3-4, *Total Estimated Annual Construction Emissions*.

Similar to the Proposed Project, the estimated total annual emissions of NOx, PM_{10} and $PM_{2.5}$ during construction activities exceed corresponding MDAQMD annual significance thresholds. Emissions of these pollutants during construction may contribute to air quality violations in the MDAB. These impacts would occur over the duration of construction and would be temporary.

Table 4.3-10 Total Annual Construction Emissions for Alternative Project with Transmission Line Segment 9[1]

Construction Component	VOC (tons/year)	CO (tons/year)	NOx (tons/year)	SOx (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Alternative Desert View Substation	1.29	6.20	17.44	0.03	479.75	130.27
Distribution for Station Light & Power	0.02	0.07	0.13	0.00	0.13	0.02
Modifications to Existing Substations	0.57	3.50	4.08	0.01	0.81	0.33
Transmission and Potential Subtransmission Line Relocations	17.54	70.18	124.90	9.18	1,520.21	312.09
Telecommunication System	0.15	0.82	1.52	0.00	1.59	0.22
Total Annual Emissions	19.56	80.77	148.08	9.23	2,002.49	442.93
MDAQMD Annual Threshold (tons/year)	25	100	25	25	15	15
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the MDAQMD Threshold?	No	No	**Yes**	No	**Yes**	**Yes**

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

Estimated emission reductions that may be achieved by implementing APMs AIR-1 and AIR-2 and the resulting mitigated emissions during construction of the Alternative Project with Transmission Line Segment 9 are listed in Table 4.3-11, *Total Annual Controlled Construction Emissions for Alternative Project with Transmission Line Segment 9.*

Table 4.3-11 Total Annual Controlled Construction Emissions for Alternative Project with Transmission Line Segment 9[1]

Source	VOC (tons/year)	CO (tons/year)	NOx (tons/year)	SOx (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Uncontrolled Total Annual Emissions	19.56	80.77	148.08	9.23	2,002.49	442.93
Controlled Total Annual Emissions	14.40	80.77	107.79	9.23	412.30	52.64
MDAQMD Annual Threshold (tons/year)	25	100	25	25	15	15
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the MDAQMD Threshold?	No	No	**Yes**	No	**Yes**	**Yes**

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

The estimated controlled total annual emissions of NOx, PM_{10} and $PM_{2.5}$ during construction activities exceed corresponding MDAQMD annual significance thresholds. Compliance with the regulatory requirements described above, and implementation of APM AIR-1 and APM AIR-2, would reduce air quality impacts but not to a less than significant level. Therefore, significant and unavoidable impacts are anticipated during construction of the Alternative Project with Transmission Line Segment 9. These impacts would occur over the duration of construction and would be temporary.

Table 4.3-11, *Total Annual Controlled Construction Emissions for Alternative Project with Transmission Line Segment 9*, shows that annual emissions of NOx, PM_{10} and $PM_{2.5}$ exceed the MDAQMD's significance thresholds. Therefore, construction of the Alternative Project with Transmission Line Segment 9 could result in a cumulatively considerable net increase of PM_{10}, $PM_{2.5,}$ and ozone precursor emissions. These impacts would occur over the duration of construction and would be temporary.

Construction of the Alternative Desert View Substation and modifications to the Coolwater Switchyard and the Lugo Substation would occur at individual locations over extended periods and could potentially expose nearby residences to temporary pollutant concentrations in excess of MDAQMD thresholds.

Maximum controlled annual onsite CO, NOx, SOx, PM_{10} and $PM_{2.5}$ construction emissions during construction of the Alternative Desert View Substation and

modifications to the Coolwater Switchyard and the Lugo Substation are listed in Table 4.3-12 *Maximum Controlled Annual Onsite Emissions during Construction of the Alternative Desert View Substation and Modifications to the Coolwater Switchyard and the Lugo Substation*. VOC emissions are not listed because there are no ambient air quality standards for VOC.

Table 4.3-12 Maximum Controlled Annual Onsite Emissions during Construction of the Alternative Desert View Substation and Modifications to the Coolwater Switchyard and the Lugo Substation [1]

Component	CO (tons/year)	NOx (tons/year)	SOx (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Alternative Desert View Substation[2]	3.65	5.49	0.01	7.81	2.71
Coolwater Switchyard[3]	0.57	0.58	<0.005	0.02	0.02
Lugo Substation[4]	1.01	1.02	<0.005	0.04	0.03
Maximum Component Emissions	3.65	4.27	0.01	7.93	2.82
MDAQMD Threshold (tons/year)	100	25	25	15	15
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the MDAQMD Threshold?	No	No	No	No	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.
[2] Maximum on-site CO and SOx emissions occur during the full build out civil construction activity. Maximum on-site NOx, PM_{10} and $PM_{2.5}$ emissions occur during the initial build out grading construction activity.
[3] Maximum onsite emissions occur during the civil construction activity.

The MDAQMD's significance thresholds are also shown in Table 4.3-12. As indicated in Table 4.3-12, maximum annual on-site emissions during construction of the Alternative Desert View Substation and modifications to the Coolwater Switchyard and Lugo Substation are less than the MDAQMD's CEQA significance thresholds. Therefore, construction of the Alternative Project would not expose sensitive receptors to substantial pollutant concentrations. Less than significant impacts are anticipated during construction of the Proposed Project.

Emissions from construction of the Alternative Project with Segment 9 would generally be higher than the Proposed Project. Construction of the Alternative Project with Segment 9 would produce annual emissions that exceed MDAQMD significance thresholds, and would produce annual emissions that would be considered cumulatively

considerable. Therefore, a significant and unavoidable impact is anticipated from construction of the Alternative Project with Segment 9. These impacts would occur over the duration of construction and would be temporary.

Operation Impacts

Annual emissions during operation of each emission source of the Alternative Project with Transmission Line Segment 9 are listed in Table 4.3-13, *Total Annual Operation Emissions for Alternative Project with Transmission Line Segment 9*. The total estimated annual emissions during operation of the Alternative Project with Transmission Line Segment 9 are much less than the corresponding MDAQMD annual significance thresholds.

Because emissions during operation of the Alternative Project with Transmission Line Segment 9 are less than the MDAQMD significance thresholds, operation of the Alternative Project with Transmission Line Segment 9 would not contribute to air quality violations in the MDAB.

Table 4.3-13 Total Annual Operation Emissions for Alternative Project with Transmission Line Segment 9[1]

Source	VOC (tons/year)	CO (tons/year)	NOx (tons/year)	SOx (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Emergency Generator Testing	0.01	0.11	0.20	<0.005	0.01	0.01
Motor Vehicle Exhaust	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Motor Vehicle Fugitive PM	--	--	--	--	0.05	0.01
Total Annual Emissions	0.01	0.11	0.20	<0.005	0.05	0.01
MDAQMD Annual Threshold (tons/year)	25	100	25	25	15	15

Table 4.3-13 Total Annual Operation Emissions for Alternative Project with Transmission Line Segment 9[1]

Source	VOC (tons/year)	CO (tons/year)	NOx (tons/year)	SOx (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the MDAQMD Threshold?	No	No	No	No	No	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

As presented in Table 4.3-13, *Total Annual Operation Emissions for Alternative Project with Transmission Line Segment 9,* the Alternative Project with Transmission Line Segment 9 would not result in the generation of criteria pollutant emissions which exceed the MDAQMD thresholds for operational activities. Because operation of the Alternative Project with Transmission Line Segment 9 would not exceed any MDAQMD air quality significance threshold, its operation would not result in substantial levels of emissions, and these emissions are not cumulatively considerable.

As shown in Table 4.3-13, estimated emissions during operation of the Alternative Project with Transmission Line Segment 9 are less than the corresponding MDAQMD annual significance thresholds. Additionally, these emissions would primarily be generated by motor vehicles and would be dispersed over distances of 60 miles or more on a single day. Therefore, operation of the Alternative Project with Transmission Line Segment 9 would not expose sensitive receptors to substantial pollutant concentrations.

Impacts during operation of the Alternative Project with Segment 9 would generally be the same as for the Proposed Project. Less than significant impacts are anticipated during operation of the Alternative Project with Segment 9.

Total annual uncontrolled and controlled construction emissions that would occur on BLM land during construction for the Alternative Project with Transmission Line Segment 9 are listed in Table 4.3-14, *Total Annual Controlled Construction Emissions on BLM Land for Alternative Project with Transmission Line Segment 9*. The GCR *de minimis* emission levels are also listed in Table 4.3-14. As shown in Table 4.3-14, *Total Annual Controlled Construction Emissions on BLM Land for Alternative Project with Transmission Line Segment 9,* total annual VOC construction emissions on BLM land are less than the *de minimis* level, but total annual NOx and PM_{10} emissions exceed the corresponding *de minimis* levels. Therefore, BLM would be required to conduct an air quality conformity analysis and determination for the NOx and PM_{10} construction emissions prior to granting the ROW for the Alternative Project with Transmission Line Segment 9.

Table 4.3-14 Total Annual Controlled Construction Emissions on BLM Land for Alternative Project with Transmission Line Segment 9[1]

Item	VOC (tons/year)	NOx (tons/year)	PM_{10} (tons/year)
Total Annual Uncontrolled Construction Emissions	5.63	39.28	529.85
Total Annual Controlled Construction Emissions	5.63	33.53	131.56
GCR De Minimis Level	25	25	100
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the D*e Minimis* Level?	No	**Yes**	**Yes**

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

Total annual uncontrolled and controlled construction emissions that would occur on DOD land during construction for the Alternative Project with Transmission Line Segment 9 are listed in Table 4.3-15, *Total Annual Controlled Construction Emissions on DOD Land for Alternative Project with Transmission Line Segment 9*. The GCR *de minimis* emission levels are also listed in Table 4.3-15. As shown in Table 4.3-15, *Total Annual Controlled Construction Emissions on DOD Land for Alternative Project with Transmission Line Segment 9*, total annual VOC, NOx and PM_{10} construction emissions on DOD land are less than the corresponding *de minimis* levels. Therefore, DOD would not be required to conduct an air quality conformity analysis and determination for the construction emissions prior to granting the ROW for the Alternative Project with Transmission Line Segment 9.

Table 4.3-15 Total Annual Controlled Construction Emissions on DOD Land for Alternative Project with Transmission Line Segment 9[1]

Item	VOC (tons/year)	NOx (tons/year)	PM_{10} (tons/year)
Total Annual Uncontrolled Annual Construction Emissions	0.72	5.05	68.32
Total Annual Controlled Construction Emissions	0.72	4.31	16.96
GCR De Minimis Level	25	25	100
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the D*e Minimis* Level?	No	No	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

Total annual operation emissions that would occur on BLM land during operation of the Alternative Project with Transmission Line Segment 9 are listed in Table 4.3-16, *Total Annual Operation Emissions on BLM Land for Alternative Project with Transmission Line Segment 9*. The GCR *de minimis* emission levels are also listed in Table 4.3-16. As shown in Table 4.3-16, *Total Annual Operation Emissions on BLM Land for Alternative Project with Transmission Line Segment 9*, total annual VOC, NOx and PM_{10} operation emissions on BLM land are less than the corresponding *de minimis* levels. Therefore, BLM would not be required to conduct an air quality conformity analysis and determination for the operation emissions prior to granting the ROW for the Alternative Project with Transmission Line Segment 9.

Table 4.3-16 Total Annual Operation Emissions on BLM Land for Alternative Project with Transmission Line Segment 9[1]

Item	VOC (tons/year)	NOx (tons/year)	PM_{10} (tons/year)
Total Annual Operation Emissions	<0.005	<0.005	0.01
GCR De Minimis Level	25	25	100
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the D*e Minimis* Level?	No	No	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

Total annual operation emissions that would occur on DOD land during operation of the Alternative Project with Transmission Line Segment 9 are listed in Table 4.3-17, *Total Annual Operation Emissions on DOD Land for Alternative Project with Transmission Line Segment 9*. The GCR *de minimis* emission levels are also listed in Table 4.3-17. As shown in Table 4.3-17, *Total Annual Operation Emissions on DOD Land for Alternative Project with Transmission Line Segment 9*, total annual VOC, NOx and PM_{10} operation emissions on DOD land are less than the corresponding *de minimis* levels. Therefore, DOD would not be required to conduct an air quality conformity analysis and determination for the operation emissions prior to granting the ROW for the Alternative Project with Transmission Line Segment 9.

Table 4.3-17 Total Annual Operation Emissions on DOD Lands for Alternative Project with Transmission Line Segment 9[1]

Item	VOC (tons/year)	NOx (tons/year)	PM_{10} (tons/year)
Total Annual Operation Emissions	<0.005	<0.005	<0.005
GCR De Minimis Level	25	25	100
Would the Proposed Project Exceed the D*e Minimis* Level?	No	No	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

4.3.6.2 Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, the Alternative Transmission Line Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and the Alternative Apple Valley to Desert View and Gale to Pisgah telecommunications routes.

Construction Impacts

Controlled annual emissions during construction of the Alternative Project with Transmission Line Segment 10 are listed in Table 4.3-18, *Total Annual Controlled Construction Emissions for Alternative Project with Transmission Line Segment 10*. Total controlled annual emissions during construction of the Alternative Project with Transmission Line Segment 10 listed in Table 4.3-18 are higher than controlled total annual emissions during construction of the Proposed Project listed in Table 4.3-5, *Total Annual Controlled Construction Emissions*. The estimated controlled total annual emissions of NOx, PM_{10} and $PM_{2.5}$ during construction activities exceed corresponding MDAQMD annual significance thresholds. Compliance with the regulatory requirements described above, and implementation of APM AIR-1 and APM AIR-2, would reduce air quality impacts but not to a less than significant level. Therefore, significant and unavoidable impacts are anticipated during construction of the Alternative Project with Transmission Line Segment 10. These impacts would occur over the duration of construction and would be temporary.

Table 4.3-18 Total Annual Controlled Construction Emissions for Alternative Project with Transmission Line Segment 10[1]

Source	VOC (tons/year)	CO (tons/year)	NOx (tons/year)	SOx (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Uncontrolled Total Annual Emissions	19.42	80.22	146.79	9.07	1,967.74	439.39
Controlled Total Annual Emissions	19.42	80.22	125.70	9.07	395.40	49.38
MDAQMD Annual Threshold (tons/year)	25	100	25	25	15	15
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the MDAQMD Threshold?	No	No	**Yes**	No	**Yes**	**Yes**

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

Emissions from construction of the Alternative Project with Segment 10 would generally be higher than for the Proposed Project and the Alternative Project with Segment 9. Construction of the Alternative Project with Segment 10 would produce annual emissions that exceed MDAQMD significance thresholds and would produce annual emissions that would be considered cumulatively considerable. Therefore, a significant and unavoidable impact is anticipated from construction of the Alternative Project with Segment 10. These impacts would occur over the duration of construction and would be temporary.

Operation Impacts

Annual emissions during operation of each emission source of the Alternative Project with Transmission Line Segment 10 are listed in Table 4.3-19, *Total Annual Operation Emissions for Alternative Project with Transmission Line Segment 10*.

Table 4.3-19 Total Annual Operation Emissions for Alternative Project with Transmission Line Segment 10[1]

Source	VOC (tons/year)	CO (tons/year)	NOx (tons/year)	SOx (tons/year)	PM_{10} (tons/year)	$PM_{2.5}$ (tons/year)
Emergency Generator Testing	0.01	0.11	0.20	<0.005	0.01	0.01
Motor Vehicle Exhaust	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Motor Vehicle Fugitive PM	--	--	--	--	0.05	0.01
Total Annual Emissions	0.01	0.11	0.20	<0.005	0.05	0.01
MDAQMD Annual Threshold (tons/year)	25	100	25	25	15	15
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the MDAQMD Threshold?	No	No	No	No	No	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

Impacts during operation of the Alternative Project with Segment 10 would generally be the same as discussed for the Proposed Project and the Alternative Project with Segment 9. Therefore, less than significant impacts are anticipated during operation of the Alternative Project with Segment 10.

Total annual uncontrolled and controlled construction emissions that would occur on BLM land during construction for the Alternative Project with Transmission Line Segment 10 are listed in Table 4.3-20, *Total Annual Controlled Construction Emissions on BLM Land for Alternative Project with Transmission Line Segment 10*. The GCR *de minimis* emission levels are also listed in Table 4.3-20. As shown in Table 4.3-20, *Total Annual Controlled Construction Emissions on BLM Land for Alternative Project with Transmission Line Segment 10*, total annual VOC construction emissions on BLM land are less than the *de minimis* level, but total annual NOx and PM_{10} emissions exceed the corresponding *de minimis* levels. Therefore, BLM would be required to conduct an air quality conformity analysis and determination for the NOx and PM_{10} construction

emissions prior to granting the ROW for the Alternative Project with Transmission Line Segment 10.

Table 4.3-20 Total Annual Controlled Construction Emissions on BLM Land for Alternative Project with Transmission Line Segment 10[1]

Item	VOC (tons/year)	NOx (tons/year)	PM_{10} (tons/year)
Total Annual Uncontrolled Construction Emissions	6.16	42.83	571.13
Total Annual Controlled Construction Emissions	6.16	36.52	139.34
GCR De Minimis Level	25	25	100
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the D*e Minimis* Level?	No	**Yes**	**Yes**

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C.

Total annual operation emissions that would occur on BLM land during operation of the Alternative Project with Transmission Line Segment 10 are listed in Table 4.3-21, *Total Annual Operation Emissions on BLM Land for Alternative Project with Transmission Line Segment 10*. The GCR *de minimis* emission levels are also listed in Table 4.3-21. As shown in Table 4.3-21, *Total Annual Operation Emissions on BLM Land for Alternative Project with Transmission Line Segment 10*, total annual VOC, NOx and PM_{10} operation emissions on BLM land are less than the corresponding *de minimis* levels. Therefore, BLM would not be required to conduct an air quality conformity analysis and determination for the operation emissions prior to granting the ROW for the Alternative Project with Transmission Line Segment 10.

Table 4.3-21 Total Annual Operation Emissions on BLM Land for Alternative Project with Transmission Line Segment 10[1]

Item	VOC (tons/year)	NOx (tons/year)	PM_{10} (tons/year)
Total Annual Operation Emissions	<0.005	<0.005	0.02
GCR De Minimis level	25	25	100
Would the Proposed Project with Implementation of APM AIR-1 and AIR-2 Exceed the D*e Minimis* Level?	No	No	No

Source: Data compiled by AECOM in 2013
Note:
[1] Assumptions and detailed calculations are provided in Appendix C.

4.3.7 References

California Air Resources Board (CARB). (2007). OFFROAD2007 model. [online] http://www.arb.ca.gov/msei/documentation.htm

CARB. (2011). EMFAC2011 model [online] http://www.arb.ca.gov/msei/categories.htm#onroad_motor_vehicles

CARB. (2012a). Area Designation Maps/State and National. [online] http://www.arb.ca.gov/desig/adm/adm.htm

CARB. (2012b). Ambient Air Quality Standards. [online] http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, August 2010

CARB. (2013). Air Quality Statistics. [online] http://www.arb.ca.gov/adam/

Federal Office of Civil Aviation (FOCA). (2009). Guidance on the Determination of Helicopter Emissions, Federal Department of the Environment, Transport, Energy and Communications, DETEC, Federal Office of Civil Aviation FOCA, Division Aviation Policy and Strategy, Swiss Confederation. [online] http://www.bazl.admin.ch/experten/regulation/03312/03419/03532/index.html?lang=en

Mojave Desert Air Quality Management District (MDAQMD). (2011). California Environmental Quality Act (CEQA) and Federal Conformity Guidelines [online] http://www.mdaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=2910

SCAQMD. (2007). Table XI-A Mitigation Measure Examples: Fugitive Dust from Construction and Demolition. [online] http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html

United States Environmental Protection Agency (EPA). Various dates. Compilation of Air Pollutant Emission Factors (AP-42). [online] http://www.epa.gov/ttn/chief/ap42/index.html

4.4 Biological Resources

This section describes existing biological resources in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). It analyzes potential impacts on the identified biological resources that may result from construction and operation of the Proposed Project and the Alternative Project.

4.4.1 Environmental Setting

Coolwater-Lugo lies within San Bernardino County, east of Interstate 15 ("I-15"), and south of the Interstate 40 ("I-40"), and north of San Bernardino National Forest (Figure 2.1-A, *Coolwater-Lugo Transmission Project Siting Study Areas Map*). Elevations vary throughout the Coolwater-Lugo Project area from a low of approximately 1,700 feet above sea level near Newberry Springs, to a high of approximately 3,800 feet above sea level along the base of Stoddard Mountain.

Coolwater-Lugo is located within the Mojave Desert region. Temperatures vary with highs typically exceeding 100 degrees Fahrenheit ("°F") in the summer to lows near 30 °F in the winter (NOAA 2012). Snowfall is not uncommon at higher elevations. The Coolwater-Lugo Project alignment crosses numerous ephemeral drainages of varying size. Near the City of Hesperia, Proposed Transmission Line Segment 7 (and Alternative Transmission Line Segment 6) crosses the Mojave River. This river is the major water feature of the Western Mojave Desert and the only major water body located in the vicinity of the Coolwater-Lugo Project alignment.

A portion of Coolwater-Lugo is located on Bureau of Land Management ("BLM") land and State Lands Commission lands. Jurisdictions through which Coolwater-Lugo passes include unincorporated San Bernardino County, the Cities of Hesperia and Barstow, the Town of Apple Valley, and the communities of Daggett, Lucerne Valley, and Newberry Springs. Land uses in the immediate vicinity of Coolwater-Lugo include open space areas, off-highway vehicle recreation areas, and low-density rural residential, medium-density residential, and limited agriculture.

4.4.2 Regulatory Setting

4.4.2.1 Federal Regulatory Setting

Federal Endangered Species Act (16 United States Code [U.S.C.] § 1531 et seq.)

The Federal Endangered Species Act of 1973 ("ESA") provides for the protection of plant and wildlife species listed by the federal government as "endangered" or "threatened," and "the ecosystems upon which they depend." An "endangered" species is one that is "in danger of extinction" throughout all or a significant portion of its range. A "threatened" species is one that is "likely to become endangered" within the foreseeable future. Pursuant to Section 9 of the ESA, it is unlawful for any person to "take" a federally listed species. "Take," as defined by the ESA, "means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such

conduct." This can also include the modification of a species' habitat. For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land, and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16 U.S.C. § 1538(c)).

When non-federal entities such as states, counties, local governments, and private landowners wish to conduct an otherwise lawful activity that might incidentally, but not intentionally, "take" a listed species, an incidental take permit (ESA § 10(a)(1)(B)) must first be obtained following formal consultation with the USFWS, through the development of a habitat conservation plan.

Federal agencies involved in the project would trigger the need for a consultation under Section 7 of the ESA. Section 7 of the ESA requires that federal agencies avoid actions that will further harm species and their critical habitat. Section 7 directs all federal agencies to ensure that any action they authorize, fund, or carry-out does not jeopardize the continued existence of an endangered or threatened species or designated or proposed critical habitat. The regulations for implementation, 50 CFR 402, specify how federal agencies are to fulfill their Section 7 consultation requirements. Federal agencies must review their actions and determine whether the action may affect federally listed and proposed species or proposed or designated critical habitat. To accomplish this, agencies must request from the USFWS a list of species and critical habitat that may be in the project area or they can request concurrence with their species list. Once a species list is obtained or verified as accurate, agencies need to determine whether actions may affect any of those species or their critical habitat. This consultation will conclude either informally with written concurrence from the USFWS or through formal consultation with a No Jeopardy Biological Opinion provided to the federal agency.

Migratory Bird Treaty Act (16 U.S.C. §§ 703 - 712)

The Migratory Bird Treaty Act of 1918 ("MBTA") protects species of native, non-game, migratory birds. Specific provisions in the statute include a federal prohibition, except as allowed under specific conditions, to:

> "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird." (16 U.S.C. § 703).

Bald and Golden Eagle Protection Act (16 U.S.C. § 668)

The Bald and Golden Eagle Protection Act of 1940 ("BGEPA") provides for the protection of bald and golden eagles. The BGEPA establishes criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden

eagle], alive or dead, or any part, nest, or egg thereof." The BGEPA defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

Clean Water Act of 1972

Enacted in 1972, the federal Clean Water Act ("CWA") and subsequent amendments outline the basic protocol for regulating discharges of pollutants to waters of the U.S. It is the primary federal law applicable to water quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. Enforced by the U.S. Environmental Protection Agency ("EPA"), it was enacted "… to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The CWA authorizes states to adopt water quality standards and includes programs addressing both point and non-point pollution sources. The CWA also established the National Pollutant Discharge Elimination System ("NPDES"), and provides the EPA the authority to implement pollution-control programs, such as setting wastewater standards for industry and water quality standards for surface waters (see below for a discussion of the NPDES program).

In California, programs and regulatory authority under the CWA have been delegated by EPA to the State Water Resources Control Board ("SWRCB") and its nine Regional Water Quality Control Boards ("RWQCBs"). Under Section 402 of the CWA, potential discharges are regulated by the NPDES permit process, which requires projects that disturb 1 or more acres to obtain NPDES coverage under the General Permit for each state (CWA Section 402).

The SWRCB and RWQCBs have also developed numeric and narrative water quality criteria to protect beneficial uses of state waters and waterways.

Section 401 – Water Quality Certification

Section 401 of the CWA specifies that, for any activity that may result in a discharge into waters of the U.S., the SWRCB or applicable RWQCB must certify that the discharge will comply with state water quality standards, including beneficial uses (23 California Code of Regulations 3830, et seq.). Under California's policy of no net loss of wetlands, the SWRCB and RWQCBs require mitigation for dredge and fill impacts to wetlands and waterways. Dredge and fill activities in wetlands and waterways that impact waters of the U.S. require a federal Section 404 permit from the U.S. Army Corps of Engineers ("USACE"). Before a Section 404 permit can be issued, a Section 401 certification must first be obtained from the RWQCB.

Section 404 – Permitting for Dredge and Fill Activities in Wetlands and Waters of the U.S.

The USACE is responsible for issuing permits under CWA Section 404 for placement of fill or dredged material in waters of the U.S. and jurisdictional wetlands. Waters of the U.S. refers to oceans, bays, rivers, streams (including non-perennial streams with a defined bed and bank), lakes, ponds, and seasonal and perennial wetlands.

Project proponents must obtain a permit from the USACE for all discharges of fill or dredged material before proceeding with a proposed activity. The USACE may issue either an individual permit or a general permit. General permits are preauthorized at the regional or national level and are issued to cover activities expected to result in only minimal adverse environmental effects (e.g., LA District Regional General Permit No. 63 for Repair and Protection Activities in Emergency Situations). Nationwide Permits ("NWPs") are a type of general permit issued to cover activities that the USACE has determined to have minimal adverse effects, such as routine maintenance (Nationwide Permit 3) or utility line activities (Nationwide Permit 12). Each NWP specifies particular conditions that must implemented by the permittee, including impact thresholds. NWPs are typically limited to projects of less than 1/2 acre of permanent impacts to waters of the U.S. for each single and complete project. If an NWP does not apply to a project, a project is required to obtain an individual permit.

Bureau of Land Management Desert Conservation Plan

In 1976, Congress passed the Federal Land Policy Management Act ("FLPMA") to direct the management of the public lands of the United States. In that law, Section 601 was included to give direction about the California Desert Conservation Area ("CDCA"). Section 601 required the preparation of a comprehensive long-range plan for the area. The purpose of the Desert Conservation Plan is to establish guidance for BLM management of the public lands in the California Desert, in accordance with the intent of the FLPMA. The Proposed Project is located within the CDCA.

Bureau of Land Management West Mojave Plan

The West Mojave Plan is a habitat conservation plan and federal land use plan amendment that (1) presents a comprehensive strategy to conserve and protect the desert tortoise, the Mohave ground squirrel and nearly 100 other sensitive plants and wildlife and the natural communities of which they are a part, and (2) provides a streamlined program for complying with the requirements of the California Endangered Species Acts ("California ESA") and Federal ESA. The 9,359,070-acre planning area is located to the north of the Los Angeles metropolitan area. The West Mojave Plan's conservation program applies to both public and private lands within this area. These lands include 3,263,874 acres of BLM-administered public lands, 3,029,230 acres of private lands, and 102,168 acres of lands administered by the State of California. The West Mojave Plan will be consistent with the integrated natural resource management plans that have been adopted for 2,667,445 acres of military lands, and with programs being implemented on nearly 300,000 acres of lands within Joshua Tree National Park.

4.4.1.1 State Regulatory Setting

California Fish and Game Code Sections 1600-1616, Lake and Streambed Alteration Program

Sections 1600-1600 of the California Fish and Game Code ("FGC") protect the natural flow, bed, channel, and bank of any river, stream, or lake designated by the California

Department of Fish and Wildlife ("CDFW") in which there is, at any time, any existing fish or wildlife resources, or benefit for the resources. CDFW regulates activities that could alter the flow, bed, banks, channel or associated riparian areas of a river, stream or lake—all considered "waters of the state." The law requires any person, state or local governmental agency, or public utility to notify CDFW before beginning an activity that may substantially modify a river, stream, or lake. A Lake or Streambed Alteration Agreement may be required for any project that would:

- Divert, obstruct, or substantially change a streambed
- Use material from the streambed
- Alter the bed, banks, channel, or the adjacent riparian vegetation of a streambed
- Result in the disposal, or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can flow into a stream

California Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1967 (Cal. Water Code § 13000, et seq.) requires the SWRCB and the nine RWQCBs to adopt water quality criteria to protect state waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. The RWQCBs have the responsibility of granting NPDES permits for stormwater runoff from construction sites. In addition, the Porter-Cologne Act also covers non-federal waters of the state that may not be subject to requirements of the CWA, such as isolated waters. For fill or dredging impacts to only isolated waters of the state, the RWQCBs may issue Waste Discharge Requirements; otherwise, the CWA Section 401 Water Quality Certification (described above) typically addresses both waters of the state and waters of the United States.

California Endangered Species Act (California Fish and Game Code § 2050, et seq.)

The California ESA generally parallels the provisions of the federal ESA, and states that "all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved." The CDFW administers the California ESA and has committed itself to work with all interested persons, agencies, and organizations to protect and preserve such sensitive resources and their habitats.

Under the California ESA, "endangered" is defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range" and "threatened" is defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts." "Take" is defined as "to hunt, pursue, catch, capture, or kill, or attempt to hunt,

pursue, catch, capture, or kill" an individual of a species, but the definition does not include "harm" or "harass," as the federal ESA does. As a result, the threshold for a take under the California ESA is higher than that under the federal ESA.

Consistent with the California ESA, CDFW has established lists of endangered, threatened, and candidate species that may or may not also be included on federal ESA list. Pursuant to FGC Section 2081, California ESA allows for incidental take permits to otherwise lawful development projects that could result in the take of a state-listed threatened or endangered species. The application for an incidental take permit under Section 2081(b) has a number of requirements, including the preparation of a mitigation plan. CALIFORNIA ESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate mitigation planning to offset project-caused losses of listed species.

Native Plant Protection Act (California Fish and Game Code §§ 1900-1913, § 2062 and § 2067)

The Native Plant Protection Act identifies the types of plant species eligible for state listing. Eligible species include those identified on California Native Plant Society ("CNPS") Rare Plant Ranks ("RPR") 1A, 1B, and 2 and that meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California ESA) of the FGC. Plants with CNPS listings 3 and 4 do not explicitly qualify for legal protection, but can be addressed in California Environmental Quality Act ("CEQA") documents depending on the circumstances and opinion of the biologist conducting the assessment. RPR definitions are as follows:

1A: Plants presumed to be extinct because they have not been seen or collected in the wild in California for many years. This rank includes plants that are both presumed extinct in California, as well as those plants that are presumed extirpated in California. A plant is extinct in California if it no longer occurs in or outside of California. A plant that is extirpated from California has been eliminated from California, but may still occur elsewhere in its range.

1B: Plants that are rare throughout their range with the majority of them endemic to California. Most of the plants of RPR 1B have declined significantly over the last century.

2: Plants that are rare throughout their range in California, but are common beyond the boundaries of California. RPR 2 recognizes the importance of protecting the geographic range of widespread species (CNPS 2010).

3: A review list for plants for which there is inadequate information to assign them to one of the other lists or to reject them.

4: A watch list for plants that are of limited distribution or infrequent throughout a broader area in California and their vulnerability or susceptibility to threat appears relatively low at this time.

California Fish and Game Code Sections 3500-3516, and 3800

FGC 3513 furthers the intent of the MBTA by prohibiting any take or possession of birds in California that are designated by the MBTA as migratory non-game birds, except as allowed by federal rules and regulations promulgated pursuant to the MBTA. In addition, FGC Sections 3503, 3503.5, 3511, and 3800 further protect nesting birds and their parts, including passerine birds, raptors, and state "fully protected" birds. These regulations protect almost all native nesting birds, not just special-status birds.

California Fish and Game Code Sections 3511, 4700, 5050, and 5515

FGC Sections 3511, 4700, 5050, and 5515 list the bird, mammal, reptile, amphibian, and fish species that are identified as "fully protected." Fully protected wildlife may not be harmed, taken, or possessed. The classification of "fully protected" was California's initial effort to identify and provide additional protection to those wildlife that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under the California ESA and Federal ESA; white-tailed kite, golden eagle, trumpeter swan, northern elephant seal, and ring-tailed cat are the exceptions. The white-tailed kite and the golden eagle are tracked in the California Natural Diversity Database ("CNDDB"); the trumpeter swan, northern elephant seal, and ring-tailed cat are not.

California Department of Fish and Wildlife Staff Report on Burrowing Owl Mitigation (2012)

This document provides CDFW's comprehensive conservation and mitigation strategy for burrowing owls, a California species of concern. CDFW determined that reversing declining population and range trends for burrowing owls will require implementation of more effective conservation actions, including developing more rigorous burrowing owl survey methods; working to improve the adequacy of impacts assessments; developing clear and effective avoidance and minimization measures; and developing mitigation measures to ensure impacts to the species are effectively addressed at the project, local, and/or regional level. The 2012 Staff Report takes into account the California Burrowing Owl Consortium's Survey Protocol and Mitigation Guidelines (CBOC 1993, 1997) and supersedes the survey, avoidance, minimization, and mitigation recommendations in the earlier 1995 Staff Report.

California Public Resources Code Sections 4292 and 4293

Section 4292 directs the owner, controller, operator, or maintainer of electrical transmission lines in mountainous land, or forest-covered land, brush-covered land, or grass-covered land to maintain around and adjacent to any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction from the outer circumference of such pole or tower, and to maintain a clearance of 4 feet from any line which is operating at 2,400 or more volts, but less than 72,000 volts.

Section 4293 directs the owner, controller, operator, or maintainer of electrical transmission lines in mountainous land, or forest-covered land, brush-covered land, or grass-covered land to maintain a clearance of the respective distances which are specified in this section in all directions between all vegetation and all conductors which are carrying electric current:

- For any line which is operating at 2,400 or more volts, but less than 72,000 volts, four feet.
- For any line which is operating at 72,000 or more volts, but less than 110,000 volts, 6 feet.
- For any line which is operating at 110,000 or more volts, 10 feet.

In every case, such distance shall be sufficiently great to furnish the required clearance at any position of the wire, or conductor when the adjacent air temperature is 120 degrees Fahrenheit, or less. Dead trees, old decadent or rotten trees, trees weakened by decay or disease and trees or portions thereof that are leaning toward the line which may contact the line from the side or may fall on the line shall be felled, cut, or trimmed so as to remove such hazard.

California Public Utilities Commission, General Order 95, Rule 35, Vegetation Management

Rule 35 mandates that certain vegetation management activities be performed in order to establish necessary and reasonable clearances, and establishes minimum clearances between line conductors and vegetation that under normal conditions shall be maintained. These requirements apply to all overhead electrical supply and communication facilities that are covered by General Order 95, including facilities on lands owned and maintained by California state and local agencies.

California Desert Native Plants Act, Food and Agricultural Code Section 80071-80075

The California Desert Native Plants Act was passed in 1981 to protect non-listed California desert native plants from unlawful harvesting on both public and privately owned lands. Harvest, transport, sale, or possession of specific native desert plants is prohibited unless a person has a valid permit, or wood receipt, and the required tags and seals.

4.4.2.2 Regional Regulatory Setting

Desert Renewable Energy Conservation Plan

The Desert Renewable Energy Conservation Plan ("DRECP") is a major land use plan that addresses the Mojave and Colorado Desert regions of California (California Energy Commission 2013). The DRECP is a science-based conservation plan designed to identify preferred areas for development of utility-scale renewable energy projects, for

construction of transmission facilities, and for long-term natural resource conservation. It is intended to facilitate federal and state endangered species permitting for renewable energy projects and transmission facilities. The DRECP is expected to be approved in 2014. Upon its implementation, the DRECP will function as both a Habitat Conservation Plan ("HCP") under the Federal ESA and a natural community conservation plan ("NCCP") under the California ESA. It will also serve as a land use plan amendment in accordance with FLPMA. Preparation of the DRECP is being led by the Renewable Energy Action Team, which consists of representatives from the following agencies:

- California Energy Commission
- CDFW (formerly the California Department of Fish and Game)
- BLM
- USFWS

Numerous other stakeholder groups are also actively participating in the DRECP process, including federal, state, and local government agencies; environmental and community nongovernmental organizations; industry groups; and members of the public.

Coolwater-Lugo is located in the DRECP planning area. Because it involves a high-voltage transmission line, it would qualify as a "covered activity" under the DRECP.

The DRECP will result in an efficient and effective biological mitigation and conservation program providing renewable project developers with permit timing and cost certainty under the federal ESA and California ESA while at the same time preserving, restoring, and enhancing natural communities and related ecosystems.

4.4.2.3 Local Regulatory Setting

The California Public Utilities Commission ("CPUC") has sole exclusive state jurisdiction over the siting and design of Coolwater-Lugo because the CPUC regulates and authorizes the construction of investor-owned public utility facilities. Although such projects are exempt from local land use and zoning regulations and permitting, General Order No. 131-D, Section XIV.B requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain a nondiscretionary local permit." As part of its environmental review process, Southern California Edison ("SCE") considers local and state land use plans, and policies, and local land use priorities and concerns.

County of San Bernardino General Plan Conservation Element

All portions of the Coolwater-Lugo project area are located in unincorporated San Bernardino County with the exception of a portion of Alternative Transmission Line Route Segment 9 within the City of Barstow, a portion of Proposed Transmission Line Route Segment 7 and Alternative Transmission Line Route Segment 6 in the City of Hesperia, and a portion of the Apple Valley to Desert View Telecommunication Route in

the Town of Apple Valley. The *County of San Bernardino 2007 General Plan* Conservation Element (County of San Bernardino 2013) provides direction regarding the conservation, development, and utilization of San Bernardino County's natural resources. Its objective is to prevent the wasteful exploitation, destruction, and neglect of resources. The Conservation Element is distinguished by being primarily oriented toward natural resources. Population growth and development continually require the use of both renewable and nonrenewable resources. One role of the Conservation Element is to establish policies that reconcile conflicting demands on those resources. The Conservation Element involves both identification of a community's natural resources and adoption of policies for their preservation, development, and wise use.

City of Hesperia General Plan Conservation Element

A portion of the Coolwater-Lugo transmission line routes (Segments 6 and 7) is located in the City of Hesperia. Existing Lugo Substation is located within the City of Hesperia sphere of influence. The purpose of the *City of Hesperia General Plan* Conservation Element (City of Hesperia 2010) is to provide the public, decision makers, and staff a guide to set policy that will identify resources that should be preserved, and set the foundation for preservation of these resources by utilizing a variety of tools that will promote the sustainability and environmental integrity of the City of Hesperia. This element establishes the City's priorities as they relate to natural, historical, and paleontological resources and outlines the means for their preservation.

Apple Valley Multi-Species Habitat Conservation Plan

The Apple Valley to Desert View Telecommunications Route would be located partially in the Town of Apple Valley. The proposed Town of Apple Valley Multi-Species Habitat Conservation Plan ("MSHCP") is under development and is intended to guide the Town's conservation efforts; allowing the Town to preserve its open space, protect threatened and endangered species, and maintain its high-desert character. The plan will safeguard features and areas that warrant protection; plus ensure that future development within the Town and its sphere of influence is compliant with the Federal ESA and California ESA. The MSHCP will also streamline the environmental permitting process. SCE is participating as a stakeholder in the Apple Valley MSHCP development process.

4.4.3 Methodology

Prior to field surveys, standard database searches were conducted and previous surveys in the area were reviewed to obtain a list of federal- and state-listed resources, including sensitive plants and wildlife in the region. The results of these preliminary database searches provided a basis for addressing the appropriate special-status resources in the footprint of the Proposed Project components and immediate surroundings (collectively referred to as the Biological Resources Project Area). The biological resources assessment included general biological surveys and habitat suitability assessments for special-status plant and wildlife species within the Project Area and a 500-foot buffer on either side of the alignment ("Survey Area") (See Figure 4.4-1, *Survey Area Examples*). Non-linear features such as substations were surveyed within the boundary of the feature.

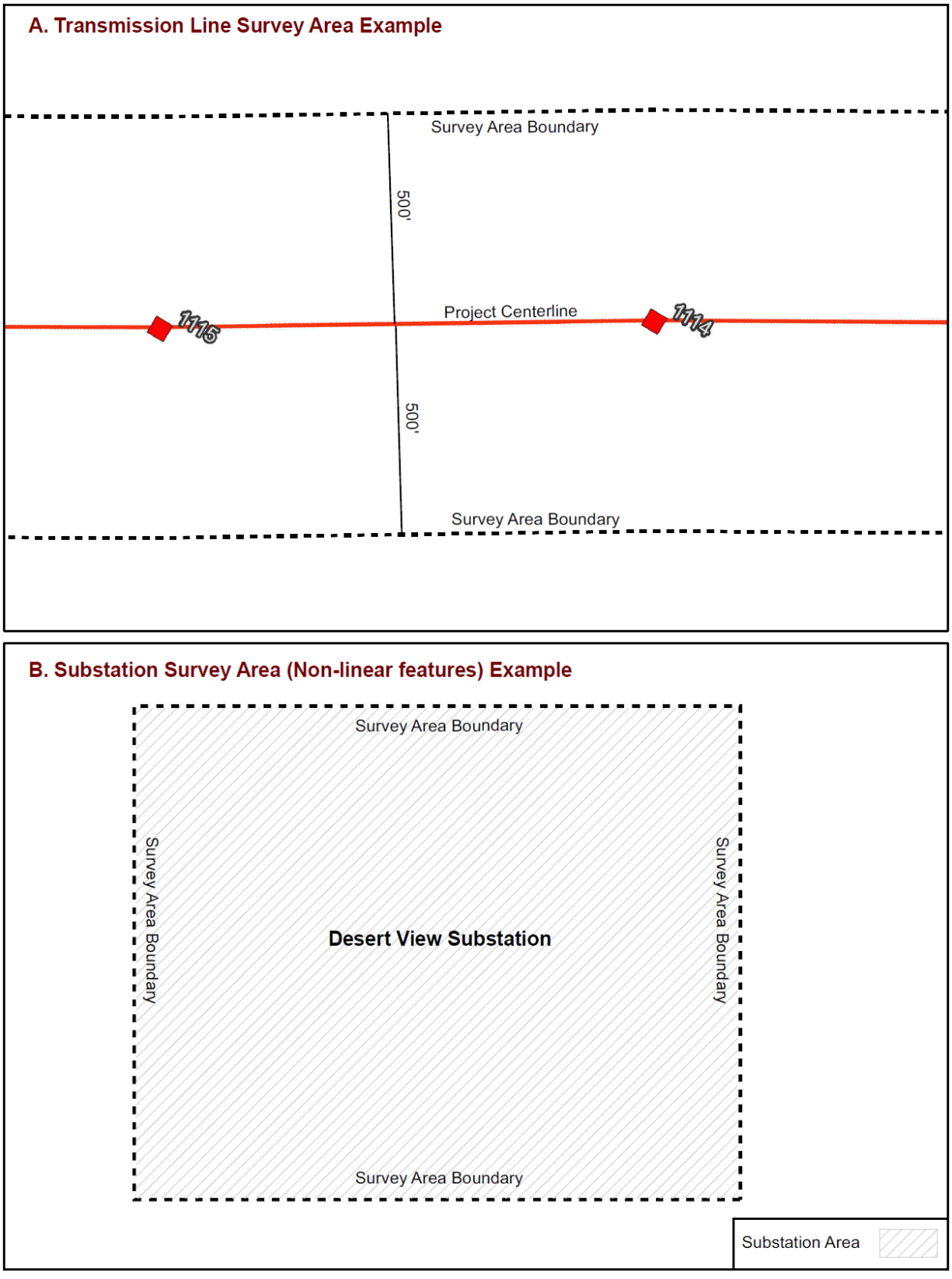
Literature was reviewed to identify potential special-status plants or wildlife within 5 miles of the Coolwater-Lugo area, to assist in determining the likelihood of a species to be present in or near the Coolwater-Lugo area. Maps showing the species-specific survey areas are provided in the technical appendices. Additionally, a jurisdictional delineation report was prepared for Coolwater-Lugo, which is included in Appendix D under the *Wetland and Other Waters Delineation Report*.

4.4.3.1 Literature and Database Review

Information about documented special-status plant and wildlife species, as well as sensitive habitats known to occur in the vicinity of the Project, was obtained from the CNDDB (CDFW 2013). The CNDDB search included U.S. Geological Survey 7.5-minute quadrangles: Baldy Mesa, Cajon, Silverwood Lake, Lake Arrowhead, Apple Valley North, Apple Valley South, Butler Peak, Fifteenmile Valley, Fairview Valley, White Horse Mountain, Lucerne Valley, Fawnskin, Big Bear City, Cougar Buttes, Old Woman Springs, Rattlesnake Canyon, Melville Lake, Fry Mountains, Stoddard Well, West Ord Mountain, Nebo, Yermo, Harvard Hill, Troy Lake, Silver Bell Mine, Sunshine Peak, Sleeping Beauty, Lavic Lake, Hidden Valley East, Hidden Valley West, Manix, Newberry Springs, Camp Rock Mine, Minneola, Ord Mountain, Barstow, Barstow SE, Daggett, Chidago Canyon, Hodge, and Turtle Valley.

Additional literature and databases referenced include the *CNPS Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2010); *The Jepson Manual: Higher Plants of California* (Baldwin 2012); *A Manual of California Vegetation* (Sawyer et al. 2009); *The CalFlora Database* (CalFlora 2012); *The Sibley Field Guide to Birds of Western North America*

Figure 4.4-1 Survey Area Examples



(Sibley 2003); the *eBird* website (Cornell Lab of Ornithology and National Audubon Society, Inc. 2012); the *California Fish Species* website (University of California 2012); the *California*; the USFWS *Critical Habitat Portal* website (USFWS 2012); *Fish Species of Special Concern* (Moyle et al. 1995), and *California Wildlife Habitat Relationships* software (CDFW 2005).

4.4.3.2 Survey Methods

General Habitat Assessment Methodology

Surveys from March 28 to April 27, 2012 were conducted by walking transects spaced 45 meters apart. Surveys were conducted out to 150 meters (~500 feet) from either side of the center line of the Project alignment. Surveys from May 21 to June 7, 2013 were conducted by a combination of driving and walking new/revised areas of the Project alignment and the area of the Proposed and Alternative Desert View Substation. Vegetation was mapped in the field using aerial photographs to delineate the extent of each vegetation community within the survey area.

Plant species were identified in the field or collected for subsequent identification using keys in Hickman (1993) or Baldwin (2012). Nomenclature generally follows Sawyer et al. (2009) for vegetation types and communities, and Calflora (2012), Baldwin (2012), and current scientific data (e.g., scientific journals) for individual plant species.

Surveys for wildlife species included searching for and identifying species' diagnostic signs including audible calls, prints, scat, nests, skeletal remains, and burrows, and habitat features (rock or debris piles, cavities, and rock outcrops) that may attract and/or support special-status species. Taxonomy and nomenclature for wildlife generally follows Collins and Taggert (2009) for amphibians and reptiles, American Ornithologists Union (1998) for birds, and Baker et al. (2003) for mammals.

Focused Survey Methodologies

Desert Tortoise

Focused biological surveys for desert tortoise in areas with suitable habitat as identified during the General Habitat Assessment, were conducted in May through July of 2012 and May through June 2013. Surveys during the year 2012 were conducted along 100 percent of desert tortoise habitat within the Proposed Project alignment and a random sampling of the Alternative Project alignment. Surveys during the year 2013 were conducted within desert tortoise habitat occurring at Proposed Project components, which were revised from the 2012 Project Description. Areas surveyed in 2012 were not resurveyed in 2013. Surveys followed the recommended survey protocol from the pre-project 2010 Field Season Protocol (USFWS 2010). Surveys were conducted within the Biological Resources Project Area and the desert tortoise zone of influence ("ZOI"), a buffer area that extends 305 meters (1,000 feet) from each side of the Coolwater-Lugo center line.

Burrowing Owl

Focused biological surveys for burrowing owl in areas with suitable habitat as identified during the General Habitat Assessment, were conducted in May through July of 2012 and May through June 2013. Surveys during the year 2012 were conducted along 100 percent of burrowing owl habitat within the Proposed Project alignment and a random sampling of the Alternative Project alignment. Surveys during the year 2013 were conducted within burrowing owl habitat occurring at Proposed Project components, which were revised from the 2012 Project Description. Areas surveyed in 2012 were not resurveyed in 2013. Surveys followed the recommended survey protocol in the updated CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012b). Surveys were conducted within in the Biological Resources Project Area.

Avian Point Counts

In April, May, and September 2012, 15 survey points were established for avian studies along the Project alignment. The survey points were distributed along the initial Project alignments in an attempt to best sample the avian community located within the Biological Resources Project Area. In June 2013, due to modifications of the Project, additional survey points were established along two telecommunication routes, and original points 2, 3, and 4 were moved slightly to account for the adjusted transmission line route. Each point was surveyed for 10 minutes. The surveys along the initial route were repeated six times in 2012 and once in 2013. The survey points established along the telecommunication routes were surveyed once in 2013. Surveys were initiated just before or at sunrise. All avian species observed were recorded, as well as their approximate distance and direction from the observation point.

Mohave Ground Squirrel

Focused biological surveys for Mohave ground squirrel were conducted between May 10, 2012 and July 12, 2012 and on May 30, 2013. Surveys in 2012 were conducted by walking and/or driving the Project entire Project alignment. Surveys during the year 2013 were conducted within Proposed Project components, which were revised from the 2012 Project description. Areas surveyed in 2012 were not resurveyed in 2013. During both survey years, habitat suitability was determined by observing and recording topography, vegetation types, levels of disturbance due to urban development, and distances of the corridors from the historic range of the Mohave ground squirrel.

Amphibians and Reptiles

Focused biological surveys for sensitive herpetological species (amphibians and reptiles) were conducted in March and April 2012 and in May and June 2013. Surveys in 2012 were conducted by walking and/or driving the entire Coolwater-Lugo alignment. Surveys during the year 2013 were conducted within Coolwater-Lugo alignment, including components which were revised from the 2012 Project description. Areas surveyed in 2012 were not resurveyed in 2013. Habitat suitability was determined by observing and recording topography, vegetation types, and levels of disturbance due to urban development. Any sightings of sensitive herpetological species or their sign were documented.

Plants

Focused biological surveys for sensitive plant species were conducted between March 28 and April 12, 2012, and between May 28 and June 15, 2013. Surveys were conducted by walking the Project alignment. Plant species were identified in the field or collected for subsequent identification using keys in Hickman (1993) or Baldwin (2012). Nomenclature generally follows Sawyer et al. (2009) for vegetation types and communities, and Calflora (2012), Baldwin et al. (2012), and current scientific data (e.g., scientific journals) for individual plant species.

4.4.3.3 Vegetation Type Descriptions

Based on the General Habitat Assessment of the entire Project Area, 14 plant communities, characterized and named according to the vegetation's dominant species, were identified within the Project Area (Table 4.4-1, *Vegetation Types and Communities Found within the Project Area*). Vegetation community maps delineating the extent of each vegetation community within the Project Area are provided in Appendix D.

Table 4.4-1 Vegetation Types and Communities Found within the Project Area.

Plant Community Name	Class Code	Segment(s) of Occurrence	Acreage within Survey Area
Basalt Rock	BR	Gale-Pisgah Telecommunication Route	217
Big Sagebrush Scrub	BSS	6, 7	442
Creosote Bush Scrub	CBS	4, 5a, 5b, 6, 7, Gale-Pisgah and Apple Valley-Desert View Telecommunication Route	5,532
Creosote Bush Scrub - White Bursage Scrub	CBBS	1, 2, 5a, 5b, 6, 7, 8, 9, 10	8,895
California Buckwheat Scrub	CBUS	6	936
California Juniper Woodland	CJW	6	936
Dry Lake Bed	DLB	1, Apple Valley-Desert View Telecommunication Route	850
Fourwing Saltbush Scrub	FWSS	5	285
Joshua Tree Woodland	JTW	1, 2	4323
Mojave River	MR	6, 7	179
Rabbit Brush Scrub	RBS	7	596
Rock Outcrop	RC	4, 5	200
Willow Riparian	Not mapped*	-	-
Desert Ephemeral Wash	Not mapped*	-	-

* Note: These habitat types were not mapped due to their extremely localized and limited distribution throughout the Project Area.

Basalt Rock ("BR")

Basalt Rock lacks a dominance of vegetation and is characterized by volcanic rock and boulders with occurrences of creosote bush (*Larrea tridentata*) and desert tea (*Ephedra californica*). This community occurs primarily in the northeast portion of the Project.

Big Sagebrush Scrub ("BSS")

This community is dominated by big sagebrush (*Artemisia tridentata*) and is typically found on plains, alluvial fans, and bajadas with sandy soils with an open canopy, and the herbaceous layer is spare to intermittent with non-native grasses. This community occurs on the western end of Proposed Transmission Line Segment 7 and Alternative Transmission Line Segment 6 near the Lugo Substation. Other species that occur within this community include yellow rabbit brush (*Chrysothamnus viscidiflorus*), Mormon tea (*Ephedra viridis*), rubber rabbit brush (*Ericameria nauseosa*), and California juniper (*Juniperus californica*).

Creosote Bush Scrub ("CBS")

Creosote Bush Scrub is dominated by creosote bush with an intermittent to open canopy with an herbaceous layer of seasonal annuals or perennial grasses. This community is found on alluvial fans, bajadas, upland slopes, and washes. The soils are well drained, sometimes with desert pavement. Along the Project alignment, this community is found scattered throughout. Other species that occur within this community include white bursage *(Ambrosia dumosa),* fourwing saltbush (*Atriplex canescens*), allscale (*Atriplex polycarpa*), brittlebush (*Encelia farinosa*), Anderson's desert thorn (*Lycium andersonii*), and Joshua tree (*Yucca brevifolia*).

Creosote Bush Scrub-White Bursage Scrub ("CBBS")

This community is dominated by creosote bush and co-dominated by white bursage with an intermittent to open canopy. The herbaceous layer is dominated by seasonal annuals. This community typically occurs within small washes, rills, alluvial fans, and bajadas. This is the most common community occurring along the majority of the Project. Other species within this community include fourwing saltbush, allscale, brittlebush, Anderson's desert thorn, Joshua tree, California barrel cactus (*Ferocactus cylindraceus var. cylindraceus*), beavertail cactus desert (*Opuntia basilaris*), desert straw (*Stephanomeria pauciflora*), and desert trumpet (*Eriogonum inflatum*).

California Buckwheat Scrub ("CBUS")

The California Buckwheat Scrub along the Project alignment is considered the transmontane stand and is dominated by California buckwheat (*Eriogonum fasciculatum*) with white bursage, creosote, Mormon tea, and brittlebush with occurrences of California juniper). This community occurs in transition with California Juniper Woodland and Creosote Bush Scrub or Creosote Bush-White Bursage Scrub. California Buckwheat Scrub only occurs within the western portion of the alignment within Alternative Transmission Line Segment 6.

California Juniper Woodland ("CJW")

California Juniper Woodland is dominated by California juniper and is associated with species of the California Buckwheat Scrub and Big Sagebrush Scrub. This community is only found on the western portion of the Project within Alternative Transmission Line Segment 6.

Dry Lake Bed ("DLB")

This community is dominated by Parry's saltbush (*Atriplex parryi*) with fourwing saltbush, and bud sage (*Artemisia spinescens*). The canopy cover is open with a lack of herbaceous species. The soils are typically carbonate rich, alkaline, sandy, or sandy-clay loam soils. This community occurs on dry lake beds within the Proposed Transmission Line Segments 1 and 5a.

Fourwing Saltbush Scrub ("FWSS")

Fourwing Saltbush Scrub is dominated by fourwing saltbush with allscale, creosotebush, and Mormon tea as co-dominates. The canopy cover is open with a lack of herbaceous species. This community occurs on playas, dry lake beds, alluvial fans, and rolling hills. The soils are typically carbonate rich, alkaline, sandy, or sandy-clay loam soils. This community occurs at scattered locations along the alignment primarily within the Proposed and Alternative Transmission Line Segment 5.

Joshua Tree Woodland ("JTW")

Joshua Tree Woodland is dominated by Joshua tree co-dominated by species of Creosote Bush Scrub or Creosote Bush-White Bursage Scrub including creosote bush, white bursage, Mormon tea, Anderson's desert thorn, cheese bush (*Hymenoclea salsola*), beavertail cactus, and California barrel cactus. The understory is dominated by herbaceous seasonal annuals and grasses. This community is scattered throughout the Project, typically on rocky soils on ridges and moderate slopes.

Mojave River ("MR")

The Mojave River is the primary surface drainage of the region and the Project Area. The Mojave River generally lacks dominance of vegetation and consists of braided sandy channels within a wide floodplain. The Mojave River within the region has surface flow during storm events but generally has an underground flow. Along the edges of the river seasonal annuals are prevalent. Proposed Transmission Line Segment 7 and Alternative Transmission Line Segment 6 cross the Mojave River.

Rabbit Brush Scrub ("RBS")

Rabbit Brush Scrub is dominated by rubber rabbit bush and yellow rabbit brush with a co-dominance of non-native ruderal species including Russian thistle (*Salsola tragus*), mustards (*Brassica nigra*), and (*Hirschfeldia incana*). This community transitions into Big Sagebrush Scrub and is found along the alignment in disturbed areas of residential

development within the western portion of the Proposed Project area including Proposed Transmission Line Segment 7 and the Apple Valley to Desert View Telecommunication Route.

Rock Outcrop ("RC")

Rock Outcrop lacks a dominance of vegetation and is characterized by steep slopes with volcanic rock and boulders with occurrences of brittlebush and creosote bush. This community occurs sporadically within the Coolwater-Lugo area.

Willow Riparian (not mapped)

The Willow Riparian community occurs along canyon drainages and the Mojave River in the western portion of the Coolwater-Lugo area within Proposed Transmission Line Segment 7 and Alternative Transmission Line Segment 6. This community is dominated by arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), narrow-leaved willow (*Salix exigua*), and elderberry (*Sambucus nigra*). This habitat community was not mapped due to its extremely localized and limited distribution within the Coolwater-Lugo area.

Desert Ephemeral Wash (not mapped)

Desert Ephemeral Wash occurs throughout the Coolwater-Lugo area. The washes typically are characterized by a sandy to gravel channel from 4 to 50 feet wide and lack a predominance of vegetation. When vegetation does occur, species are typical of the surrounding upland habitat. Desert ephemeral washes only have flow during major storm events. This habitat community was not mapped due to its extremely localized and limited distribution within the Coolwater-Lugo area.

4.4.3.4 Common Plants and Wildlife

Common Plants

A total of 81 species have been identified, including 11 non-native species and one special-status species. A list of plant species observed in the Coolwater-Lugo area is provided in the General Habitat Assessment (located in Appendix D). Approximately 13 percent of the plant species observed were non-native species. Primarily consisting of non-native grasses, invasive non-native species were most prevalent around areas where human disturbance was greatest. These areas include historical or current agricultural areas, off-highway vehicle ("OHV") areas, and along major roads.

Common Wildlife

A total of 89 species have been identified, including, one amphibian, 15 reptile, 66 bird, and seven mammal species, which includes nine special-status species. A full list of species observed in the Coolwater-Lugo area is provided in the General Habitat Assessment (located in Appendix D). Wildlife species were found in association with the documented habitat requirements of each species. Species such as burrowing owl, coyote,

kit fox, jack rabbit, side-blotched lizard, and Great Basin whiptail were found throughout the Coolwater-Lugo area irrespective of human disturbance or the prevalence of non-native plant species. Other species such as desert tortoise, and desert iguana were generally absent in areas of high disturbance despite appropriate habitat type.

4.4.3.5 Special-status Biological Resources

Special-status Vegetation Types

Resource agencies generally consider vegetation types to have special status if they support concentrations of special-status plant or wildlife species, are of relatively limited distribution, or offer particular value to wildlife. While some special-status vegetation types are not afforded legal protection unless they support protected species, others may be protected by an ordinance, code, or regulation under which conformance typically requires a permit or other discretionary action prior to impacting the vegetation. No special-status vegetation communities exist within the Coolwater-Lugo area; therefore, no further discussion of this topic is required.

Protected Trees

California Desert Native Plants Act, Food and Agricultural Code Section 80071-80075, protects Joshua trees from removal, transplant, and harvest without appropriate permitting. In addition, San Bernardino County has an ordinance regulating the transplanting of Joshua trees. The BLM does not allow the collection or the take of Joshua trees on federally managed lands without a special use or other applicable permit and the BLM typically requires some level of salvage of succulent species in the Mojave Desert of California. Joshua trees occur scattered throughout the Coolwater-Lugo components typically on rocky soils on ridges and moderate slopes.

Potential Jurisdictional Areas

The Coolwater-Lugo area crosses ephemeral drainages and the Mojave River, which potentially fall under the jurisdiction of the USACE, RWQCB, and/or the CDFW. Coolwater-Lugo's potential impacts to jurisdictional areas are discussed in detail in the *Wetland and Other Waters Delineation Report* for Coolwater-Lugo (Appendix D).

Special-status Plants and Wildlife

Using information presented in the General Habitat Assessment (Appendix D), and plant and wildlife surveys of the area, the potential for special-status species to occur within the Coolwater-Lugo area was assessed as high, moderate, or low based on the following criteria:

- High: CNDDB or other documented occurrences have been recorded within 1.0 mile of Coolwater-Lugo and suitable habitat is present (suitable nesting or roosting habitat for bird and bat species). Individuals were either observed during field surveys or are known to be from the area.

- Medium: CNDDB or other documented occurrences have been recorded within 5 miles of the Coolwater-Lugo area and suitable habitat is present (suitable nesting or roosting habitat or high quality foraging areas for bird and bat species). Individuals were not observed during field surveys; however, the species could be present.

- Low: Suitable or marginal habitat may occur in the Coolwater-Lugo area but; no CNDDB records of the species have been recorded within recent years; records of the species within 5 miles of Coolwater-Lugo are suspected to be now extirpated or potentially misidentified with other species; or individuals were not observed during field surveys and are not anticipated to be present. For bird and bat species, this category may be used for species that are documented, but likely to be only transient through the area during foraging or migratory movements, no suitable nesting or roosting habitat is present.

A number of plant and wildlife species identified in the literature review were determined to have low to no potential to occur within the Coolwater-Lugo area because the Coolwater-Lugo area does not contain suitable habitat, is located outside of the species' known geographic range, or is located outside of the species' known elevation range. A complete list and analysis of all species identified in literature review and searches as having the potential to occur in the Coolwater-Lugo area are provided in the General Habitat Assessment (Appendix D).

Special-status Plants

Eight special-status plant species have a high likelihood of occurring within the Coolwater-Lugo area, and 18 special-status species have a medium likelihood of occurring within the Coolwater-Lugo area. Table 4.4-2, *Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area*, provides a list of these special-status plant species.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
desert sand verbena (*Abronia villosa* var. *aurita*)	1B.1, BLM, USFS	Occurs in chaparral, coastal scrub, and desert dunes or sandy areas. Found at elevations of 75–1,600 meters. Blooming period is January–September.	Low	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
Cienega Seca oxytheca (*Acanthoscyphus parishii* var. *cienegensis*)	1B.3, USFS	Occurs in Joshua tree woodland, pinyon/ juniper woodland, upper montane coniferous forest habitats with sandy or granitic soils. Found at elevations of 2,105–2,450 meters Known blooming period is June–September.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Cushenbury oxytheca (*Acanthoscyphus parishii* var. *goodmaniana*)	FE, 1B.1, USFS	Found in pinyon and juniper woodlands with carbonate, or talus, or sandy soils). Found at elevations of 1,219–2,377 meters. Species is only known from occurrences in San Bernardino County. Known blooming period is May–October.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
scrub lotus (*Acmispon argyraeus* var. *multicaulis*)	BLM	Occurs in pinyon and juniper woodlands with granitic soils. Found at elevations from 1,200–1,500 meters. Species is only known from occurrences in San Bernardino County. Known blooming period is April–June.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Utah agave (*Agave utahensis* var. *eborispina*)	BLM	Found in Mojavean desert scrub habitat with rocky slopes at elevations ranging from 945–1,370 meters. Known blooming period is May–June.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
small-flowered androstephium (*Androstephium breviflorum*)	2B.2	Occurs in desert dunes and Mojavean desert scrub. Blooms March–April.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
San Bernardino milk-vetch (*Astragalus bernardinus*)	1B.2, BLM	Found in pinyon/juniper woodland and Joshua tree woodland habitats with granitic or carbonate soils. Found at elevations from 900–2,000 meters. Blooming period is April–June.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
black milk-vetch (*Astragalus funereus*)	BLM	Found in gravelly or rocky areas of Mojavean desert scrub habitat with clay soils at elevations from 1,280–2,100 meters. Known blooming period is March–May.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Lane Mountain milk-vetch (*Astragalus jaegerianus*)	BLM	Occurs in Joshua tree woodland, Mojavean desert scrub with granitic, sandy or gravelly soils. Found at elevations of 900–1,200 meters. Species is only known from San Bernardino County. Known blooming period is April–June.	Medium	Potential suitable habitat present, but no CNDDB occurrences near Coolwater-Lugo area.
Fish Slough milk-vetch (*Astragalus lentiginosus* var. *piscinensis*)	FT, 1B.1	Occurs in alkaline playas at elevations of 1,130–1,300 meters. Known blooming period is June–July.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Big Bear Valley milk-vetch (*Astragalus lentiginosus* var. *sierrae*)	1B.2, USFS	Found in Mojavean desert scrub, meadows and seeps, pinyon/juniper woodland, and upper montane coniferous forest habitat with gravelly or rocky soils. Found at elevations of 1,800–2,600 meters. Known blooming period is April–August.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Tidestrom's milk-vetch (*Astragalus tidestromii*)	2.2	Occurs on sandy or gravelly soils of Mojavean desert scrub at elevations of 600–1,585 meters. Known blooming period is April–July.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
triple ribbed milk-vetch (*Astragalus tricarinatus*)	FE, 1B.2, USFS	Found in Joshua tree woodland and Sonoran desert scrub habitats with sandy or gravelly soils. Occurs at elevations from 450–1,190 meters Known blooming period is February–May.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Pahrump orache (*Atriplex argentea* var. *longitrichoma*)	1.B1, BLM	Found in disturbed areas of Mojavean desert scrub habitat with alkaline soils. Known blooming period is April–May.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Parish's brittlescale (*Atriplex parishii*)	1B.1, USFS	Occurs in disturbed areas of Mojavean desert scrub with alkaline soils at elevations from 700–850 meters. Known blooming period is April–May.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Harrison's barberry (*Berberis harrisoniana*)	1B.2, BLM	Usually found on north-facing talus slopes of chaparral and Mojavean desert scrub.	Low	No CNDDB occurrences near Coolwater-Lugo area. No suitable habitat in Coolwater-Lugo area.
pinyon rock cress (*Boechera dispar*)	2.3	Occurs in Joshua tree woodland, Mojavean desert scrub, and pinyon/juniper woodland habitats with granitic, gravelly soils at elevations of 1,200–2,540 meters. Known blooming period is March–June.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
Shockley's rock-cress (*Boechera shockleyi*)	2.2, USFS	Found in pinyon/juniper woodlands with rocky or gravelly soils at elevations of 875–2,310 meters. Known blooming period is May–June.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
alkali mariposa lily (*Calochortus striatus*)	1B.2, BLM, USFS	Found in mesic chaparral, chenopod scrub, Mojavean desert scrub, meadows, and seeps with alkaline soils. Found at elevations of 70–1,595 meters. Known blooming period is April–June.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
Booth's evening primrose (*Camissonia boothii* ssp.*boothii*)	2.3	Occurs in Joshua tree woodland and pinyon and juniper woodland. Found at elevations ranging from 900–2400 meters. Known blooming period is April–September.	High	Observed within Coolwater-Lugo area. Suitable habitat present within Coolwater-Lugo area.
white pygmy-poppy (*Canbya candida*)	4.2, USFS	Found in sandy places in Joshua tree woodland, Mojavean scrub, and pinyon/juniper woodland. Mojave desert adjacent to the Sierra Nevada Found at elevations of 610–1,200 meters. Known blooming period is April–September.	High	Numerous CNDDB occurrences within Coolwater-Lugo area. Suitable habitat present within Coolwater-Lugo area.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
crucifixion thorn (*Castela emoryi*)	2.3	Occurs in areas of Mojavean desert scrub, playas, Sonoran desert scrub habitats with gravelly soils. Found at elevations of 90–670 meters. Known blooming period is April–September.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
ashgray Indian paintbrush (*Castilleja cinerea*)	FT, 1B.2, USFS	Found in openings within Mojavean desert scrub, meadows, seeps, pebble (pavement) plain, pinyon/juniper woodland, and upper montane coniferous forest habitats with clay soils at elevations of 1,800–2,960 meters. Known blooming period is June–August.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Wheeler's skeletonweed (*Chaetadelpha wheeleri*)	2.2	Occurs in desert dunes, Great Basin scrub, and Mojavean desert_scrub habitats with sandy soils at elevations of 850–1,900 meters. Known blooming period is April–September.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Tecopa bird's beak (*Chloropyron tecopense*)	1B.2	Found in mesic Mojavean desert scrub, meadows, and seeps with alkaline soils. Found at elevations of 60–900 meters. Known blooming period is July–October.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
white bracted spineflower (*Chorizanthe xanti* var. *leucotheca*)	1B.2, BLM	Found in coastal scrub, Mojavean desert scrub, Pinyon/juniper woodland habitats with sandy or gravelly soils at elevations of 300–1,200 meters. Known blooming period is April–June.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Hall's meadow hawksbeard (*Crepis runcinata* ssp. *hallii*)	2.1	Found in mesic areas of Mojavean desert scrub and pinyon/ juniper woodland habitats with alkaline soils at elevations of 1,250–1,978 meters. Known blooming period is May–June.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Clokey's cryptantha (*Cryptantha clokeyi*)	1B.2, BLM	Found in Mojavean desert scrub habitat at elevations of 725–1,365 meters. Known blooming period is April.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
desert cymopterus (*Cymopterus deserticola*)	1B.2, BLM	Found in Joshua tree woodland and Mojave desert scrub habitats with sandy soils. Occurs at elevations of 630–1,500 meters. Known only to occur in Kern, Los Angeles, and San Bernardino Counties. Known blooming period is March–May.	Low	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
Arizona cymopterus (*Cymopterus multinervatus*)	2.2	Found in Mojavean desert scrub, pinyon/juniper woodland habitats with sandy or gravelly soils at elevations of 790–1,800 meters. Known blooming period is March–April.	High	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
San Bernardino Mountains dudleya (*Dudleya abramsii* ssp.*affinis*)	1B.2, USFS	Found in pebble (pavement) plain, pinyon/juniper woodland, and upper montane coniferous forest habitats with granitic or carbonate soils at elevations of 1,250–2,600 meters. Known blooming period is April–June.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Howe's hedgehog cactus (*Echinocereus engelmannii* var. *howei*)	1B.1, BLM	Found in Mojavean desert scrub habitat at elevations of 430–775 meters. Known blooming period is April–May.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Big Bear Valley sandwort (*Eremogone ursina*)	FT, 1B.2, USFS	Occurs in mesic, rocky areas within meadows, seeps, pebble (pavement) plain, pinyon/juniper woodland at elevations of 1,800–2,900 meters. Known blooming period is May–August.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Harwood's eriastrum (*Eriastrum harwoodii*)	1B.2, BLM	Occurs in desert dunes at elevations of 200–915 meters. Known blooming period is March–June.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Parish's daisy (*Erigeron parishii*)	FT, 1B.1, USFS	Found in Mojavean desert scrub and pinyon/juniper woodland habitats at elevations of 800–2,000 meters. Known blooming period is May–August.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
limestone daisy (*Erigeron uncialis* var. *uncialis*)	1B.2, USFS	Found in Great Basin scrub, pinyon/juniper woodland, and subalpine coniferous forest habitats at elevations of 1,900–2,900 meters. Known blooming period is May–July.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*)	FE, 1B.1, USFS	Found in Joshua tree woodland, Mojavean desert scrub, and pinyon/ juniper woodland habitats. Found at elevations of 1,400–2,440 meters. Known blooming period is May–August.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
Thorne's buckwheat (*Eriogonum thornei*)	SE, 1B.2, BLM	Occurs in pinyon/juniper woodlands with gravelly soils at elevations of 1,800–1,830 meters. Known blooming period is July–August.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Barstow woolly sunflower (*Eriophyllum mohavense*)	1B.2, BLM	Occurs in desert dunes, great basin scrub, and Sonoran desert scrub. Found at elevations of 500–960 meters. Known blooming period is March–May.	High	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
pungent glossopetalon (*Glossopetalon pungens*)	1B.2, BLM	Found in chaparral and pinyon/juniper woodland habitats with carbonate soils at elevations of 1,675–2,000 meters. Known blooming period is May–June.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Jaeger's ivesia (*Ivesia jaegeri*)	1B.3, BLM	Found in pinyon/juniper woodland and upper montane coniferous forest habitats with carbonate, or rocky soils at elevations of 1,830–3,600 meters. Known blooming period is June–July.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Kingston Mountains ivesia (*Ivesia patellifera*)	1B.3	Occurs in pinyon and juniper woodland with rock soils at elevations of 1,400–2,100 meters. Species is only known from San Bernardino County. Known blooming period is June–October.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
hillside wheat grass (*Leymus salinus* ssp. *mojavensis*)	2.3	Found in rocky areas of pinyon and juniper woodlands at elevations of 1,350–2,135 meters. Known blooming period is May–June.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Baldwin Lake linanthus (*Linanthus killipii*)	1B.2, USFS	Found in Joshua tree woodland, meadows and seeps, pebble (pavement) plain, and pinyon/juniper woodland habitats at elevations of 1,700–2,400 meters. Known blooming period is May–July.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Little San Bernardino Mountains linanthus (*Linanthus maculatus*)	1B.2, BLM	Found in desert dunes, Joshua tree woodland, Mojavean desert scrub, and Sonoran desert scrub habitat. Occurs at elevations from 195–2,075 meters. Blooming period is March–May.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
sagebrush loeflingia (*Loeflingia squarrosa* var. *artemisiarum*)	2.2, BLM	Occurs in desert dunes, Great Basin scrub, and Sonoran desert scrub habitats with sandy soils Elevation range of species is 700–1,615 meters. Known blooming period is April–May.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Parish's desert thorn (*Lycium parishii*)	2.3	Found in coastal scrub and Sonoran desert scrub habitats at elevations of 305–1,000 meters. Known blooming period is March–April.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
spearleaf (*Matelea parvifolia*)	2.3, USFS	Occurs in rocky areas of Mojavean desert scrub and Sonoran desert scrub habitats at elevations of 440–1,095 meters. Known blooming period is March–May.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Mojave menodora (*Menodora spinescens* var. *mohavensis*)	1B.2	Occurs on Andesite gravel, rocky hillsides, and canyons in Mojavean desert scrub. Found at elevations of 690–2,000 meters. Species is only known from 13 occurrences in San Bernardino and Riverside Counties. Known blooming period is April-May.	High	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
polished blazingstar (*Mentzelia polita*)	1B.2, BLM	Found in Mojavean desert scrub with carbonate soils at elevations of 1,200–1,500 meters. Known blooming period is April–May.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Argus blazing star (*Mentzelia puberula*)	2.2	Found in Mojavean desert scrub and Sonoran desert scrub habitats with sandy or rocky soils at elevations of 90–1,280 meters. Known blooming period is March–May.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
spinyhair blazing star (*Mentzelia tricuspis*)	2.1	Known to occur in sandy, gravelly slopes, and washes of Mojavean desert scrub. Found at elevations of 150–1,280 meters. Known blooming period is March–May.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
threetooth blazing star (*Mentzelia tridentata*)	1B.3, BLM	Occurs in rocky, gravelly, and sandy areas of Mojavean desert scrub. Found at elevations of 700–1,160 meters. Known blooming period is March–May.	High	Numerous CNDDB occurrences within Coolwater-Lugo area. Suitable habitat present within Coolwater-Lugo area.
San Bernardino Mountains monkeyflower (*Mimulus exiguus*)	1B.2, USFS	Found on sandy or gravelly soils, often in washes, of Joshua tree woodland, and Mojavean desert scrub habitats. Occurs at elevations of 600–1,200 meters. Known blooming period is May–July.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Mojave monkeyflower (*Mimulus mohavensis*)	1B.2, BLM	Found on sandy or gravelly soils, often in washes, of Joshua tree woodland, and Mojavean desert scrub habitats. Occurs at elevations of 600–1,200 meters. Known blooming period is April–June.	High	Numerous CNDDB occurrences within Coolwater-Lugo area. Suitable habitat present within Coolwater-Lugo area.
Boyd's monardella (*Monardella boydii*)	1B.2	Found in Mojavean desert scrub, pinyon/juniper woodland and riparian scrub habitats. Usually occurs in alluvial soils and cracks of bedrock in washes on canyon bottoms and rocky slopes at elevations of 1,400–1,650 meters. Known blooming period is August-October.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Robinson's monardella (*Monardella robisonii*)	1B.3	Occurs in pinyon/juniper woodland habitat. Found at elevations of 610–1,500 meters. Known blooming period is February–October.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
appressed muhly (*Muhlenbergia appressa*)	2.2	Found in rocky areas of coastal scrub, Mojavean desert scrub, and valley/foothill grassland habitats at elevations of 20–1,600 meters. Known blooming period is April–May.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
Baja navarretia (*Navarretia peninsularis*)	USFS	Occurs in mesic areas with openings within chaparral, lower montane coniferous forest, meadows and seeps, and pinyon/juniper woodland at elevations of 1,500–2,300 meters. Known blooming period is June–August.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Amargosa niterwort (*Nitrophila mohavensis*)	FE, SE	Occurs in playas (mesic, clay). Found at elevations of 425–750 meters. Known blooming period is May–October.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
short-joint beavertail (*Opuntia basilaris* var. *brachyclada*)	1B.2, USFS	Occurs in chaparral, Joshua tree woodland, pinyon/juniper woodland, and Mojavean desert scrub habitats. Found at elevations of 1,225–2,300 meters. Known blooming period is April–August.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Rock Creek broomrape (*Orobanche valida* ssp.*valida*)	1B.2, USFS	Found in chaparral, pinyon/juniper woodland habitats with granitic soils at elevations of 1,250–2,000 meters. Known blooming period is May–September.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
San Bernardino ragwort (*Packera bernardina*)	1B.2, USFS	Found in mesic areas of meadows and seeps, pebble (pavement) plain, and upper montane coniferous forest habitats at elevations of 1,800–2,300 meters. Known blooming period is May–July.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Indian breadroot (*Pediomelum castoreum*)	1B.2, BLM	Occurs on sandy soils of washes and road cuts of Joshua tree woodland and Mojavean desert scrub habitats. Found at elevations of 610–1,525 meters. Known blooming period is April–May	High	Numerous CNDDB occurrences within Coolwater-Lugo area. Suitable habitat present within Coolwater-Lugo area.
white margined beardtongue (*Penstemon albomarginatus*)	1B.1	Occurs in desert dunes and Mojavean desert scrub habitats with sandy soils. Found at elevations of 640–1,065 meters. Known blooming period is March–May.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
pinto beardtongue (*Penstemon bicolor* ssp. *roseus)*	1B.1, BLM	Occurs in rocky or gravelly, sometimes disturbed areas of Joshua tree woodland and Mojavean desert scrub habitats at elevations of 700–1,500 meters. Known blooming period is May.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Death Valley beardtongue (*Penstemon fruticiformis* var. *amargosae*)	1B.3	Found in Mojavean desert scrub habitat at elevations of 850–1,400 meters. Known blooming period is April–June.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Stephens' beardtongue (*Penstemon stephensii*)	1B.3	Found in Mojavean desert scrub and pinyon/ juniper woodland habitat with rocky soils. Occurs at elevations of 1,160–1,850 meters. Known blooming period is April–June.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Death Valley sandpaper plant (*Petalonyx thurberi* ssp.*gilmanii*)	1B.3	Occurs in desert dunes and Mojavean desert scrub habitats. Found at elevations of 260–1,445 meters. Known blooming period is May–September.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Death Valley round leaved phacelia (*Phacelia mustelina*)	1B.3, BLM, USFS	Found in Mojavean desert scrub and pinyon/juniper woodland habitats with gravelly or rocky soils at elevations of 730–2,620 meters. Known blooming period is May–July.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Parish's phacelia (*Phacelia parishii*)	1B.1, BLM	Found in Mojavean desert scrub and playa habitats with clay or alkaline soils. Occurs at elevations of 540–1,200 meters. Known blooming period is April–July.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Parish's popcorn flower (*Plagiobothrys parishii*)	1B.1	Occurs on alkaline, mesic areas of Great Basin scrub and Joshua tree woodland habitats at elevations of 750–1,400 meters. Known blooming period is March–November.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Latimer's woodland gilia (*Saltugilia latimeri*)	1B.2, BLM, USFS	Found in chaparral, Mojavean desert scrub, and pinyon and juniper woodland habitats with rocky or sandy soils at elevations of 400–1,900 meters. Known blooming period is March–June.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Rusby's desert-mallow (*Sphaeralcea rusbyi* var. *eremicola*)	1B.2, BLM	Found in Joshua tree woodland and Mojavean desert scrub habitats at elevations of 975–1,645 meters. Known blooming period is March–June.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
southern jewel flower (*Streptanthus campestris*)	1B.3, USFS	Found in rocky areas of chaparral, lower montane coniferous forest, and pinyon and juniper woodland habitats at elevations of 900–2300 meters. Known blooming period is April–July.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
rigid fringepod (*Thysanocarpus rigidus*)	1B.2, BLM	Occurs on dry, rocky slopes of pinyon and juniper woodlands at elevations of 600–2,200 meters. Known blooming period is February–May.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.

Table 4.4-2 Special-status Plant Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
jackass clover (*Wislizenia refracta* ssp. *refracta*)	2.2	Found in desert dunes, Mojavean desert scrub, playas, and Sonoran desert scrub habitat at elevations of 600–800 meters. Known blooming period is April–November.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.

Key:

CNDDB = California Natural Diversity Database

BLM = Bureau of Land Management listed as Sensitive
USFS = United States Forest Service Sensitive
FE = Federally listed as Endangered
FT = Federal listed as Threatened
FC = Federal candidate for listing under the Endangered Species Act
FD = Federally delisted
FPE = Federally proposed for listing as Endangered
FPT = Federally proposed for listing as Threatened
SC = State proposed for listing
SE = State-listed as Endangered
ST = State-listed as Threatened
SWL= California Department of Fish and Wildlife (CDFW) Watch List Species
SSC = California Department of Fish and Wildlife (CDFW) Species of Special Concern
SFP = California Department of Fish and Wildlife (CDFW) Fully Protected Species
SR = State Rare
BCC= U.S. Fish and Wildlife Service_ Birds of Conservation Concern
California Native Plant Society System:
1A = Presumed extinct in California
1B = Rare or Endangered in California and elsewhere
2 = Rare or Endangered in California, more common elsewhere
3 = Plants for which we need more information – Review list
4 = Plants of limited distribution - Watch list
.1 = Seriously endangered in California (over 80% of occurrences threatened)
.2 = Fairly endangered in California (20–80% occurrences threatened)
.3 = Not very endangered in California (<20% of occurrences threatened or no current threats known

Most special-status plant species known to occur within the Coolwater-Lugo area were not encountered during surveys; potentially because of the very low rainfall in both survey years and because surveys could not be timed to coincide with the blooming period for all plant species. Only one special-status plant species, Booth's evening-primrose (*Camissonia boothii* ssp.*boothii*), was observed during the survey along Proposed Transmission Line Segment 7 on the east side of the Mojave River. No special-status species were observed during surveys in 2013.

Special-status Wildlife

Special-status wildlife species with the potential to occur in the Coolwater-Lugo area are listed in Table 4.4.3, *Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area*, along with their habitat suitability and assessment of their potential to occur within the Coolwater-Lugo area. Eight special-status species were determined to have a high likelihood of occurring within the Coolwater-Lugo area and 14 special-status species were determined to have a medium likelihood of occurring within the Coolwater-Lugo area. Of these species, 10 were observed during surveys. Special-status species observed included desert tortoise, Cooper's hawk, golden eagle, burrowing owl, Swainson's hawk, prairie falcon, loggerhead shrike, Bendire's thrasher, Le Conte's thrasher, and coast horned lizard.

Based on observations or assessed potential for special-status species to occur, focused surveys were performed and their results are summarized below. Complete copies of each survey are included in Appendix D.

Avian Focused Survey

Nesting birds are protected under the MBTA and the FGC and could be impacted by Coolwater-Lugo activities. The avian community within the Coolwater-Lugo area is diverse. A total of 46 avian species were observed during this study. Of these, 41 were native species, 33 of which are anticipated to nest in the Coolwater-Lugo area. Detailed avian survey results can be found in the Focused Avian Survey Report (Appendix D).

Burrowing Owl Focused Survey

Burrowing owl is a year-long resident of open desert habitats. The burrowing owl surveys identified presence of the species within the Survey Area. Seven adult burrowing owls were sighted and 72 burrows were documented. Burrows were positively identified as burrowing owl based on their association with owl sign (whitewash, pellets, and feathers). Burrowing owls or their burrows were observed along all Proposed Segments and Alternative Segments except Alternative Transmission Line Segment 6 and Proposed Transmission Line Segment 7. The results of the survey suggest that burrowing owls are breeding and foraging within the Coolwater-Lugo area.

This page is intentionally blank.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Invertebrates				
Andrew's marble butterfly (*Euchloe hyantis andrewsi*)	None	Occurs in rocky canyons, cliffs, moraines, gravelly flats of lower montane coniferous forest.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
westfork shoulderband (*Helminthoglypta taylori*)	None	Found in riparian woodland habitat	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
simple hydroporus diving beetle (*Hydroporus simplex*)	None	Found in aquatic areas, primarily flowing water.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
desert monkey grasshopper (*Psychomastax deserticola*)	None	Found in primarily in areas dominated by chaparral.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Fish Slough springsnail (*Pyrgulopsis perturbata*)	None	Found in aquatic areas, primarily flowing water of the Great basin.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Fish				
Amargosa river pupfish (*Cyprinodon nevadensis amargosae*)	BLM, SSC	Found only in deep and shallow springs and seeps of desert wetlands of the Ash Meadows region.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Owens pupfish (*Cyprinodon radiosus*)	FE, SE, SFP	Found in pools and shallow, clear, warm (about 10–25°C) sloughs, spring pools, irrigation ditches, marshes with emergent bulrushes and Chara mats, and flooded pastures along the Owens River.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*)	FE, SE, SFP	Found along warm, shallow water areas with dense emergent and bank vegetation of slow-moving streams of the Santa Clara, Los Angeles, San Gabriel, and Santa Ana Rivers.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
arroyo chub (*Gila orcuttii*)	SSC, USFS	Found primarily in warm streams of the Los Angeles Plain. Inhabits sandy and muddy bottoms in flowing pools and runs of headwaters creeks and small to medium rivers generally deeper than 40 cm. Often found in intermittent streams.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Amargosa Canyon speckled dace (*Rhinichthys osculus* ssp.*1*)	BLM, SSC	Inhabits small, clear streams with pool-like habitat characterized by deep pools (0.45–0.75 m), and slow-moving water and fine sand/silt substrates. Preferred water temperatures of 21–28°C.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Owens speckled dace (*Rhinichthys osculus* ssp. *2*)	SSC	Occupies a variety of habitats ranging from small coldwater streams, hot-spring systems, and irrigation ditches.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Santa Ana speckled dace (*Rhinichthys osculus* ssp. *3*)	SSC, USFS	Found in small, shallow, permanent flowing streams with summer water and shallow cobble and gravel riffles, which flow through a steep, rocky canyon with chaparral-covered walls. Overhanging riparian plants, mainly alders and sedges.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Mohave tui chub (*Siphateles bicolor mohavensis*)	FE, SE, SFP	Found within deep pools and slough-like areas of the Mojave River. This species is only known to occur at three sites in Soda Springs and Lake Tuendoe.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Owens tui chub (*Siphateles bicolor snyderi*)	FE, SE	Inhabits streams with low current, muddy bottom, and dense aquatic vegetation providing adequate cover and food supply. Elements of the habitat include high-quality, cool water; adequate cover; undercut banks; or aquatic vegetation, and a sufficient insect food base.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Amphibians				
arroyo toad (*Anaxyrus californicus*)	FE, SSC	Found in semi-arid regions near washes or intermittent streams. Habitats used include valley-foothill and desert riparian as well as a variety of more arid habitats including desert wash, palm oasis, and Joshua tree, mixed chaparral, and sagebrush. Often found near rivers with sandy banks, willows, cottonwoods, and sycamores in valley-foothill and desert riparian habitats. Found in loose gravelly areas of streams in drier portions of its range.	High	Numerous CNDDB occurrences within Coolwater-Lugo area. Suitable habitat present within Coolwater-Lugo area.
San Gabriel slender salamander (*Batrachoseps gabrieli*)	USFS	Occurs on talus slopes surrounded by a variety of conifer and montane hardwood species, including big cone spruce, pine, white fir, incense cedar, canyon live oak, black oak, and California laurel.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
large-blotched salamander (*Ensatina eschscholtzii klauberi*)	SSC, USFS	Occurs in moist areas of forested habitats in the San Bernardino, San Gabriel, San Jacinto and Transverse mountains of Southern California.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
California red-legged frog (*Rana draytonii*)	FT, SSC	Generally found in riparian woodland and aquatic habitats with heavily vegetated areas of streams and ponds from sea level to 1,500 meters.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Sierra Madre yellow-legged frog (*Rana muscosa*)	FE, SC, SSC, USFS	Occurs in areas associated with rocky streams, lakes, and ponds in montane riparian, lodge pole pine, subalpine conifer, and wet meadow habitats. In Southern California, populations are restricted to streams in ponderosa pine, montane hardwood-conifer, and montane riparian habitats.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
Pacific pond turtle (*Actinemys marmorata*)	BLM, SFP, USFS	Permanent and intermittent waters, including marshes, streams, rivers, ponds, and lakes.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range and no suitable habitat within Coolwater-Lugo area.
Reptiles				
silvery legless lizard (*Anniella pulchra pulchra*)	SSC, USFS	Warm lose soil with plant cover. Moisture is essential for the habitat.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.
coastal whiptail (*Aspidoscelis tigris stejnegeri*)	None	Hot and open areas with sparse foliage. Chaparral, woodlands, and riparian corridors.	Low	No CNDDB occurrences near Coolwater-Lugo area. Coolwater-Lugo is outside of species range.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
rosy boa (*Lichanura trivirgata*)	USFS	Species inhabits coastal sage scrub and chaparral-dominated communities that contain large rocks and boulders for cover and refuge. Generally found near permanent or intermittent streams. Occur from sea level to 2,070 meters.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
desert tortoise (*Gopherus agassizii*)	FE, SE	A desert species found in arid sandy or gravelly locations along riverbanks, washes, sandy dunes, creosote flats/hillsides, and rocky hillsides. In California, tortoises are found throughout the Mojave Desert.	High	Numerous CNDDB occurrences within Coolwater-Lugo area. Suitable habitat present within Coolwater-Lugo area.
coast horned lizard (Phrynosoma blainvillii)	BLM, SSC, USFS	Species requires loose, fine soils with a high sand fraction, abundance of native ants or other insects, open areas with limited overstory for basking, and areas with low, dense shrubs for refuge. Elevational range is 10–2,130 meters.	High	Numerous CNDDB occurrences within Coolwater-Lugo area. Suitable habitat present within Coolwater-Lugo area.
two-striped garter snake (*Thamnophis hammondii*)	BLM, SSC, USFS	Generally found near permanent freshwater with rocky substrates. Also mountain slopes and desert oases.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Mojave fringe-toed lizard (*Uma scoparia*)	BLM, SSC	Species is restricted to fine, loose, wind-blown deposits in sand dunes, dry lakebeds, riverbanks, desert washes, and sparse alkali scrub and desert shrub habitats. Elevational range extends from near sea level up to 1000 meters.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Birds				
Cooper's hawk (*Accipiter cooperii*)	SWL	Breeds in areas of dense stands of live oak, riparian deciduous, or other forest habitats near water.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
tricolored blackbird (*Agelaius tricolor*)	SSC, BLM, BCC	Fresh water marshes of cattails.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
golden eagle (*Aquila chrysaetos*)	BLM, SWL, SFP, BCC	Generally open country, prairies, tundra, open wooded country, and hilly or mountainous regions.	Medium	Potential suitable habitat present within Coolwater-Lugo area.
long-eared owl (*Asio otus*)	SSC	Frequents dense, riparian and live oak thickets near meadow edges, and nearby woodland and forest habitats. Also found in dense conifer stands at higher elevations. Winters in the desert habitats.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
burrowing owl (*Athene cunicularia*)	BLM, SSC, BCC	Found mainly in grassland and open scrub from the seashore to foothills. Strongly associated with ground squirrel burrows.	High	Numerous CNDDB occurrences within Coolwater-Lugo area. Suitable habitat present within Coolwater-Lugo area.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Swainson's hawk (*Buteo swainsoni*)	ST, BLM, USFS	Forages in open grasslands, agricultural areas, sparse shrublands, and small open woodlands. Nests in scattered trees within grasslands, shrublands, or agricultural landscapes.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	FC, SE, BLM, USFS	Found in valley foothill and desert riparian habitats. Typically in areas of densely foliaged, deciduous trees and shrubs, especially willows, required for roosting sites.	Low	Potential suitable habitat present within Coolwater-Lugo area. CNDDB occurrences near Coolwater-Lugo area.
Brewster's yellow warbler (*Setophaga petechia brewsteri*)	SSC, BCC	Breeds in mature riparian woodlands consisting cottonwood, willow, alder, and ash trees.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
white-tailed kite (*Elanus leucurus*)	SFP	Savanna, open woodland, marshes, and open agriculture lands.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
southwestern willow flycatcher (*Empidonax traillii extimus*)	FE, SE	Riparian woodlands with current or evidence of recent water flow and scouring. Riparian corridors must be at least 33 feet wide, closed canopy, relatively dense understory, and open mid-story.	Low	No potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
prairie falcon (*Falco mexicanus*)	SWL, BCC	Found in annual grasslands to alpine meadows, but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Requires sheltered cliff ledges for cover and nesting.	High	Numerous CNDDB occurrences within Coolwater-Lugo area. Suitable habitat present within Coolwater-Lugo area.
bald eagle (*Haliaeetus leucocephalus*)	FD, SE, BLM, SFP, USFS	Breeding areas are usually found by water.	Low	No potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
yellow-breasted chat (*Icteria virens*)	SSC	Found in valley foothill riparian, and desert riparian habitats. Requires riparian thickets of willow and other brushy tangles near watercourses for cover.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
loggerhead shrike (*Lanius ludovicianus*)	SSC, BCC	Breeds in areas of scrub and annual grasslands with scattered shrubs for nesting.	High	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
California black rail (*Laterallus jamaicensis coturniculus*)	ST, BLM, SSC, BCC, SFP	High coastal marshes, freshwater marshes.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Gila woodpecker (*Melanerpes uropygialis*)	SE, BLM, BCC	Deserts that have large cacti or suitable trees for nesting, riparian woodlands, and residential areas.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Lucy's warbler (*Oreothlypis luciae*)	SSC, BCC	Riparian mesquite woodlands.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
summer tanager (*Piranga rubra*)	SSC	Occurs in mature, desert riparian habitat dominated by cottonwoods and willows. Cottonwoods and willows, especially older, dense stands along rivers and streams, provide nesting, feeding cover.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
vermilion flycatcher (*Pyrocephalus rubinus*)	SSC	Found in desert scrub, savanna, riparian woodlands.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Bendire's thrasher (*Toxostoma bendirei*)	BLM, SSC, BCC	Occurs in areas of desert succulent shrub and Joshua tree habitats in Mojave Desert area. Frequents flat desert areas with scattered stands of thorny shrubs and cactus for cover, foraging, and nesting.	High	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
Le Conte's thrasher (*Toxostoma lecontei*)	SSC, BCC	Occurs in open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats; also occurs in Joshua tree habitat with scattered shrubs.	High	Numerous CNDDB occurrences within Coolwater-Lugo area. Suitable habitat present within Coolwater-Lugo area.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
least Bell's vireo (*Vireo bellii pusillus*)	FE, SE	Found in areas of valley foothill riparian habitat and along the western edge of the deserts in desert riparian habitat. Thickets of willow and other low shrubs afford nesting and roosting cover.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
gray vireo (*Vireo vicinior*)	BLM , SSC, BCC	Found in arid pinyon-juniper, and juniper, woodlands and chaparral habitats from 600–2,000 meters.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
Mammals				
pallid bat (*Antrozous pallidus*)	BLM, USFS, SSC	Arid deserts and grasslands, and often near rock outcrops and water.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*)	SSC	Deserts and coastal habitats.	High	Numerous CNDDB occurrences within Coolwater-Lugo area. Suitable habitat present within Coolwater-Lugo area.
Townsend's big-eared bat (*Corynorhinus townsendii*)	BLM, SSC, USFS	Occurs in sandy herbaceous areas, with rocks or coarse gravel. Found in coastal scrub, chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland habitats.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
spotted bat (*Euderma maculatum*)	BLM, SSC	Found in various habitats, open ponderosa pine forests, pinyon/juniper woodlands, canyon bottoms, and agriculture land.	Low	Potential suitable habitat present wihin Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
western mastiff bat (*Eumops perotis californicus*)	BLM, SSC	Occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
San Bernardino flying squirrel (*Glaucomys sabrinus californicus*)	SSC, USFS	White fir and Jeffery pine mixed conifer forests with black oak.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
silver-haired bat (*Lasionycteris noctivagans*)	None	Habitats include coastal and montane coniferous forests, valley foothill woodlands, pinyon-juniper woodlands, and valley foothill and montane riparian habitats. Range is generally below 2,750 meters. Roosts in hollow trees, snags, buildings, rock crevices, and caves, and under bark.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
California leaf-nosed bat (*Macrotus californicus*)	BLM, USFS, SSC	Lowland desert scrub.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
western small-footed myotis (*Myotis ciliolabrum*)	BLM	Normally inhabits deserts and semi-arid habitats, and chaparral.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
long-eared myotis (*Myotis evotis*)	BLM	Broad range of mixed forests and woodlands, areas with rock outcrops, meadows, and riparian corridors.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
fringed myotis (*Myotis thysanodes*)	BLM	Deserts, grasslands, and woodland habitats.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
cave myotis (*Myotis velifer*)	BLM, SSC	Deserts and grasslands. Also found in areas of water.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
long-legged myotis (*Myotis volans*)	None	Usually found in montane coniferous forest, also deserts and riparian areas.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
Yuma myotis (*Myotis yumanensis*)	BLM	Desert, conifer forest, grasslands, chaparral, and urban areas, and found by water.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
lodge pole chipmunk (*Neotamias speciosus speciosus*)	None	Open mixed coniferous and forests mixed with chaparral, forests of lodge pole pine, Jeffery pine, and red fir. Found in some meadow areas.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
Nelson's bighorn sheep (*Ovis canadensis nelsoni*)	BLM, USFS	Steep rocky terrain above desert floors.	Low	Potential suitable habitat present within Coolwater-Lugo area. No CNDDB occurrences near Coolwater-Lugo area.
white-eared pocket mouse (*Perognathus alticolus alticolus*)	SSC, BLM	Desert, shrubland/chaparral, coniferous woodlands.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
Los Angeles pocket mouse (*Perognathus longimembris brevinasus*)	SSC, USFS	Deserts with sandy soils, arid grasslands, and coastal sage scrub.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.

Table 4.4-3 Special-status Wildlife Species with the Potential to Occur in the Coolwater-Lugo Area

Scientific Name	Listing	Habitat Description	Likelihood to Occur within Coolwater-Lugo area	Known or Potential Occurrence Determination
American badger (*Taxidea taxus*)	SSC	Coastal sage scrub, mixed chaparral, grassland, oak woodland, chaparral, mixed conifer, pinyon-juniper, desert scrub, desert wash, montane meadow, and open areas, with sandy soils.	Medium	CNDDB occurrences and suitable habitat present within Coolwater-Lugo area.
Mohave ground squirrel (*Xerospermophilus mohavensis*)	ST, BLM	Mojave desert scrub, alkali scrub, and Joshua tree woodland between 1,800–5,000 feet. Sandy to gravelly soils.	Medium	Numerous CNDDB occurrences within Coolwater-Lugo area. Suitable habitat present within Coolwater-Lugo area.

Key:

CNDDB = California Natural Diversity Database

BLM = Bureau of Land Management listed as Sensitive
USFS = United States Forest Service Sensitive
FE = Federally listed as Endangered
FT = Federal listed as Threatened
FC = Federal candidate for listing under the Endangered Species Act
FD = Federally delisted
FPE = Federally proposed for listing as Endangered
FPT = Federally proposed for listing as Threatened
SC = State proposed for listing
SE = State-listed as Endangered
ST = State-listed as Threatened
SWL= California Department of Fish and Wildlife (CDFW) Watch List Species
SSC = California Department of Fish and Wildlife (CDFW) Species of Special Concern
SFP = California Department of Fish and Wildlife (CDFW) Fully Protected Species
SR = State Rare
BCC= U.S. Fish and Wildlife Service_ Birds of Conservation Concern

This page is intentionally blank.

Desert Tortoise Focused Survey

A total of 57 desert tortoises were observed during the surveys. Most tortoises were discovered in their burrows, probably due to high temperatures. Only 11 tortoises were discovered outside of burrows. Predictably, most of the tortoises observed out of their burrows were documented in the morning when temperatures were still low. Three tortoises were discovered out of their burrow around noon or later. Two tortoises were seeking shelter under the shade of bushes and one was located at its burrow entrance. These observations were made during the months of May through July.

A total of 729 potential desert tortoise burrows were observed during the surveys. Burrows were described using the USFWS condition classification. Of the burrows discovered, 77 were definitely active desert tortoise burrows (class 1); 267 burrows were definitely tortoise but showed no sign of recent use (class 2). The remaining burrows were either collapsed tortoise burrows or were not definitely tortoise burrows but had the potential to be used by tortoises (classes 3, 4, and 5). Overwhelmingly, the greatest concentration of active tortoise burrows was discovered along Proposed Transmission Line Segment 1. However, burrows were also found along Segments 2, 3, 4, 5, 8, 9, and 10, and the Gale to Pisgah Telecommunication Route. Higher concentrations of burrows were found in areas where live tortoises were also discovered. Older burrows were discovered within in the historical range of desert tortoise but without any sign of live tortoise.

Desert tortoise carcasses were described using the USFWS condition classification. A total of 374 desert tortoise carcasses were documented during the surveys. Only 11 carcasses were rated as class 1 or 2, which indicates that death likely occurred within the last year. The cause of death was not always easily discernible, but the majority of carcasses lacked visible trauma and therefore indicate either disease or exposure as the most likely cause of death. Evidence of predation by both ravens and canine species was observed although it is not always possible to conclude whether these predators simply scavenged on an already deceased tortoise or if predation was the actual cause of death. The remaining carcasses were rated class 3, 4, or 5, indicating that death occurred a year or more ago.

To determine the abundance of desert tortoises within the Coolwater-Lugo area, the data from the survey were used to calculate the 95 percent confidence intervals in accordance with USFWS protocol (USFWS 2010). The confidence interval gives an estimated range of values. The wider the confidence interval, the less certainty is associated with the estimate. Based on the calculations, the number of desert tortoises associated with the Coolwater-Lugo area is 36.

Herpetological Focused Survey

Based on a search of the CNDDB, four special-status species are documented to occur and/or have potential habitat in Coolwater-Lugo area. These species are desert tortoise, arroyo toad, coast horned lizard, and Mojave fringe-toed lizard. Desert tortoise and arroyo toad are addressed separately in this document. A coast horned lizard was

observed along Alternative Transmission Line Segment 6. Mojave fringe-toed lizard was not observed during surveys. This species requires a very specific habitat type that is only found in portions of the Gale to Pisgah Telecommunication Route primarily around the Pisgah Substation and potentially in association with basalt flows east of Newberry Springs.

Mohave Ground Squirrel Focused Survey

Based on the CNDDB search, there is the potential for Mohave ground squirrel to occur within the Coolwater-Lugo area. However, there are no recent records or observations from the southern portion of its range, between Palmdale and Lucerne Valley, suggesting that Mohave ground squirrel may have been extirpated in this highly developed area (Laabs 2006). The southern boundary of this species generally follows the Mojave River. According to the results of the survey, the Proposed and Alternative Transmission Line Route and Telecommunication Routes contain suitable Mohave ground squirrel habitat. However, no incidental observations of Mohave ground squirrels were made during surveys. Most of the habitat along the Coolwater-Lugo alignment lies outside the Mohave ground squirrel's historic range.

Arroyo Toad

Suitable habitat for arroyo toad exists where Alternative Transmission Line Segment 6 and Proposed Transmission Line Segment 7 cross the Mojave River. Based on database searches and observation of habitat along the Coolwater-Lugo alignment, the arroyo toad was determined to have a high likelihood of occurrence within the area of the Mojave River. However, potentially due to low rainfall and survey timing (daytime hours), this species was not observed within the Coolwater-Lugo area during the 2012 or 2013 surveys in these locations. A single adult arroyo toad was found within known occupied habitat about 0.5 mile south of Segment 6. Segment 6 appears to support better habitat for the species (open water, vegetation, and substrate) than Segment 7. Reports reviewed for this survey suggest that the species occurred downstream at sites near Mojave Narrows and Oro Grande as recently as the 1970s. While arroyo toads were once common throughout portions of the West Fork Mojave, construction of Silverwood Lake in 1972 removed occupied habitat and altered local hydrology. The dams disrupt normal stream flow by impounding water and inundating breeding habitat, while encouraging the growth of riparian vegetation and favoring non-native species. The deep pools provide habitat for a number of non-native species that are detrimental to the continued existence of the arroyo toad and, as a result, the population north of Rancho Las Flores is considered unviable (USFWS 2009).

4.4.4 Significance Criteria

4.4.4.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to biological resources come from the CEQA Environmental Checklist. According to the checklist, a project causes a potentially significant impact if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridor, or impede the use of native wildlife nursery sites

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance

- Conflict with the provisions of an adopted Habitat Conservation Plan; Natural Community Conservation Plan; or other approved local, regional, or State habitat conservation plan

4.4.4.2 NEPA Analysis

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27).

4.4.5 Impact Analysis

Both direct and indirect impacts on biological resources have been evaluated. Direct impacts are those caused by a project and occur at the same time and place, including the initial loss of habitats or displacement resulting from construction-related activities. Indirect impacts are effects that are reasonably foreseeable and caused by a project, but occur at a different time or place. Indirect effects may induce: changes in the pattern of land use; population density or growth rate; and related effects on air, water, and other natural systems, including ecosystems. Generally, indirect impacts are those that would be related to impacts on the adjacent remaining habitat resulting from construction activities (e.g., noise, vibration, fugitive dust) or operation of Coolwater-Lugo (e.g., increased human activity, indirect lighting).

The actual and potential occurrence of biological resources in the Coolwater-Lugo vicinity was correlated with the significance criteria to determine whether impacts from Coolwater-Lugo on these resources would be significant.

As discussed in Chapter 3, *Project Description*, either the Proposed Project or the Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. There would be no differences in potential impacts on biological resources under the IBO and FBO scenarios; therefore, the following impact assessment applies to both scenarios for Desert View Substation. FBO of either the Proposed or the Alternative Desert View Substation would occur in the disturbance footprint established during the IBO of Desert View Substation construction; therefore, no disturbance of additional lands would be needed for the FBO of Desert View Substation.

4.4.5.1 CEQA Impact Assessment

Would the project have a substantial adverse effect, either directly or through habitat modifications on any species identified as a candidate, sensitive, or special-status species in local, or regional plans, policies, or regulations, or by the CDFW or USFWS?

Construction Impacts

Plant Species. Only one listed plant species was documented to occur in the Coolwater-Lugo area: Booth's evening primrose, in the vicinity of Alternative Transmission Line Segment 6. However, a total of 27 listed plant species were determined to have a "high" or "medium" likelihood of occurring within the Coolwater-Lugo area. Most of these species are annual and dependent on annual rainfall amounts and microhabitat conditions that can vary from year to year. Both survey years had below-average rainfall resulting in a very low annual bloom. Impacts to these special-status plant species from direct grading and construction activities would be avoided where possible; the potential of these impacts would be reduced to less than significant levels by incorporating applicant proposed measures ("APMs") BIO-1 through BIO-3. These measures would provide for the identification and flagging of sensitive species within the Coolwater-Lugo area so that construction crews will avoid working within the area (APM BIO-1), and observation and documentation of work activities to ensure that no sensitive species are impacted during construction (APM BIO-2). In addition, construction crews would be provided environmental training outlining Coolwater-Lugo biological concerns, construction crew responsibility, and best management practices ("BMPs") (APM BIO-3).

Wildlife Species. Ten special-status wildlife species were observed in the Coolwater-Lugo area: desert tortoise, Cooper's hawk, golden eagle, burrowing owl, Swainson's hawk, prairie falcon, loggerhead shrike, Bendire's thrasher, Le Conte's thrasher, and coast horned lizard (near Alternative Transmission Line Segment 6). Twenty-two additional special-status wildlife species were determined to have a "high" or "medium" potential to occur in the Coolwater-Lugo area.

Avian Species. Special-status avian species were documented to occur in the Coolwater-Lugo area and additional special-status avian and bat species are likely to occur in the Coolwater-Lugo area. Several of these species use the Coolwater-Lugo area as foraging habitat. The construction of Coolwater-Lugo may temporarily impact foraging

opportunities for these species. Although construction activities may discourage use of the area in the immediate vicinity of an active work site, this disruption in foraging is expected to be extremely localized and temporary in nature. While impacts to foraging habitat for these species may be considered adverse, the Proposed Project is not anticipated to substantially affect individuals or the overall populations of these species given the large area of potentially suitable foraging habitat in the immediate vicinity.

Much of the Coolwater-Lugo area consists of native habitat that is suitable to support bird nesting. Noise or vibration caused by construction-related activities for the Proposed Project could result in impacts to nesting birds, including potential disruption of nesting activity or destruction of active nests. Construction disturbance during the breeding season (generally February 1 through August 31; as early as January 1 for raptors) that results in the incidental loss of fertile eggs or nestlings, or otherwise leads to nest abandonment is considered take by USFWS under the MBTA, as well as by CDFW under FGCs 3503, 3503.5, and 3513. These potential impacts with respect to candidate, sensitive, or special-status avian species would be reduced to less than significant under CEQA by incorporating APM BIO-4.

APM BIO-4 would ensure that bird nests are identified prior to construction and that a sufficient construction avoidance buffer is established around active and/or raptor nests so that construction activities would not impact nest viability. In addition, as described in APM BIO-2, a biological monitor would be present during construction activities to enforce nest buffers and to monitor and document the status of nesting activities. APM BIO-4 would also facilitate compliance with relevant State and federal regulations administered by and under the purview of these resource agencies (CDFW, USFWS) with respect to those avian species that are not candidate, sensitive, or special-status for which potential impacts are not considered significant under CEQA.

Portions of the Coolwater-Lugo area provide suitable foraging and breeding habitat for burrowing owl. This species has been documented as a year-long resident in the vicinity of Coolwater-Lugo. Impacts to foraging or breeding burrowing owls would be considered adverse according to the MBTA and FGC Sections 3500-3516, and 3800. Preconstruction surveys would be required to document burrowing owl population within the Coolwater-Lugo area to fully comply with CDFW-approved protocols for burrowing owl surveys (CDFW Staff Report on Burrowing Owl Mitigation [CDFW 2012b]). Potential impacts to burrowing owl populations would be reduced to less than significant levels with implementation of BMPs and incorporation of APMs BIO-1 through BIO-3, and BIO-5. These APMs would ensure that active burrowing owl burrows are identified prior to construction and that a sufficient construction avoidance buffer is established around active burrows so that construction activities would not impact burrowing owls, their young, or eggs, or impede breeding and/or nesting activities. In addition, a biological monitor would be present during construction activities to enforce nest buffers and to monitor and document the status of nesting activities.

Desert Tortoise. Direct impacts to desert tortoise may result from a variety of Coolwater-Lugo-related factors. This species is at risk of injury during construction activities. The tortoise's slow rate of movement, combined with its cryptic coloration, creates potential

for incidental take of this species by construction activities. In addition, tortoises or their egg clutches may be harmed if their burrow is collapsed during construction activities. Potential construction impacts would be minimized through implementation of APMs BIO-6 through APM BIO-10. These APMs would ensure that desert tortoises within the Coolwater-Lugo area are identified prior to construction activities so that construction activities can avoid the area until the tortoise has moved from the area. Exclusion fencing would be used around material yards, laydown areas, and similar staging facilities that are located within suitable, occupied habitat according to USFWS. As described in APM BIO-8, the proper procedures required for relocation of desert tortoise and excavation of burrows if needed would be performed by an Authorized Biologist.

Human presence associated with Coolwater-Lugo operations, in addition to any trash/garbage generated by Coolwater-Lugo-related activities, may attract common ravens to the area. The nature of construction activities would be temporary and, along with implementation of APM BIO-10, would minimize common raven attraction. All of these impacts to the desert tortoise would be considered significant if not avoided or mitigated. Following permit and compliance procedures is anticipated to reduce potentially substantial adverse effects to a less than significant level. Such procedures are anticipated to include participating in a federal Section 7 consultation by the USFWS and receipt of a Project Biological Opinion ("BO"), obtaining from CDFW a CESA Section 2080.1 concurrence with the Coolwater-Lugo BO, offsite habitat compensation, and/or impact minimization measures for this species. The USFWS requires that surveys, in order to be accepted, must be performed within a year of the Coolwater-Lugo start date. Additional surveys may therefore be required to comply with USFWS requirements. With implementation of APMs BIO-1 through BIO-3, and APM BIO-6 through BIO-10, impacts to desert tortoise would be less than significant.

Arroyo Toad. No arroyo toads were found within the Coolwater-Lugo area. Nevertheless, Coolwater-Lugo is close to known occupied sites near the Mojave River, and downstream dispersal is possible during rainfall events, especially in wetter years. Based on database searches and observation of habitat along the Coolwater-Lugo alignment, the arroyo toad was determined to have a high likelihood of occurrence within the area of the Mojave River. However, potentially due to low rainfall and survey timing (daytime hours), this species was not observed within the Coolwater-Lugo area during the 2012 or 2013 surveys in these locations. A single adult arroyo toad was found within known occupied habitat about 0.5 mile south of Segment 6 indicating that survey timing and methodology were appropriate for this species. If arroyo toads are found to be present in the Coolwater-Lugo area, direct and indirect impacts to arroyo toad may occur during construction of the Proposed Project. Habitat removal could cause harm, harassment, or direct disturbance to arroyo toads (injury or mortality from construction activities either above ground or in burrows). Indirect impacts, such as increased siltation of breeding pools and downstream aquatic habitats, and physical rearrangement of the substrate by construction vehicles could also result. Implementation of APMs BIO-1 through BIO-3 is anticipated to reduce impacts to less than significant. These measures would ensure that arroyo toads present within the construction area are identified prior to construction activities. In addition, construction activities will be required to stay within designated

construction activities, which will avoid pools and other sensitive aquatic habitats whenever feasible.

Mohave Ground Squirrel. Portions of the Coolwater-Lugo area provide suitable habitat for the Mohave ground squirrel; therefore, a habitat assessment for this species was conducted. No Mohave ground squirrels were incidentally observed. There are no recent records or observations from the southern portion of its range, between Palmdale and Lucerne Valley, suggesting that Mohave ground squirrel may have been extirpated in this highly developed area (Laabs 2006). Due to the Mohave ground squirrel's special-status listing, impacts to this species during construction of Coolwater-Lugo would be considered a significant impact. Construction-related noise or vibration could result in potential impacts to Mohave ground squirrel, should its presence be determined in the Coolwater-Lugo area. Further surveys, which include trapping, may be required to accurately identify whether this species is present within the Coolwater-Lugo area and to determine population estimates. If further surveys identify presence of Mohave ground squirrel in the Coolwater-Lugo area, implementation of APMs BIO-1 through BIO-3, and BIO-11 would reduce impacts to less than significant. These measures would ensure that if Mohave ground squirrels are present within the Coolwater-Lugo area, they would be identified prior to construction so that impacts to this species are avoided. A biologist approved to handle Mohave ground squirrel would be designated to oversee monitoring of the species within the habitat identified in the Coolwater-Lugo area and to provide appropriate documentation of findings related to this species.

Reptiles and Amphibians. Focused surveys for reptiles and amphibians were conducted and both the coast horned lizard and the Mojave fringe-toed lizard are documented to occur in the Coolwater-Lugo area. Considering the special-status listing of both the coast horned lizard and the Mojave fringe-toed lizard, impacts to these species would constitute a significant impact. Construction-related activities in areas where suitable habitat for these species exists have the potential to cause direct impacts. Impacts could result from the permanent and temporary direct loss of habitat, and from direct injury or mortality resulting from construction activities. With implementation of APMs BIO-1 through BIO-3, impacts are anticipated to be reduced to less than significant. These measures would provide for the identification of sensitive herpetological species present within the Coolwater-Lugo area prior to the start of construction to ensure that no sensitive species are impacted.

Operation Impacts

Operation of the Proposed Project would consist of routine maintenance and inspection of the project components. The Proposed Desert View Substation would be unstaffed, and trips to the substation are expected to occur three to four times a month for routine maintenance and inspection. SCE would inspect the transmission and telecommunication facilities a minimum of once per year via ground and/or aerial observation, but these inspections may occur more frequently based on system reliability. Inspection and maintenance activities would be confined to previously disturbed areas and would be of much lower intensity than construction-related activities described above. In addition, an increase in vehicle trips to the Proposed Desert View Substation when confined to

existing disturbed areas would result in a negligible increase in traffic that could affect species or their habitat. Accordingly, these activities are not projected to have any substantial adverse effect on any candidate, sensitive, or special-status species. Therefore, a less than significant impact is anticipated during operation of the Proposed Project.

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

Construction Impacts

Riparian habitat under the jurisdiction of USFWS or CDFW is found along the Mojave River, which is located along Proposed Transmission Line Segment 7 and Alternative Transmission Line Segment 6. Construction activities related to Coolwater-Lugo may potentially affect jurisdictional waters in these segments. The riparian habitats associated with these waters may be affected by trimming/removal of riparian vegetation and grading/alteration of streambanks and streambeds to facilitate the movement of heavy construction equipment. Impacts from grading, trimming, or removal of plants within these communities may be adverse. However, many of these impacts are expected to be temporary, because disturbed areas would be stabilized and re-vegetated in accordance with applicable permit conditions. In addition, a 1602 SAA with CDFW would be obtained for any impacts to CDFW jurisdictional riparian habitat that would include permit conditions and potential compensatory mitigation, if required, to ensure that there is not a substantial adverse effect. Compliance with terms of any required state or federal water resources permits would serve to further reduce impacts. Implementation of BMPs and incorporation of APMs BIO-1 and BIO-2 would reduce potential impacts to less than significant levels by ensuring that construction activities occur only within areas permitted for construction, that areas temporarily disturbed would be stabilized and re-vegetated, and that construction crews would be provided environmental training outlining Coolwater-Lugo biological concerns, construction crew responsibility, and BMPs. Therefore, a less than significant impact is anticipated during construction of the Proposed Project.

Operation Impacts

Operation of the Proposed Project would consist of routine maintenance and inspection of the project components, which may include vegetation trimming or removal. The Proposed Desert View Substation would be unstaffed, and trips to the substation are expected to occur three to four times a month for routine maintenance and inspection. SCE would inspect the transmission and telecommunication facilities a minimum of once per year via ground and/or aerial observation, but these inspections may occur more frequently based on system reliability. Inspection and maintenance activities would be confined to previously disturbed areas or trimming of tree canopy to avoid safety hazards to transmission lines, and would be of much lower intensity than construction-related activities described above. Normal inspection activities would include the use of vehicles and equipment traveling along existing access and spur roads; accordingly, these inspection activities would not have a substantial adverse impact on riparian habitat or

other sensitive natural community. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means?

Construction Impacts

The Proposed Project crosses a number of drainages and other hydrological features that are considered jurisdictional resources under Section 404 of the CWA. However, none of these features are considered wetlands. Therefore, no impact is anticipated during construction of the Proposed Project.

Operation Impacts

The Proposed Project crosses a number of drainages and other hydrological features that are considered jurisdictional resources under Section 404 of the CWA. However, none of these features are considered wetlands. Therefore, no impact is anticipated during operation of the Proposed Project.

Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridor, or impede the use of native wildlife nursery sites?

Construction Impacts

Noise or other construction activities would temporarily displace native resident or migratory wildlife species from active construction sites. This may affect wildlife movements in known migratory corridors and may affect the movement of native resident wildlife species. These impacts are expected to be isolated to specific construction locations and work areas, and temporary; while construction of the complete project is anticipated to take up to 30 months, work would not be occurring in any given location for that full time duration. As a result, these impacts would be locally adverse, but minor. Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Noise or other operation-related activities may temporarily displace native resident or migratory wildlife species at the Coolwater-Lugo component locations. This may affect wildlife movements in known migratory corridors, and may affect the movement of native resident wildlife species. These impacts are expected to be infrequent, isolated, and temporary, and therefore locally adverse, but minor. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Construction Impacts

During construction of the Proposed Project, construction activities would not conflict with local policies or ordinances protecting biological resources. The *County of San Bernardino 2007 General Plan* Conservation Element (County of San Bernardino 2013) permits and authorizations to remove, transport, or otherwise impact Joshua trees and native cacti will be obtained prior to Coolwater-Lugo approval. In the event Joshua trees and native cacti cannot be avoided and would require relocation, SCE would strive to use them for on-site Coolwater-Lugo habitat restoration. If this were not possible, plants would be relocated to a local, agency-approved location, made available to a local adoption program, or transplanted per facility landscape design plans. Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Operation of the Proposed Project would consist of routine maintenance and inspection of the Coolwater-Lugo components. The Proposed Desert View Substation would be unstaffed, and trips to the substation are expected to occur three to four times a month for routine maintenance and inspection. SCE would inspect the transmission and telecommunication facilities a minimum of once per year via ground and/or aerial observation, but these inspections may occur more frequently based on system reliability. Inspection and maintenance activities would be confined to previously disturbed areas and would be of much lower intensity than construction-related activities described above. This maintenance work would be conducted consistent with CPUC General Order ("G.O.") 95, Rule 35, and California Public Resources Code Sections 4292 and 4293, and as presented above under the Regulatory Setting would not conflict with local ordinances. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Construction Impacts

Coolwater-Lugo is located in the BLM's West Mojave Plan habitat conservation area. The West Mojave Plan presents a comprehensive strategy to conserve and protect sensitive plants and wildlife and the natural communities of which they are a part. Impacts to sensitive plant and wildlife species are discussed above. As discussed, potential impacts to sensitive species could occur during Coolwater-Lugo construction. However, implementation of APMs BIO-1 through BIO-11, would reduce impacts and ensure that Coolwater-Lugo would not conflict with the West Mojave Plan.

SCE is a member of the DRECP stakeholder committee. The DRECP, expected to be adopted in 2014, is intended to promote the responsible development of renewable energy projects while conserving habitat for special-status species. It considers high-voltage transmission facilities such as the Proposed Project to be "covered activities," eligible for participation in the DRECP HCP/NCCP permitting process. As a covered activity, construction of the Proposed Project would not be in conflict with the DRECP.

The Apple Valley MSHCP is currently under development but has not been finalized or approved. SCE is participating as a stakeholder in the review of the MSHCP.

Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

As discussed above, potential impacts to sensitive species could occur during operation of the Proposed Project. Operation of the Proposed Project would consist of routine maintenance and inspection of the Coolwater-Lugo components. The Proposed Desert View Substation would be unstaffed, and trips to the substation are expected to occur three to four times a month for routine maintenance and inspection. SCE would inspect the transmission and telecommunication facilities a minimum of once per year via ground and/or aerial observation, but these inspections may occur more frequently based on system reliability. Inspection and maintenance activities would be confined to previously disturbed areas and would be of much lower intensity than construction-related activities described above. Operation of the Proposed Project is consistent with and would not conflict with the West Mojave Plan or DRECP; therefore, less than significant impacts are anticipated during operation of the Proposed Project.

4.4.5.2 NEPA Impact Assessment

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (40 CFR 1508.27).

For the purposes of this analysis, the term "Proposed Action" as used in NEPA regulations and analysis is used interchangeably with the "Proposed Project.

Construction Impacts

A General Habitat Assessment and focused sensitive species biological surveys have been conducted within the Coolwater-Lugo area. The methodology, baseline, and results of this assessment are described above in Section 4.4.5, CEQA Impact Assessment. One special-status plant species and 10 special-status wildlife species were documented during surveys. Additional special-status plant and wildlife species have the potential to occur within the Coolwater-Lugo area. Construction of the Proposed Project has the potential to directly impact special-status species. Direct impacts would be effectively mitigated through APMs BIO-1 through BIO-11. The APMs would ensure identification

of special-status species prior to construction activities, and avoidance of impacts through use of biological monitors and through application of species-specific measures (APMs BIO-4 through BIO-11).

Indirect impacts include disruption of foraging activities and loss of habitat. The construction of Coolwater-Lugo may temporarily impact foraging opportunities for special-status species. Although construction activities may discourage use of the area in the immediate vicinity of an active work site, this disruption in foraging is expected to be extremely localized and temporary in nature. While impacts to foraging habitat may be considered adverse, the Proposed Project is not anticipated to substantially affect individuals or overall populations of sensitive species. Special-status species habitat loss would occur as a result of the Proposed Project. However, due to the linear design of Coolwater-Lugo, habitat impacts would be spread over a large area and would not significantly impact any individual population of sensitive species.

Operation Impacts

Operation of the Proposed Project would consist of routine maintenance and inspection of the project components. The Proposed Desert View Substation would be unstaffed, and trips to the substation are expected to occur three to four times a month for routine maintenance and inspection. SCE would inspect the transmission and telecommunication facilities a minimum of once per year via ground and/or aerial observation, but these inspections may occur more frequently based on system reliability. Inspection and maintenance activities would be confined to previously disturbed areas, and would be of much lower intensity than construction-related activities described above. Accordingly, these activities are not projected to have any substantial adverse effect on any candidate, sensitive, or special-status species. Therefore, a less than significant impact is anticipated during operation of the Proposed Project.

Impacts resulting from the Proposed Project would not differ substantially under the NEPA analysis. The same level of impacts to the same species would occur. In addition, APMs as applied above would mitigate potential impacts to a less than significant level. Therefore, no further analysis under NEPA is required. As demonstrated in the CEQA impact assessment, less than significant impacts to biological resources are anticipated during operation of the Proposed Project.

4.4.6 Applicant Proposed Measures

Incorporation of the following APMs will reduce any potential impacts to biological resources to a less than significant level or further reduce already less than significant impacts. APMs have been designed to minimize or eliminate potential impacts to special-status plant and wildlife species present in the surrounding area, as well as to more common native wildlife species.

4.4.6.1 General Measures

BIO-1: Prior to starting construction, a draft Project Revegetation Plan would be prepared to restore areas where native vegetation is disturbed during construction. Prior to completing construction, the Project Revegetation Plan would be finalized to address site-specific conditions, restoration methodology and technique, implementation schedule, monitoring and maintenance, and success criteria.

BIO-2: Other than as described in species-specific APMs, biologists would monitor construction activities in wildlife habitat areas where special-status species or unique resources (defined by regulations and local conservation plans) are known to occur.

BIO-3: All project construction-related workers (SCE, SCE contractors and subcontractors) would be required to attend a Worker Environmental Awareness Program ("WEAP"). Any temporary Project site visitors would be required to attend a WEAP or be accompanied by personnel who have completed the WEAP training. The WEAP would address resource issues including desert tortoise, Mohave ground squirrel, burrowing owl, and other special-status species with a potential to occur within the Project area.

4.4.6.2 Avian Species Measures

BIO-4: SCE would prepare and implement a Nesting Bird Management Plan to address nesting birds undertaken in collaboration with the CDFW, USFWS, and BLM. The Plan would be an adaptive management plan that may be updated as needed improvements are identified or conditions in the field change. The Plan would include the following: nest management and avoidance, field approach (survey methodology, reporting, and monitoring), and the Project avian biologist qualifications. The avian biologist would be responsible for oversight of the avian protection activities including the biological monitors.

In order to minimize impacts to nesting birds (common or special status), ongoing pre-construction surveys and daily sweep surveys of active construction areas by a qualified biologist would focus on breeding behavior and a search for active nests, as defined by CDFW and USFWS, within 500 feet of the Proposed Project.

At a minimum, the "Nesting Bird Management Plan" (Plan) would include the following:

(a) For vegetation clearing that needs to occur during the typical nesting bird season (February 1 to August 31; as early as January 1 for raptors) qualified biologists would conduct nesting bird surveys. If an active nest were located, the appropriate avoidance and minimization measures from the management plan would be implemented. If active nest removal is required, SCE would consult with CDFW, USFWS, and BLM;
(b) During the typical nesting bird season, SCE would conduct preconstruction clearance surveys no more than 14 days prior to construction and in accordance with the adaptive management plan, to determine the location of nesting birds and

territories. Preconstruction sweeps would be conducted within 3 days before construction begins at a given project location;

(c) Nest monitoring would be conducted by Project biological monitors with knowledge of bird behavior under the direction of a BLM and/or CDFW approved avian biologist;

(d) Nesting deterrents (e.g. mooring balls, netting, etc.) would be used for inactive nests at the direction of the Project avian biologist;

(e) A Project avian biologist would determine the appropriate buffer area around active nest(s) and provisions for buffer exclusion areas (e.g. highways, public access roads, etc.) along with construction activity limits. Unless restricted by the Project avian biologist, construction vehicles would be allowed to move through a buffer area with no stopping or idling. The Project avian biologist would determine, evaluate, and modify buffers as appropriate based on species tolerance and behavior, the potential disruptiveness of construction activities, and surrounding conditions; and,

(f) The Project biological monitor would ensure implementation of appropriate buffer areas around active nest(s) during project activities. The active nest site and applicable buffer would remain in place until nesting activity concluded. Nesting bird status reports would be submitted according to the management plan.

4.4.6.3 Burrowing Owl Measures

BIO-5: A pre-construction, focused burrowing owl survey would be conducted no more than 30 days prior to commencement of ground-disturbing activities within suitable habitat to determine if any occupied burrows are present. If occupied burrows are found, adequate buffers shall be established around burrows. Adequate buffers would be determined by a Project Avian biologist based upon field conditions and resource agency guidelines for wintering burrows and breeding season burrows.

SCE would develop a Burrowing Owl Management Plan for the Project. The Plan would include information related to construction monitoring, avoidance and minimization measures, relocation strategy, exclusionary devices, and reporting requirements.

4.4.6.4 Desert Tortoise Measures

BIO-6: Project personnel in non-desert tortoise exclusion fenced areas would be required to inspect for desert tortoises under vehicles prior to moving the vehicle. If a desert tortoise is found beneath a vehicle, it would not be moved until the desert tortoise had left of its own accord. If a vehicle must be moved in the event of an emergency, placing a tortoise in harm's way, a USFWS Authorized Biologist may move the tortoise to an appropriate location.

BIO-7: All burrows suitable for desert tortoise found during clearance surveys within project ground disturbance areas within desert tortoise habitat, whether occupied or vacant, that would be subject to construction-related disturbance, would be excavated by a Biologist authorized by USFWS, and collapsed or blocked to prevent desert tortoise reentry.

BIO-8: All desert tortoise handling, excavations including nests, would be conducted by a Biologist authorized by USFWS, in accordance with USFWS approved protocol in compliance with appropriate regulatory permits.

BIO-9: Desert tortoise exclusion fencing shall be installed around material yards within suitable, occupied habitat according to USFWS recommended specifications (USFWS, 2005) and in compliance with appropriate regulatory permits.

BIO-10: Trash and food items would be contained in closed containers during construction to discourage attracting opportunistic predators such as ravens.

4.4.6.5 Mohave Ground Squirrel

BIO-11: Before initiating ground-disturbing activities in potential Mohave ground squirrel habitat within its historic range (portions of Transmission Line Segments 5, 5a, 5b, 6, and 7, portions of the Apple Valley to Desert View Telecommunication Route, and the Proposed and Alternative Desert View Substation sites) , a Project biologist knowledgeable and experienced in the biology and natural history of Mohave ground squirrel would be designated to monitor construction activities to help avoid the take of individual animals and to minimize habitat disturbance. The CDFW would be notified in writing prior to commencement of ground-disturbing activities of the biologist's name, business address, and telephone number. The biologist would be subject to the approval by the CDFW and would be required to follow all applicable protocols regarding Mohave ground squirrel.

4.4.7 Alternative Project

As described in Section 3.15, *Project Alternatives*, either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Route, but not both. Separate impact analyses are provided for these two scenarios.

4.4.7.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes Alternative Desert View Substation, Alternative Transmission Line Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6, and Alternative Apple Valley to Desert View and Gale to Pisgah Telecommunication Routes.

There are no substantial differences in biological resource settings between the Proposed and Alternative Desert View Substation locations. Both locations are relatively flat areas and are significantly disturbed by human activities that have resulted in non-native grasses and other annuals dominating the understory, and substantial illegal trash dumping. Potential impacts from the construction and operation of the Alternative Desert View Substation would be the same as those discussed in preceding construction and operation impacts analysis for all CEQA significance criteria for the Proposed Desert View Substation.

Similarly, the Alternative Transmission Line Route does not have substantial differences in biological resource settings with the exception of Segment 6, which introduces juniper woodland and California buckwheat scrub habitats. While these habitats contain sensitive plant and wildlife species not found within other parts of the Coolwater-Lugo area, none of these species introduce substantially different biological concerns that would require additional APMs or permitting. Both the Proposed and Alternative Transmission Routes cross the Mojave River and critical desert tortoise habitat that contain habitat for the federally endangered arroyo toad and desert tortoise, respectively. Burrowing owl habitat is present throughout the Coolwater-Lugo area, and the occurrence of burrowing owl is not anticipated to be substantially different within this Alternative Project.

Potential impacts from the construction or operation of Alternative Transmission Line Route with Segment 9 would be the same as those discussed in preceding construction and operation impacts analysis for all CEQA significance criteria for the Proposed Transmission Line Route. Therefore, less than significant impacts are anticipated during construction and operation of Alternative Transmission Line Route with Segment 9.

4.4.7.2 Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, Alternative Transmission Line Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and Alternative Apple Valley to Desert View and Gale to Pisgah Telecommunication Routes.

There would be no substantial difference in impacts to biological resources between the use of Segment 9 or Segment 10. Segment 10 would require a new path through critical desert tortoise habitat where there are limited existing roads. While by comparison, Segment 9 would be through the Marine Corps Logistics Base Barstow (portion) and would be in new right-of-way but parallel to an existing SCE Subtransmission Line. Impacts associated with the Alternative Project with Segment 10 would be similar to those of the Proposed Project and the Alternative Project with Segment 9. Therefore less than significant impacts are anticipated for the construction or operation of the Alternative Project with Segment 10.

4.4.8 References

American Ornithologists' Union. (1998). *Check-list of North American Birds*. Seventh edition. American Ornithologists' Union, Washington, D.C. 829 pp. Available at: http://www.aou.org/checklist/north/index.php

Baker, Robert, Lisa C. Bradley, Robert D. Bradley, Jerry W. Dragoo, Mark D. Engstrom Robert S. Hoffmann, Cheria. Jones, Fiona Reid, Dale W. Rice, and Clyde Jones. (2003). *Revised Checklist of North American mammals North of Mexico.* Museum of Texas Tech University. December.

Baldwin, B. G. et al. [ed.]. (2012). *The Jepson Manual: Vascular Plants of California: Second Edition*. University of California Press. Berkeley and Los Angeles, CA.

CalFlora. (2012). *The CalFlora Database: information on California plants for education, research and conservation* [web application]. The CalFlora Database, Berkeley, California. http://www.calflora.org/. Accessed February 2012.

California Burrowing Owl Consortium (CBOC). (1993). *Burrowing Owl Survey Protocol and Mitigation Guidelines*.

California Department of Fish and Wildlife (CDFW; formerly California Department of Fish and Game). (2003). *Rarefind: California Department of Fish and Game Natural Diversity Database.* Version 3.1.0. Commercial version, dated September 3, 2011. California Department of Fish and Game, Sacramento, CA.

California Herps. (2012). *A Guide to the Amphibians and Reptiles of California*. http://www.californiaherps.com. Accessed March 2012.

California Native Plant Society (CNPS). (2010). *Inventory of Rare and Endangered Plants of California (seventh edition, online version 7-010d).* California Native Plant Society, Sacramento, CA. http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi. Accessed February 2012.

CBOC. (1997). Burrowing Owl Survey Protocol and Mitigation Guidelines. J. *Raptor Res. Rept*. 9:171–177.

CDFW. (2005). *CWHR version 8.1 personal computer program*. California Interagency Task Group, California Department of Fish and Game, Sacramento, CA.

CDFW. (2012b). *Staff Report on Burrowing Owl Mitigation.* Sacramento, California.

City of Hesperia. (2010). *Hesperia General Plan*. [cited September 2012].

Collins, Joseph T., and Travis W. Taggart. (2009). *Standard Common & Current Scientific Names for North American Amphibians, Turtles, Reptiles, and Corcodilians*. Sixth Edition. Publication of the Center for North American Herpetology, Lawrence. iv + 44 pp. Available at: http://www.cnah.org/index.asp

Cornell Lab of Ornithology and National Audubon Society, Inc. *eBird*. Available at:http://ebird.org/content/ebird. Accessed February 2012.

County of San Bernardino. (2013). *County of San Bernardino 2007 General Plan*. Adopted March 13, 2007; Effective April 12, 2007; and Amended June 18, 2013. San Bernardino, CA. Prepared by URS Corporation, Santa Ana, CA.

Hickman, J. [ed.]. (1993). *The Jepson Manual: Higher Plants of California*. University of California Press. Berkeley and Los Angeles, CA.

Laabs, D. (2006). "Mohave ground squirrel." West Mojave Plan Species Accounts. U.S. Department of the Interior, Bureau of Land Management. January 2006. Accessed March 2, 2011. Available at: http://www.blm.gov/ca/pdfs/cdd_pdfs/Mgs1.pdf.

Moyle, P. B., R. M. Yoshiyama, J. E. Williams, and E. D. Wikramanayake. (1995). *Fish Species of Special Concern in California,* Second Edition. California Department of Fish and Wildlife publication.

NOAA. (2012). National Oceanic and Atmospheric Administration, *State Inventory*, January 2012.

Sawyer, J., T. Keeler-Wolf, and J Evens. (2009). *A Manual of California Vegetation, Second Edition.* California Native Plant Society. Sacramento, CA.

Sibley, D. A. (2003). *Field Guide to Birds of Western North America.* Knopf Publishing Group, New York. 472 pp.

U.S. Fish and Wildlife Service (USFWS). (2012). *Critical Habitat Portal*. Available at: criticalhabitat.fws.gov/crithab/

University of California. (2012). *California Fish Website.* http://calfish.ucdavis.edu/

USFWS (2010). *Preparing for any Action that may Occur within the Range of the Mojave Desert Tortoise (Gopherus agassizii). 2010.*

USFWS. (2009). Arroyo southwestern toad (Bufo californicus (=microscaphus)) 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Ventura, California. August 2009.

4.5 Cultural Resources

This section describes the cultural resources in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). Potential impacts to cultural resources (i.e., archaeological and historical era resources) are discussed first, followed by a discussion of paleontological resources. The section analyzes the potential impacts on identified cultural and paleontological resources associated with construction and operation of the Proposed Project and Alternative Project.

4.5.1 Environmental Setting

4.5.1.1 Natural Setting

Coolwater-Lugo is in the Mojave Desert, which itself is part of the Basin and Range physiographic province, a region composed of isolated mountain ranges rising abruptly from the broad alluvial valleys of the desert. Much of the province is bounded to the north by the left-lateral Garlock Fault and to the south by the right-lateral San Andreas Fault. The Mojave Desert borders the Transverse Ranges and the Colorado Desert provinces, located to the northwest and southwest, respectively. The Sierra Nevada and the Basin and Range provinces create the northern boundary, and the Colorado River and Nevada state line establish the eastern boundary (Norris and Webb 1976).

The central Mojave Desert is characterized by valleys and scattered, isolated mountain blocks that are mostly lower than 2,000 meters (6,560 feet) in elevation. The central Mojave Desert roughly coincides with the Mojave River Valley, including the region between Victorville and Barstow and extending east to Soda dry lake and Baker and south to Joshua Tree National Park. Valley floor elevations range from approximately 300 meters (984 feet) to more than 1,000 meters (3,281 feet). Surface drainage tends to be internal, with most of the runoff flowing inward from all directions into dry playas. Drainage is generally in the form of rapid runoff following occasional cloudbursts. Playas may be covered by water from this runoff for as long as 2 months per year. The Mojave Desert typically receives trace levels of precipitation and is characterized by low humidity, wide diurnal temperature ranges, average high July temperature (40.6 degrees Centigrade ["°C"]; 105 degrees Fahrenheit ["°F"]) and average low December temperature (2.2° C; 36° F), and strong seasonal winds. Cool season precipitation (October through April) averages 10 centimeters (4 inches) per year. Warm season precipitation (July through October) averages about 3 centimeters (1.3 inches) per year, but can be characterized by violent convectional downpours causing flash floods and deep landform incisions.

Common landforms of the piedmont slope in the Mojave Desert include active washes, alluvial fans, pediments, and fan piedmonts (bajadas), while those on valley floors generally include playas, playa margins, axial washes, and sand dunes. Aridisols and Entisols are the dominant soil orders in the Mojave Desert (USDA-NRCS 2012). Mollisols are also found in the southern portion of the Coolwater-Lugo area, especially in uplands of the San Bernardino Mountains. Soils in the Mojave Desert generally have a thermic soil temperature regime, an aridic soil moisture regime, and mixed or carbonatic

mineralogy. Desert pavement is often most developed on intact Pleistocene surfaces, and less developed on Holocene ones. The surfaces of eroded Pleistocene landforms often have a patchy mix of well-developed and destroyed desert pavements.

The flora of the Mojave Desert is fairly homogeneous, with four primary plant associations: Mojave creosote scrub, desert saltbush scrub, Mojave wash scrub, and blackbrush scrub. These generalized floristic groups include complexes of shrubs, grasses, herbs, succulents, and semi-succulents that supplied aboriginal populations with a range of food, raw materials, medicinal plants, and ritual products. The most characteristic plant is creosote bush (*Larrea tridentata*), a hardy, long-lived shrub that thrives in coarse, well-drained, non-saline soils on basin floors, alluvial fans, and upland slopes at elevations up to 1,200 meters (3,937 feet) in some interior areas. Mojave Desert fauna are diverse and include many animals that were likely exploited by prehistoric populations. The most prevalent are reptiles, rodents, small carnivores, and birds. Reptiles like the desert tortoise (*Gopherus agassizii*), Western banded gecko (*Coleonyx variegates*), common chuckwalla (*Sauromalus obesus*), desert iguana (*Diposaurus dorsalis*), coach whip (*Masticophis flagellum*), Mojave rattlesnake (*Crotalus scutulatus*) and sidewinder (*C. cerasters*); lagomorphs such as the black–tailed jackrabbit (*Lepus californicus*) and desert cottontail (*Sylvilagus audubonii*); rodents such as the antelope ground squirrel (*Ammospermophilus leucurus*), desert kangaroo rat (*Dipodomys deserti*), and desert woodrat (*Neotoma lepida*); and carnivores like the coyote (*Canis latrans*) and kit fox (*Vulpes macrotis*) are by far the most common. Migratory waterfowl (e.g., *Anas* spp.) are occasional visitors to episodic playa lakes as well.

4.5.1.2 Prehistoric Context

Over the past decades, a number of cultural sequences covering the Mojave Desert have been developed by various researchers (e.g., Bettinger and Taylor 1974; Rogers 1939, 1945; Wallace 1962; Warren 1984; Warren and Crabtree 1986), and subsequently modified (e.g., Davis et al. 1980; Hall and Barker 1975; King 1981; Stickel and Weinman-Roberts 1980; Sutton et al. 2007; Warren et al. 1980; Weide 1976). Warren and Crabtree's sequence (1986) provides one of the more enduring schemes and is the one used here. The sequence consists of five periods: Lake Mojave, Pinto, Gypsum, Saratoga Springs, and Protohistoric.

Lake Mojave Period (Paleo-Indian and Early Archaic; ca. 12,000 – 7000 B.P.)

The Lake Mojave complex represents the earliest known human occupation in the Mojave Desert region, beginning at about 12,000 years before present ("B.P.") (Grayson 1993; Wallace 1962). Considered a Paleo-Indian assemblage, it is thought to be ancestral to Early Archaic cultures of the subsequent Pinto period (Warren and Crabtree 1986:184). This era, at the close of the Pleistocene, was a time of extreme environmental change as the relatively cool and moist conditions of the terminal Wisconsin glacial age were gradually replaced by the warmer and drier conditions of the Holocene (Spaulding 1990).

Pinto Period (Middle Archaic; ca. 7000 -4000 B.P.)

The transition from pluvial to arid conditions at the end of the early Holocene appears to have been one of the most extreme environmental changes in the southern Great Basin during post-Pleistocene times. Warren (1984) sees the cultural manifestations of this period as indicative of adaptation to increasing aridity. As the Pleistocene lakes and rivers dried up and plant and animal life changed, human populations adapted or withdrew to more desirable areas. The appearance of flat milling stones and handstones is thought to relate to the exploitation of hard seeds, which is seen as part of a process of subsistence diversification brought on by increased aridity and reduced ecosystem carrying capacity.

Gypsum Period (Late Archaic; ca. 4000 -1500 B.P.)

Gradual amelioration of the climate began by around 5000 B.P., culminating in the Neoglacial at about 3600 B.P. The Gypsum period was a time of population increase and broadening economic activities, likely a result of continued technological adaptation to the desert environment. Hunting continued to be an important subsistence activity, but the increase in the occurrence and diversity of ground stone artifacts indicates that plant foods were becoming a more important subsistence item.

Saratoga Springs Period (ca. 1500 -750 B.P.)

Sometime after 2000 B.P., smaller projectile points began to dominate assemblages in parts of the Mojave Desert and southern Great Basin (Lyneis 1982). This corresponds with the introduction of the bow and arrow by at least 1350 B.P. (Bettinger and Eerkins 1999), likely increasing the efficiency of hunting and perhaps indicating a shift from larger to smaller game. The Saratoga Springs period was a time of marked regional diversification (Warren and Crabtree 1986). Evidence for Ancestral Puebloan influence or occupation is present in the occurrence of pottery, which has been found as far west as the Halloran Spring site (Blair 1985; Blair and Winslow 2004; Leonard and Drover 1980; Rogers 1929; Warren 1980) and the Cronese Basin in California; Rogers 1929), but in the remainder of the Mojave Desert region, sites of this period seem to exhibit general continuity with the Gypsum pattern.

Protohistoric Period (750 B.P. to Contact)

The Protohistoric era, a transitional period between the prehistoric and the historic, began ca. 700 B.P. and lasted until first contact with European people (Warren 1980; Warren and Crabtree 1986). Cultural developments established earlier during the Saratoga Springs period continued with some modifications. Diagnostic artifacts for this period are Desert Side-notched points and various poorly defined types of brown ware pottery.

4.5.1.3 Ethnographic Context

Desert Serrano Occupation of the Mojave River Region

Both the upper and lower reaches of the Mojave River were occupied by Serrano-speaking groups that formed a desert division of the Serrano, also referred to in the

ethnographic literature as the Vanyumé. Kroeber (1925), Bean and Smith (1978), and Earle (1990, 2004, 2005) have discussed this division and its relation to Serrano clans located farther south in the San Bernardino Valley and Mountains. Spanish expeditions as early as 1776 and continuing through the early 1800s (Coues 1900; Walker 1986), as well as work by Alfred Kroeber (n.d.) and others in the early 20th century, document numerous ethnographic Serrano villages in the region, as well as trails, place names, quarries, and an exploited salt deposit. These places are often associated with sources of water, including named springs and the Mojave River itself.

The Serrano communities of the Mojave River region appear to have shared a common social organization with other Serrano communities to which they were linked by intermarriage (Benedict 1924, Earle 2004, Gifford 1918, Strong 1929). The Serrano occupied permanent winter village sites that featured the chief's house, a fiesta enclosure or dance house, a sweat lodge, and a cemetery. Serrano winter villages were the centers or "capitals" of clan, or kinship-based, territories. Individual clans were politically independent and territorial. During the spring, summer, and fall, family groups would spend considerable time away from the winter village in temporary gathering camps.

Desert Serrano settlements along the Mojave River took advantage of several important local food resources, including juniper berries (*wa'at*) in juniper woodland areas south of Hesperia and north of Cajon Pass, edible yucca in the foothills of the transverse ranges and in mountain slope areas farther to the north, blossoms and fruit of Joshua trees, Mojave River islay (*Prunus ilicifolia*) fruits, carrizo grass sugar (*Phragmites*), cattail root, and chia sage seeds. The key, however, to maintaining relatively large populations in the river villages appears to have been the importation of acorns and pinyon pine nuts down river from the transverse ranges. The Serrano also hunted cottontail rabbits and jackrabbits, desert bighorn, and pronghorn.

The occupation of territory and a string of village sites along the Mojave River by the Serrano are assumed to have been at least facilitated by the use of the Mojave River Trail as a major exchange corridor between the Pacific coast and the Southwest. The existence of reciprocal ties of food and other gift exchange with trading parties appears likely for Serrano communities on the river trail.

Chemehuevi Associations with the Coolwater-Lugo Area

Other native groups aside from the Desert Serrano can also be associated with the Coolwater-Lugo area in protohistoric and historic times. The Chemehuevi, a branch of the Southern Paiutes, sometimes traveled through the area prior to the abandonment of the Mojave River settlements by Serrano-speakers by the 1830s (Kelly and Fowler 1986). By the decade of the 1830s, Chemehuevi groups moved into the lower and upper Mojave River regions on a more permanent basis (Earle 2005). In the later 19th century, Chemehuevi chiefs claimed the lower Mojave River, and a largely Chemehuevi community developed in Victorville before 1900, persisting into the 1950s (Blomberg 1987). They were also settled at the oasis of Mara at Twentynine Palms. Chemehuevi following a traditional hunting lifestyle were still living in the Newberry Springs area as late as 1904 (Van Dyke 1976). This regional presence of Chemehuevis was part of a

larger movement of Chemehuevis out of their desert territory in eastern California and southwestern Nevada after 1830. They settled on the Colorado River and took up flood farming, and also moved southwesterly across the Mojave Desert toward the coast (Earle 2005). In the late 19th and early 20th centuries, the Chemehuevi in Victorville and in the Antelope Valley were also intermarried and intermingled with Kawaiisu, some of whom had previously lived in the Tehachapi Valley. These two groups were linguistically and culturally closely related. Several mixed groups lived in the San Gabriel Mountains foothills west of Cajon Pass in the 1880s (Kroeber 1925).

Mojave Associations with the Coolwater-Lugo Area

The Mojaves and related Yuman-speakers of the lower Colorado River were also associated with the Coolwater-Lugo area in several ways. Groups of young male Mojaves frequently traveled the Mojave River trail en route to and from the southern California coastal region to obtain shell beads in exchange for items carried westward. The visiting by the Mojaves of places far distant from their Colorado River homeland is reflected in their sacred stories and religious beliefs. Sacred sites located hundreds of miles from Mojave Valley were important elements in Mojave religious belief. In addition to their direct association with the Mojave River, the Mojaves also referred to the former occupation of the lower Mojave River area (including Newberry Springs) by a historically unidentified group that they called the "Land Mojaves," "Like-Mojaves," or "Desert Mojaves." Both Mojave and Chemehuevi accounts refer to this group, and do so in such a way as to suggest that this occupation was historically relatively recent, though likely predating the first Spanish expedition to the area in the 1770s (Kelly 1953, Kroeber 1959. Laird 1976, Van Valkenburgh 1976).

4.5.1.4 Historical Context

Spanish Missionization and the Mojave Desert Frontier

Although the exploration of Father Garcés in the 1770s crossed through the Mojave Desert, more focused expeditions began in 1806, and again in 1808, with the goal of rounding up natives who had fled from Mission San Gabriel (Cook 1960, Palomares 1808). After a 1810 revolt attempt (Earle 2005), Spanish military forces launched what appears to have been a roundup campaign in the upper Mojave River region, bringing many Serranos into Mission San Gabriel by force in the spring of 1811 (Earle 2004). In 1816, another Spanish expedition descended the river and appears to have rounded up more people. In 1819, another Mojave attack was attempted, in revenge for Mojave shell bead traders having been attacked at Mission San Buenaventura. In the 1810s, upper Mojave River native villages were partially depopulated by voluntary or forced movement of Serrano to Missions San Fernando and San Gabriel. The Chemehuevis and Mojaves remained beyond the reach of the Spanish missionaries and do not show up in the mission baptismal registers (Earle 2005).

Settlement of the Mojave River After 1820

As late as the late 1820s, Desert or Vanyumé Serrano were still living on the upper Mojave River, near modern Victorville and Hesperia. Jedediah Smith visited a settlement of Desert Serranos in November of 1826. This was probably near Victorville Narrows (Brooks 1977). It appears that at least one other group of Vanyumé or Desert Serrano could also be found in the Daggett-Barstow area at this time.

New Mexican trader Antonio Armijo had laid out a caravan route from Los Angeles to Santa Fe in 1829–1830 (Walker 1986). The yearly caravans bearing California saddle stock to Santa Fe passed down the upper Mojave River and crossed the Mojave Desert in the spring. At the same time, the Mojave River route was used by native stock raiders who used Cajon Pass as a point of entry to the stock ranchos on the coastal side of the transverse ranges. During the 1830s and 1840s, Chemehuevi/Southern Paiutes occupied campsites in the Mojave River region and across the Antelope Valley to the west (Jackson and Spence 1970; Mollhausen 1969).

With American conquest of California and then the onset of the California Gold Rush in 1848–1849, use of the Mojave River trail increased dramatically (Walker 1986). A variant of the original Armijo trail passing across Fort Irwin en route to southern Nevada and Utah became known as the Salt Lake Road. Some Gold Rush-era emigrants passed through Salt Lake on their trek to California, and some used the Salt Lake-Las Vegas-Mojave River-Los Angeles route. With the founding of San Bernardino in 1851 by Mormons sent from Salt Lake to establish a Pacific coast supply base, this trail was even more frequently used (Lyman 2004). Nevertheless, at the time of the Williamson Railroad Survey in 1853–1854, the upper and lower Mojave River had not yet been settled.

In 1857, Edward Beale laid out a wagon road route from the east that crossed western Arizona and the Colorado River and then passed through the Mojave villages (Needles) and the Providence Mountains before ascending the Mojave River. This became known as the Government Road. Beginning in 1858, pioneer settlers began to establish desert ranches along the Mojave River that provided fodder, water, and supplies to travelers. Aaron Lane was established at the original Lane's Crossing (Victorville) as early as the end of 1858. Other settlers followed by the early 1860s, establishing additional freighting stations along the river. These included Grapevine (Barstow) and, by the beginning of the 1870s, Fish Ponds (Daggett) (Walker 1986).

By this time, the native-White tension and conflict along the Mojave River trail and the Government Road was also related to a Chemehuevi-Mojave war. The Colorado River-dwelling Chemehuevi and their one-time Mojave allies became embroiled in a major armed conflict during 1865–1867. As the Chemehuevi were better armed but vastly outnumbered, this war triggered a new diaspora of Chemehuevis westward across the Mojave Desert and northern Colorado Desert (Earle 2009).

Mojave River Region Development, 1870-1900

By 1867–1868, the Mojave-Chemehuevi conflict had subsided and incidents on the Mojave River Trail and the Government Road had ceased by the end of the decade, and the Army's Camp Cady was closed by 1871. Mining ventures east of the Sinks of the Mojave, along with the Army's Camp Mojave and the Eldorado Mining District north of it on the Colorado River, and camps in western Arizona, brought constant wagon traffic along the upper and lower Mojave River.

The Southern Pacific Railroad had completed a southern route from San Francisco to Mojave, Los Angeles, and Yuma, Arizona by 1877. The Atlantic and Pacific Railroad, a partial subsidiary of the Atchison, Topeka, and Santa Fe, planned to build from the Midwest and New Mexico to Needles and Mojave in California, but were headed off by the Southern Pacific. The latter company built a "pre-emptive" line from Mojave to Needles in 1882–1883, establishing a major maintenance station at Daggett (Gustafson and Serpico 1996). Thus, the lower Mojave River now had a rail link, leading to a local surge in prospecting and mining. The Calico silver camp just north of Daggett boomed in 1882 as the rails reached the area from the west. Calico would be the largest community in the region in the 1880s, with its population peaking at around 1,000 people (Garrett 1992). The Atlantic and Pacific Railroad then established Barstow as a junction point between the Needles-Mojave line and a new line built from Barstow up the Mojave River and south through Cajon Pass to San Bernardino. In 1888, Barstow had a population of 300 people.

Cattle grazing continued, and graziers would typically homestead or otherwise acquire a spring to set up a small home ranch with enough water for gardening and perhaps production of fodder for saddle horses. Aside from stock grazing, the early agricultural development of the Coolwater-Lugo area was limited to the production of hay and grain in a few river-bottom localities along the upper reaches of the Mojave River. Any further development would have been dependent on the availability of rail transportation and the building of gravity flow irrigation systems, a process that was hindered by litigation, lack of financing, and drought.

In the early 1870s, the Ord Mountain area became a focus of prospecting. A mining district was established at Silver Mountain, northeast of Oro Grande. A new strike there in 1881 led to the establishment of the new mining town of Oro Grande. This was followed by the development of silver mining at Calico in 1882. Over $10,000,000 in silver was mined in the Calico District and Grapevine District north of Daggett and Barstow (Thompson 1929). In addition to precious metals mining, the 1880s saw the establishment of a pioneering cement works at Oro Grande. When California petroleum became available in the 1890s to fuel kilns, cement production rapidly increased in California. Plants were developed at Oro Grande and Victorville that were large producers by the 1920s (Thompson 1929).

Settlement and Development in the Twentieth Century

The 1896–1903 Southern California drought had virtually paralyzed the cattle industry in the Mojave Desert, with graziers forced to sell off their herds. It caused an exodus of farming population from more heavily settled Mojave Desert agricultural areas such as the Antelope Valley, but also affected the Mojave River area. Hesperia Township declined in population from 170 people in 1900 to 92 people a decade later, while the population of Victor Township decreased from 645 to 580. Beginning late in the first decade of the 20th century, however, the Mojave Desert and the Mojave River region experienced a major influx of would-be desert settlers (Owen 1988; Thompson 1929; U.S. Bureau of the Census 1920).

For the Mojave River region, both abundance of subterranean water and the lift required to access it determined whether well-based irrigation would work for the new settlers. Agricultural development of some areas both to the east and west of the Mojave River was hindered by the depth to water. By contrast, just to the north in the Apple Valley region many wells were sunk before 1920 due to the shallower depth to water there. In the regions traversed by Coolwater-Lugo, the northern and western Lucerne Valley areas were most suitable for irrigation development, on account of a water lift of less than 80 feet.

The construction of Boulder Dam (later Hoover Dam) on the Colorado River in the 1930s involved the building of high-tension electrical transmission lines to carry electricity from the dam to southern California. A portion of the right-of-way ("ROW") of these lines, between the Camp Rock Road vicinity and Stoddard Wells Road, is within the Coolwater-Lugo area. The initial construction activity for this line dates from December of 1930 (Los Angeles Times 1930).

The Depression years of the 1930s brought economic dislocation to farmers in Lucerne Valley and elsewhere, with a severe decline in agricultural commodity prices. One of the results of the hard times was a revival in gold and silver prospecting, which became a major weekend activity for Mojave Desert residents in the mid-1930s. There were also commercial efforts to develop mine prospects in the region. By the late 1930s and the 1940s, the blacktopped highway reaching Lucerne Valley from Victorville also brought tourists and hunters, and eventually led to the operation of Dude Ranches in the area after World War II.

This period of economic distress was followed in the early 1940s by a regional economic revival driven by military and war-related activities in the desert. This was to usher in a new military-industrial economy for the Mojave River area in the postwar period. The arrival of the military in the desert was to change the regional economic focus in the post-war years from dependence on railroading, mining, and agriculture to greater dependence on urban employment, including at local military installations.

4.5.2 Regulatory Setting

4.5.2.1 Federal Regulatory Setting

National Historic Preservation Act

Section 106 of the National Historic Preservation Act ("NHPA") requires federal agencies to consult with the Advisory Council on Historic Preservation ("ACHP") to take into account the effects of their undertakings on historic properties, and the procedures in 36 CFR 800 define how federal agencies meet these responsibilities. 36 CFR 800.5(a) describes procedures for evaluating a project's adverse effects on cultural resources. An adverse effect is found when a federal undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register of Historic Places ("NRHP") in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Examples of adverse effects are provided in 36 CFR 800(a)(2) and include, but are not limited to:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

NRHP Eligibility Criteria

National Park Service regulation at 36 CFR 60 is the primary reference for determining the historical significance of a cultural resource. The regulation defines the criteria by which a property is determined to be eligible for listing in the NRHP as,

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that (a) are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant distinguishable entity whose components may lack individual distinction; or (d) that have yielded or may be likely to yield information important in history or prehistory.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act ("ARPA") of 1979 provides for the protection of archaeological resources more than 100 years old and which occur on federally owned or controlled lands. The statute makes it unlawful to excavate and remove items of archaeological interest from federal lands without a permit, and it defines the process for obtaining such a permit from the responsible federal agency. This process includes a 30-day notification to interested persons, including Indian tribes, by the agency to receive comments regarding the intended issuing of a permit. The law establishes a process for prosecuting persons who illegally remove archaeological materials from lands subject to ARPA. The law also provides for curation of archaeological artifacts, ecofacts, notes, records, photographs, and other items associated with collections made on federal lands. Standards for curation are provided for in regulations at 36 CFR 79.

National Environmental Policy Act

The National Environmental Policy Act ("NEPA") of 1970 requires the Federal Government to carry out its plans and programs in such a way as to, "preserve important historic, cultural, and natural aspects of our national heritage" (42 USC § 4331(b)(4)). The intent of the statute is to require that agencies obtain sufficient information regarding historic and cultural properties (including consulting, for example, appropriate members of the public; local, state and other federal government agencies; and Indian tribes, organizations and individuals) to make a determination of the historical and cultural significance of affected historic or cultural properties and to take into account whether irreversible adverse impacts to such resources can or should be avoided, minimized, or mitigated.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act ("NAGPRA") of 1990 provides a process for museums and federal agencies to return certain Native American "cultural items" (i.e., human remains, funerary objects, sacred objects, and objects of cultural patrimony) to lineal descendants, culturally affiliated Indian tribes (i.e., tribes

recognized by the Secretary of the Interior), and Native Hawaiian organizations, if the legitimate cultural affiliation of the cultural items can be determined according to the law. Museums, as defined under the statute, are required to inventory cultural items in their possession and determine which items can be repatriated to the appropriate party. Cultural items intentionally or unintentionally excavated and removed from federal lands may be subject to NAGPRA.

American Indian Religious Freedom Act

The American Indian Religious Freedom Act ("AIRFA") of 1978 directs federal agencies to consult with Native Americans to determine appropriate procedures to protect the inherent rights of Native Americans to believe, express, and exercise their traditional religions including, but not limited to, access to sites, use and possession of sacred objects, and freedom to worship through ceremonials and traditional rites.

Executive Order 13007

Executive Order ("EO") 13007 directs that, in managing federal lands, each executive branch agency with statutory or administrative responsibility for the management of federal lands shall, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and (2) avoid adversely affecting the physical integrity of such sacred sites. Where appropriate, agencies shall maintain the confidentiality of sacred sites. The EO requires that affected agencies establish a process for implementing the EO.

Executive Order 13175

EO 13175 was issued to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes. "Indian tribe" means an Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian tribe pursuant to the Federally Recognized Indian Tribe List Act of 1994, 25 Unites States Code ("U.S.C.") 479a. Relevant federal agencies are directed to establish policies and procedures for implementing consultation with federally recognized tribes on a government-to-government basis.

Executive Order 13287

EO 13287 establishes that, among other things,

> It is the policy of the Federal Government to provide leadership in preserving America's heritage by actively advancing the protection, enhancement, and contemporary use of the historic properties owned by the Federal Government, and by promoting intergovernmental cooperation and partnerships for the preservation and use of historic properties. The

> Federal Government shall recognize and manage the historic properties in its ownership as assets that can support department and agency missions while contributing to the vitality and economic well-being of the Nation's communities and fostering a broader appreciation for the development of the United States and its underlying values.

California Desert Conservation Area Plan

The California Desert Conservation Area ("CDCA") Plan's Cultural Resource Element (as amended in 1999) provides for the protection of significant cultural resources on lands administered by the Bureau of Land Management ("BLM") in compliance with Sections 106 and 110 of the NHPA. Consistent with the NHPA, the CDCA's goals are to:

1. Broaden the archaeological and historical knowledge of the CDCA through continuing inventory efforts and the use of existing data. Continue the effort to identify the full array of the CDCA's cultural resources.

2. Preserve and protect representative sample of the full array of the CDCA's cultural resources.

3. Ensure that cultural resources are given full consideration in land use planning and management decisions, and ensure that BLM authorized actions avoid inadvertent impacts.

4. Ensure proper data recovery of significant (National Register quality) cultural resources where adverse impacts can [not] be avoided.

4.5.2.2 State Regulatory Setting

California Register of Historical Resources

Cultural resources include archaeological and historic objects, sites and districts, historic buildings and structures, and sites and resources of concern to local Native Americans and other ethnic groups. Cultural resources that meet the criteria of eligibility to the California Register of Historical Resources ("CRHR") are termed "historical resources." Archaeological resources that do not meet CRHR criteria also may be evaluated as "unique;" impacts to such resources could be considered significant, as described below.

A site meets the criteria for inclusion in the CRHR if:

1. It is associated with events that have made a significant contribution to the broad patterns of California's History and Cultural Heritage.

2. It is associated with the life or lives of a person or people important to California's past.

3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

4. It has yielded, or may be likely to yield, information important to prehistory or history.

A resource eligible for the CRHR must meet one of the criteria of significance described above and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historical resource may not retain sufficient integrity to meet the criteria for listing in the NRHP, but it may still be eligible for listing in the CRHR.

The CRHR automatically includes the following:

- California properties listed in the NRHP and those formally Determined Eligible for the NRHP;
- California Registered Historical Landmarks from No. 770 onward; and
- Those California Points of Historical Interest that have been evaluated by the California Office of Historic Preservation ("OHP") and have been recommended to the State Historical Commission for inclusion in the CRHR.

Other resources that may be nominated to the CRHR include:

- Historical resources with a significance rating of Category 3 through 5;
- Individual historical resources;
- Historical resources contributing to historic districts; and
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

Impacts to "unique archaeological resources" also are considered under the California Environmental Quality Act ("CEQA"), as described under Public Resource Code ("PRC") Section 21083.2. A unique archaeological resource means an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets one of the following criteria:

- Contains information needed to answer important scientific questions and there is a demonstrable public interest in that information;
- Has a special and particular quality, such as being the oldest of its type or the best available example of its type;

- Is directly associated with a scientifically recognized important prehistoric or historic event or person; or

- A non-unique resource is one that does not fit the above criteria.

4.5.2.3 Local Regulatory Setting

The California Public Utilities Commission ("CPUC") has sole exclusive state jurisdiction over the siting and design of Coolwater-Lugo because the CPUC regulates and authorizes the construction of investor-owned public utility facilities. Although such projects are exempt from local land use and zoning regulations and permitting, CPUC General Order No. 131-D, Section XIV.B requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain a nondiscretionary local permit." As part of its environmental review process, Southern California Edison ("SCE") considers local and state land use plans and policies, and local land use priorities and concerns.

City of Hesperia General Plan – Conservation Element

The *City of Hesperia General Plan* (City of Hesperia 2010) addresses cultural resources in *Goal CN-5,* which states that the City will establish policies and procedures in compliance with state and Federal laws and regulations to identify and properly protect found historical, cultural, and paleontological artifacts and resources. Specific policies are as follows:

- **Policy CN-5.1:** Encourage the preservation of historical, paleontological and cultural resources.

- **Policy CN-5.2:** In those areas where surveys and records indicate historical, cultural or paleontological resources may be found, appropriate surveys and record searches shall be undertaken to determine the presence of such resources, if any.

- **Policy CN-5.3:** All historical, paleontological and cultural resources discovered shall be inventoried and evaluated according to CEQA regulations and the California Office of Historic Preservation.

- **Policy CN-5.4:** The City shall coordinate with the Archeological Information Center at the San Bernardino County Museum in reviewing potential records and in preserving such artifacts as may be found.

- **Policy: CN-5.5:** Through its CEQA and other environmental procedures, the City shall notify appropriate Native American representatives of possible development and shall comply with all State and Federal requirements concerning the monitoring and preservation of Native American artifacts and places.

County of San Bernardino General Plan – Conservation Element

The *County of San Bernardino 2007 General Plan* (County of San Bernardino 2013) addresses cultural resources in *GOAL CO 3*, which states that the County will preserve and promote its historic and prehistoric cultural heritage. Specific policies are as follows:

- **Policy CO 3.1:** Identify and protect important archaeological and historic cultural resources in areas of the County that have been determined to have known cultural resource sensitivity.
- **Policy CO 3.2:** Identify and protect important archaeological and historic cultural resources in all lands that involves disturbance of previously undisturbed ground.
- **Policy CO 3.3:** Establish programs to preserve the information and heritage value of cultural and historical resources.
- **Policy CO 3.4:** The County will comply with Government Code Section 65352.2 (SB 18) by consulting with tribes as identified by the California Native American Heritage Commission on all General Plan and specific plan actions.

Town of Apple Valley General Plan – Archaeological and Historic Resources Element

The *Town of Apple Valley General Plan* (Town of Apple Valley 2009) addresses cultural resources in the Archaeological and Historic Resources Element, which states that all elements of the Town's cultural heritage, including archaeological and historic sites, artifacts, traditions, and other elements, shall be professionally documented, maintained, preserved, conserved, and enhanced. Specific policies are as follows:

- **Policy 1.A:** Early in the planning process, the Town shall implement its obligation to identify, document and assess archaeological, historical and cultural resources that proposed development projects and other activities may affect.
  - **Program 1.A.1:** Where proposed development or land uses have the potential to adversely impact sensitive cultural resources, it shall be subject to evaluation by a qualified specialist, comprehensive Phase I studies and appropriate mitigation measures shall, as necessary, be incorporated into project approvals.
  - **Program 1.A.2:** The Town shall implement the requirements of state law relating to cultural resources, including Government Code 65352.3, and any subsequent amendments or additions.
- **Policy 1.B:** The Town shall establish and maintain a confidential inventory of archaeological and historical resources within the Town, including those identified in focused cultural resources studies.
- **Policy 1.C:** The Town shall, to the greatest extent possible, protect sensitive archaeological and historic resources from vandalism and illegal collection.

  - **Program 1.C.1:** Any information, including mapping, that identifies specific locations of sensitive cultural resources, shall be maintained in a confidential manner, and access to such information shall be provided only to those with appropriate professional or organizational ties.

- **Policy 1.D:** Public participation in and appreciation of the Town's cultural heritage shall be encouraged.

  - **Program 1.D.1:** The Town shall implement a systematic program to enhance public awareness of Apple Valley's heritage, engender wide-ranging support for its preservation, and enhance community pride.

4.5.3 Cultural Resources Significance Criteria

4.5.3.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to cultural resources come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would[1]:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5

- Cause a substantial adverse change in the significance of an archeological resource pursuant to Section 15064.5

- Disturb any human remains, including those interred outside of formal cemeteries

State regulations affecting cultural resources include PRC Sections 21083.2 and 21084.1, and CEQA Guidelines Section 15064.5, and Appendix G. CEQA requires the lead agency to carefully consider the effects a project may have if it causes a substantial adverse change in the significance of a historical or unique archaeological resource.

Cultural resources as defined in CEQA include prehistoric-era and historic-era archaeological sites, districts, and objects; historic buildings, structures, objects, and districts; and traditional/cultural sites or the locations of important historic events. CEQA Guidelines Section 15064.5 states that a project may have a significant environmental effect if it causes a substantial adverse change in the significance of a historical resource. Additionally, the Lead Agency must consider properties eligible for listing in the CRHR or that are defined as a unique archaeological resource in PRC Section 21083.2.

[1] The CEQA Environmental Checklist criterion for assessing whether a project causes a potentially significant impact if it would "directly or indirectly destroy a unique paleontological resource or site or unique geologic feature" is addressed in Section 4.5.1, *Paleontological Resource Significance Criteria*.

4.5.3.2 NEPA Analysis

Unlike CEQA, the NEPA does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (40 CFR 1508.27).

4.5.4 Impact Analysis

The assessment is based on the potential impact of implementing the Proposed Project on cultural resources. The Proposed Project's consistency with applicable plans and zoning was also considered. The impact assessment was conducted to identify the type and extent of impacts on cultural resources that may be affected by implementing the Proposed Project. Impacts were evaluated in the Area of Potential Effects ("APE"), as defined in Section 4.5.4.1, *Cultural Resources in the Coolwater-Lugo Area*. Impacts from the Alternative Project are discussed in Section 4.5.6, *Alternative Project*.

As discussed in Chapter 3.0, *Project Description*, either the Proposed Project or Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. There would be no differences in potential impacts on cultural resources under the IBO and FBO scenarios; therefore, the following impact assessment applies to both scenarios. Full build out of either the Proposed or the Alternative Desert View Substation would occur in the disturbance footprint established during the IBO construction; therefore, no additional lands and associated disturbance would be needed for the FBO of Desert View Substation.

Cultural resources inventory has not been completed for all components of the Proposed and Alternative Project. A records search at the San Bernardino Archaeological Information Center ("SBAIC") has been completed for all of the Coolwater-Lugo components, as has background research relating to the archaeology, ethnography, and history of the Siting Study Area. Class III pedestrian cultural resources field inventory is ongoing and a technical report of findings is being prepared. Based on consultations with the BLM, the Class III inventory is being conducted in a 500-foot-wide corridor (250 feet on either side of centerline of all proposed and alternative transmission line segments), augmented by 1,000-foot radii of potential points of inflection,[1] as well as the area of disturbance of potential staging areas, materials yards, etc., as well as corridors along all construction-related access roads that potentially would be modified or created. A large area surrounding the Proposed Desert View Substation Site and Alternative Desert View Substation Site was also surveyed. The cultural resources inventory addressed in this document is current as of June 28, 2013.

Recommendations regarding eligibility of resources for listing in the NRHP or CRHR have not been reviewed or concurred with by the BLM (as the lead federal agency for

[1] Points of inflection are those locations along the transmission line route where an angle would potentially occur. A larger survey radius was identified for these locations to account for additional work areas that may be needed for construction.

NEPA and NHPA) nor by the CPUC (as the lead state agency for CEQA). Consequently, the analysis of Coolwater-Lugo impacts in this Proponent's Environmental Assessment is preliminary, and significance determinations are currently in process, in coordination with BLM, the California State Historic Preservation Office, and the ACHP for portions of Coolwater-Lugo that fall under the regulatory requirements of the NHPA, and with CPUC for portions that fall under the regulatory authority of CEQA.

4.5.4.1 Cultural Resources in the Coolwater-Lugo Area

Area of Potential Effects

Though the APE has not yet been finalized, where new transmission line ROW would be required, a 200-foot ROW would be requested, with the exception of an approximately 3-mile-long section of Alternative Transmission Line Segment 6, where a 350-foot ROW would be needed to accommodate potentially greater conductor swing due to longer spans over difficult terrain. The APE for direct Coolwater-Lugo effects during construction would correspond to the area within any construction ROW approved by federal and state agencies. The APE would include a 50-foot-wide buffer on either side of the centerline of any existing road that would be modified or any new roadway developed for use during construction that otherwise extends beyond the transmission and/or telecommunication line corridor ROW. The direct effects APE also includes the land disturbance footprint for any staging areas, materials yards, helicopter assembly yards, etc., as well as the entire area of any substations constructed or modified for the Proposed or Alternative Project. The APE for direct Coolwater-Lugo effects would be smaller than the area examined during the Class III pedestrian cultural resources survey.

An APE for indirect effects relating to alteration of the setting and integrity of cultural resources listed in or potentially eligible for listing in the NRHP or the CRHR, such as historic Route 66, the BNSF railroad, National Trails Highway, National Trails Road, etc. has not yet been determined. SCE anticipates that a final determination of the APE will be incorporated into an agreement document between the BLM and other appropriate federal and state agencies per federal regulations at 36 CFR 800.6(c).

Records Search

An archival and records search was conducted for Coolwater-Lugo at the SBAIC. This effort was undertaken in May and June of 2012 and followed on an earlier records search conducted on behalf of SCE in 2011. SCE had obtained geographic information system ("GIS") data regarding the locations of known cultural resources documented in the California Historical Resources Information System ("CHRIS") but had not actually obtained site records, reports and other documentation of the resources themselves or of previous archaeological and other studies relevant to Coolwater-Lugo. SCE's cultural resource consultant, Pacific Legacy, Inc., conducted the archival and records search encompassing a 1-mile radius surrounding the Proposed and Alternative Project components. Sources consulted included the following:

- Information Center site and study base maps

- National Register of Historic Places (Directory of Determinations of Eligibility, California Office of Historic Preservation, Volumes I and II, 2012)
- Office of Historic Preservation Computer Listing 2012)
- California Historic Resources Inventory (State of California 2012)
- California Historical Landmarks (State of California 1996)
- California Points of Historical Interest listing (May 1992)

The Pacific Legacy records search involved checking the thoroughness and accuracy of the previous 2011 records search conducted for the Coolwater-Lugo Siting Study Area, and collecting and digitizing all available documentation of all recorded resources within the more restricted 1-mile radius records search area.

The results of the records search at the SBAIC identified 506 previously recorded resources that fall within the 1-mile search area around the survey corridor. Of the 506 previously recorded resources, 104 resources intersect the survey corridor, including sites that are entirely within the survey corridor, sites that extend outside of the survey corridor, and linear resources that cross the survey corridor. Pacific Legacy identified 215 previously conducted projects that are within the 1-mile records search area.

A records search was conducted on May 6, 2013, at the Marine Corp Logistics Base Barstow, for those portions of the Coolwater-Lugo area with the base. The records search spatial data were digitized from the site record location and sketch maps into ESRI's shapefile format for use in ArcGIS software. Only one of the resources identified in the search occurs within the 200-foot ROW for the Alternative Project transmission line (Segment 9).

Native American Consultation

For purposes of CEQA, correspondence with the Native American Heritage Commission ("NAHC") was initiated by SCE. In a letter dated May 11, 2012, the NAHC reported that it had identified no Native American cultural resources in the Coolwater-Lugo area. The NAHC also provided a list of appropriate Native American contacts. These are:

- Ramona Band of Cahuilla Mission Indians, Chairperson
- San Manuel Band of Mission Indians, Chairperson
- San Manuel Band of Mission Indians, Cultural Resources Department
- Chemehuevi Reservation, Chairperson
- Fort Mojave Indian Tribe, Chairperson
- Fort Mojave Indian Tribe, Cultural Resources Coordinator

- Colorado River Indian Tribe, Museum Curator
- San Fernando Band of Mission Indians, Chairperson
- AhaMaKav Cultural Society, Fort Mojave Indian Tribe, Director
- Morongo Band of Mission Indians, Cultural Heritage Program
- Serrano Nation of Indians
- Morongo Band of Mission Indians Tribal Elder

Two additional organizations not included on the NAHC list were also included:

- Lake Havasu Chemehuevi
- Twenty-Nine Palms Band of Mission Indians, Cultural Resources Director

These individuals and tribes were contacted by letter on November 29, 2012, and by multiple follow-up phone calls between December 2012 and January 2013. A second letter was sent to tribes that identified a new point of contact during the phone conversations. The goal of the mailings and telephone calls was to ensure that all contacts had been informed of Coolwater-Lugo and had been given the opportunity to participate in consultation.

Two tribes, San Manuel Band of Mission Indians and San Fernando Band of Mission Indians, expressed interest in participating in Coolwater-Lugo. Consultation with San Fernando Band of Mission Indians has occurred through phone conversations and is ongoing. Consultation with San Manuel Band of Mission Indians has included four meetings with the tribe, SCE, and BLM (May 9, 2012, December 10, 2012, May 1, 2013, and June 17, 2013), one meeting with the tribe and SCE (December 27, 2012), and numerous field visits by the San Manuel Band of Mission Indians cultural department during the course of archaeological survey. In addition, cultural monitors approved by San Manuel Band of Mission Indians have participated in all phases of the archaeological field survey.

The BLM is responsible for consultation under Section 106 of the NHPA. BLM initiated consultation with appropriate federally recognized tribes and consultation is ongoing. Efforts to date have included field visits and meetings with San Manuel Band of Mission Indians as described above. Agency consultation with the tribes per CEQA and NEPA will continue.

Inventory Methods

In July 2012, Pacific Legacy personnel began a cultural resources inventory survey for Coolwater-Lugo. As mentioned, inventory efforts are not yet complete. The protocols of the Class I Existing Information Survey and the Class III Intensive Field Survey were designed to meet or exceed the standards established by the BLM Manual 8100, *The*

Foundations for Managing Cultural Resources (BLM 2004a) and the BLM Manual 8110, *Identifying and Evaluating Cultural Resources* (BLM 2004b). The detailed methodology was established in consultation with Jim Shearer, Archaeologist, BLM Barstow Field Office; representatives of San Manuel Band of Mission Indians; and SCE Project Archaeologists. The methodology was modified during ongoing consultation with the BLM, SCE, and interested Native American groups.

The primary objectives of the archaeological survey are to (1) identify the locations of previously recorded archaeological resources and describe their current condition; (2) identify archaeological resources not previously documented within the Coolwater-Lugo area; and (3) collect information useful for making recommendations regarding CRHR or NRHP eligibility of each resource. No artifacts were collected and no subsurface testing or excavation has been conducted.

Generally, the Class III inventory has been conducted along corridors not less than 500 feet wide along the proposed and alternative transmission line segments and within a 1,000-foot radius of inflection points identified by SCE. This survey area will likely exceed the APE to be defined by BLM and which will probably correspond to the 200- or 350-foot width of the construction ROW requested by SCE. The goal will be 100 percent coverage, except for inaccessible areas with BLM approval.

A geoarchaeological study was conducted to identify the primary geological deposits and landforms in the Coolwater-Lugo area. A sensitivity model for the potential for buried archaeological deposits has been prepared as an appendix to the technical report.

Resource Definitions. Thresholds were established for the documentation of prehistoric (defined as prior to European contact) and historic period resources. A prehistoric isolate was defined as three or fewer artifacts of the same type or two artifacts of different types in a 25-square-meter area. Any resource that has prehistoric cultural materials greater than this threshold was designated a prehistoric site. A historic isolate was defined as fewer than 10 historic cans of a single type or fewer than 10 bottles of three different types in a 25-square-meter area. Automobile, machinery, or unidentifiable metal scraps were recorded as isolates, as were pits, holes, and other excavations with no temporally diagnostic artifacts. Any resource that has historic cultural material greater than this threshold was recorded as a historic site.

Pedestrian Inventory. The pedestrian survey was conducted by walking transects of the Coolwater-Lugo area at a spacing of no more than 15 meters between crew members. Each survey crew utilized a handheld Global Positioning System ("GPS") unit, topographic maps, and aerial imagery to ensure they provided 100 percent coverage of the survey area, except for inaccessible areas with BLM approval. Any areas that were not inventoried due to lack of access or safety concerns were recorded in the GPS and noted on the Coolwater-Lugo maps.

When a resource was encountered, the survey crew conducted a careful inspection of the vicinity, took a GPS plot of the location, and recorded information on the nature and

extent of the resource. Isolated resources were fully recorded at the time of discovery, while sites were documented at a later date.

Resource Documentation. All cultural resources encountered during the pedestrian inventory were fully documented on the relevant California Department of Parks and Recreation ("DPR") site record forms in keeping with procedures identified in the *Instructions for Recording Historical Resources* (California Office of Historic Preservation 1995). Sketch maps were prepared for all prehistoric and historic sites, showing the extent of the resource, its constituent elements, and the relationship of the resource to other cultural and natural features in the vicinity. A submeter accuracy Trimble GPS was used to record spatial data in digital format for use in GIS software. All sites had their landscape, setting, features, and diagnostic artifacts photographed.

In addition to the standard DPR forms, Pacific Legacy staff recorded information on internal management and evaluation forms that detail the potential impacts of proposed Coolwater-Lugo activities in relation to Coolwater-Lugo and provide a discussion of the evaluation of the resource for eligibility for listing in the CRHR and/or the NRHP.

Results of Identification Efforts

To-date, 344 archaeological resources were identified in the inventory to. These are listed in Appendix E, and include 131 historic period sites, 23 historic isolates 139 prehistoric sites, 32 prehistoric isolates, and six multicomponent sites. A further 13 resources have an indeterminate age, since the nature of the resource (rock cairns, clusters, or rock rings) provides no chronological information. Forty-seven of the resources were previously recorded. The remainder was identified during field survey for the Proposed Project. Of the 344 archaeological resources, including those previously recorded, only six have been evaluated for eligibility for the CRHR or NRHP. Of these, only two have been found eligible. One of these, P-36-021351 (the East Branch of the California Aqueduct), intersected by Proposed and Alternative Transmission Line Segment 12, has been recommended as eligible for the NRHP and CRHR. Another, CA-SBR-7883H (the Daggett Ditch/Canal), intersected by Proposed and Alternative Transmission Line Segment 12 has been determined eligible for the NRHP and CRHR and is listed in the CRHR.

The historic-era archaeological resources consist primarily of debris scatters. Additional resource types include dirt road segments, railroad segments, cairns and rock piles, benchmarks and survey markers, prospecting pits, and homestead sites consisting of building foundations and associated debris. Prehistoric resources are dominated by surface flaked stone lithic scatters, particularly in cobble quarry areas, but also include scatters with ground stone and a few occurrences of hearths and bedrock milling features. Of particular note, archaeological site CA-SBR-321 records the vicinity of the skirmish between Native Americans and American settlers near Chimney Rock in 1867. Chimney Rock itself is California Historical Landmark 737. Chimney Rock is along Proposed and Alternative Transmission Line Segment 5.

In addition to the archaeological resources included in Appendix E, numerous non-archaeological historic period resources were identified through archival research and a literature review. Several electrical transmission lines and substations in the Coolwater-Lugo area are more than 45 years old and are either listed in the NRHP or qualify for consideration for listing in the NRHP or CRHR. Table 4.5-1, *Historic Era Infrastructure*, identifies the relevant elements of the electrical infrastructure. Three transmission lines (Kramer-Lugo No. 1, Kramer-Lugo No. 2, and Boulder Dam-San Bernardino) have been determined eligible for the NRHP, and three lines (Mead-Victorville No. 1, McCullough-Victorville No. 2, and McCullough-Victorville No. 3) are listed.

In addition, Proposed and Alternative Transmission Line Segment 12 will cross over a portion of historic Route 66 in the vicinity of the Coolwater Generating Station 220 kV Switchyard ("Coolwater Switchyard"). Route 66 was constructed in 1926 and decommissioned in 1985. An NRHP Multiple Property Documentation Form for the part of Route 66 in California was accepted by the Keeper of the NRHP in 2012. Although the particular segment of Route 66 to be crossed by Coolwater-Lugo has not been evaluated to determine if it is a contributing element of the historic property, it is assumed that the segment is NRHP eligible. In 2007 the World Monuments Fund listed Route 66 as one of 100 most endangered historically significant sites in the world. Route 66 is variously known as the "Mother Road," and, in parts corresponds with the original routes of the historic National Old Trails Road and Santa Fe Trail.

Proposed and Alternative Transmission Line Segment 12 will cross over Interstate 40, which was built to replace Route 66. The interstate was approved as a federally funded (or chargeable) interstate in 1947, and was substantially completed in California by 1964, making it old enough (i.e., >50 years old) to be considered for NRHP listing.

The same portion of Segment 12 will cross the BNSF railroad tracks. This alignment of the railway is probably close to the original route of the Santa Fe Railroad that was constructed into the Daggett-Barstow area between 1882 and 1886. Portions of the BNSF have been evaluated as eligible for listing in the NRHP, although the part to be crossed over by Coolwater-Lugo apparently has not been evaluated.

This page is intentionally blank.

Table 4.5-1 Historic Era Infrastructure

Common Name	Historic Name	Other Identifier / Notes	Year Built / In Service / Modified	Previously Recorded	NRHP / CRHR Eligible	Applicable Criterion	To Be Evaluated
Coolwater Switchyard	Coolwater Steam Plant	None	1958 / 1961–1979	Not Recorded	Eligibility Unknown	Not Identified	Yes
Lugo-Mohave 500 kV Transmission Line	Lugo-Eldorado 500 kV Transmission Line	Appears to be an early 500 kV Transmission Line.	1963–1964 / 1968–1969 / 1995	Not Recorded	Eligibility Unknown	Not Identified	Yes
Lugo-Pisgah No. 2 220 kV Transmission Line	Boulder - Chino North 230 kV Transmission Line	SCE North or Hoover to Chino No. 1	1940 / 1950–1968	CA-SBR-13115H P-36-14876	Surveyed (2008); Eligibility Unknown	A & C	Yes
Lugo-Pisgah No. 1 220 kV Transmission Line	Boulder - Chino South 230 kV Transmission Line	See comments above for Lugo-Pisgah #2 220 kV Transmission Line.	1937 / 1940 / 1950–1968 / 1984 / 1991	CA-SBR-13115H P-36-14876	Surveyed (2008); Eligibility Unknown	A & C	Yes
Lugo-Victor No. 1 220 kV Transmission Line	Not Identified	Referenced in previous documentation as a section within Kramer-Lugo #1 220 kV Transmission Line. May be a part of the Tower Line.	1950–1968 / 1966	Not Recorded	Eligibility Unknown	Not Identified	Yes
Lugo-Victor No. 2 220 kV Transmission Line	Not Identified	See comments above for Lugo-Victor #1 220 kV Transmission Line. Same comments likely apply.	1950–1968 / 1966	Not Recorded	Eligibility Unknown	Not Identified	Yes

Common Name	Historic Name	Other Identifier / Notes	Year Built / In Service / Modified	Previously Recorded	NRHP / CRHR Eligible	Applicable Criterion	To Be Evaluated
Kramer-Lugo No. 1 220 kV Transmission Line	Control-San Bernardino 140 kV Transmission Line Kramer-Victor 115 kV Transmission Line	This is a modern-day segment of the 1911 Control-San Bernardino Transmission Line, commonly referred to as the Tower Line.	1911 / 1968–1977	CA-SBR-10316H	Determined Eligible (1995)	Likely A & C	Update Only
Kramer-Lugo No. 2 220 kV Transmission Line	Control-San Bernardino 140 kV Transmission Line Kramer-Victor 115 kV Transmission Line	This is a modern-day segment of the 1911 Control-San Bernardino Transmission Line, commonly referred to as the Tower Line. (See footnote below.)	1911 / 1968–1977	CA-SBR-10316H	Determined Eligible (1995)	Likely A & C	Update Only
Coolwater-Kramer No. 1 (renamed in 2013 to Coolwater-Sandlot)	Not Identified	Previous documentation discloses that the name was changed to present identifier in 1972.	1961 / 1977–1979	Not Recorded	Eligibility Unknown	Not Identified	Yes
Coolwater-Kramer No. 2 (renamed in 2013 to Coolwater-Kramer)	Not Identified	Previous documentation discloses that the name was changed to present identifier in 1972.	1961 / 1977–1979	Not Recorded	Eligibility Unknown	Not Identified	Yes

Common Name	Historic Name	Other Identifier / Notes	Year Built / In Service / Modified	Previously Recorded	NRHP / CRHR Eligible	Applicable Criterion	To Be Evaluated
Mead-Victorville No. 1 287 kV Transmission Line	Boulder Dam - Los Angeles 287.5 kV Transmission Line	This is a modern-day segment of the historic Boulder Line. Period of Significance = 1933–1953.	1936 / 1939–1940 / 1970–1973 / 1980 / Post-2008	CA-SBR-7694H P-36-007694	Listed (2000)	A & C	Update Only
McCullough-Victorville No. 2 500 kV Transmission Line	Boulder Dam - Los Angeles 287.5 kV Transmission Line	This is a modern-day segment of the historic Boulder Line. Period of Significance = 1933–1953.	1936 / 1939–1940 / 1970–1973 / 1980	CA-SBR-7694H P-36-007694	Listed (2000)	A & C	Update Only
McCullough-Victorville No. 3 500 kV Transmission Line	Boulder Dam - Los Angeles 287.5 kV Transmission Line	This is a modern-day segment of the historic Boulder Line. Period of Significance = 1933–1953.	1936 / 1939–1940 / 1970–1973 / 1980	CA-SBR-7694H P-36-007694	Listed (2000)	A & C	Update Only
Boulder Dam - San Bernardino Transmission Line	Southern Sierras Power Company / Nevada-California Power Company Electrical Transmission Line	This is the line built in 1930–1931 to service construction of the Boulder Dam - Los Angeles 287.5 kV Transmission Line. The line began to convey electricity to Los Angeles in 1937.	1930–1931 / 1937	CA-SBR-10315H P-36-10315H	Listed (2010)	A & C	Update Only

This page is intentionally blank.

4.5.4.2 CEQA Impact Assessment

Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Construction Impacts

Ground-disturbing activities such as grading, excavation, and trenching are identified as the activities most likely to cause a substantial adverse change in the significance of historical resources. These impacts would occur only during construction, but could involve all Coolwater-Lugo components. Indirect impacts would include alteration of the historic setting of the Coolwater-Lugo area, most likely through the introduction of new, intrusive visual elements, and typically would impact historical period resources where the historic setting is a key contributor to a resource's significance.

At this point in the inventory effort, at least one historical resource has been identified that likely will be found eligible for the CRHR and which may sustain adverse effects to characteristics that contribute to its historical significance. This is historic Route 66, a portion of which occurs in the vicinity of Proposed and Alternative Transmission Line Segment 12. The resource would not be directly impacted, but the historic setting of the resource could be impacted through the introduction of new visual elements of Coolwater-Lugo. It is anticipated that an agreement document and treatment plan would be developed to resolve adverse effects to this resource and any other historical resources as defined in Section 15064.5, though at this point in the inventory effort it would be premature to identify specific resources or mitigation measures. Several additional resources previously recommended or determined eligible for the CRHR, including a roadway, an aqueduct segment, and several transmission lines, fall into the same category. Although they will not be directly impacted by the Proposed Project, whether they will be indirectly impacted is uncertain. If necessary, a treatment plan would be developed to resolve adverse effects. The remaining resources have not been evaluated for eligibility. While the lead agency may determine a resource to be eligible based on section 15064.5 subsection 4, based on results to date, as well as flexibility in the final Coolwater-Lugo design, less than significant impacts are anticipated during the construction of the Proposed Project with application of Applicant Approved Measure ("APM") CUL-1 for treatment of known historical resources, and APM CUL-2 for construction monitoring and treatment of unanticipated finds.

Operation Impacts

Operation of the Proposed Project would involve routine inspections, maintenance, and emergency work. Activities associated with operating the Proposed Project would occur within areas previously disturbed during construction and on existing roadways and access roads. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project cause a substantial adverse change in the significance of an archeological resource pursuant to Section 15064.5?

Construction Impacts

Archaeological resources typically are subject to direct impacts only. As described above, these would include primarily any ground-disturbing activities associated with the Proposed Project. Archaeological resources identified during the inventory have not been evaluated for eligibility to the CRHR. While the lead agency may determine a resource to be eligible based on section 15064.5 subsection 4, based on results to date, as well as flexibility in the final Coolwater-Lugo design and other forms of mitigation, less than significant impacts are anticipated during the construction of the Proposed Project with application of APM CUL-1 for treatment of known resources, and APM CUL-2 for construction monitoring and treatment of unanticipated finds.

Operation Impacts

Operation of the Proposed Project would involve routine inspections, maintenance, and emergency work. Activities associated with operating the Proposed Project would occur within areas previously disturbed during construction and on existing roadways and access roads. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project disturb any human remains, including those interred outside of formal cemeteries?

Construction Impacts

The Proposed Project has the potential to encounter human remains at some archaeological sites, particularly during ground-disturbing activities as described above. The methodology of the archaeological inventory has been designed, in part, to locate and identify any such sites and to plan for avoidance during design and construction to the extent possible. Further, consultation with Native American representatives is ongoing, and part of that consultation is also designed to identify and avoid areas with the potential for human remains. Though considered unlikely, inadvertent discovery of human remains during construction of the Proposed Project is possible. If human remains are encountered, SCE would follow the policies and procedures contained in PRC Sections 5097.98 and 5097.99 for remains on state, local and private land, and provisions contained in NAGPRA for remains on federal land. Therefore, less than significant impacts are anticipated during construction of the Proposed Project with application of APM CUL-1 for treatment of known resources with remains, and APM CUL-2 for construction monitoring and treatment of unanticipated finds.

Operation Impacts

Operation of the Proposed Project would involve routine inspections, maintenance, and emergency work. Activities associated with operating the Proposed Project would occur within areas previously disturbed during construction and on existing roadways and

access roads. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

4.5.4.3 NEPA Impact Assessment

Unlike CEQA, the NEPA does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (40 CFR 1508.27).

For the purposes of this analysis, the term "Proposed Action" as used in NEPA regulations and analysis is used interchangeably with the "Proposed Project.

Construction Impacts

Ground-disturbing activities such as grading, excavation, and trenching are identified as the activities most likely to cause a substantial adverse change in the significance of historic properties. These impacts would occur only during construction, but could involve all Coolwater-Lugo components. Indirect impacts would include alteration of the historic setting of the Coolwater-Lugo area, most likely through the introduction of new, intrusive visual elements, and typically would impact historical period resources where the historic setting is a key contributor to a resource's significance.

At this point in the inventory effort, at least one resource has been identified that likely will be found eligible for NRHP listing and likely will be indirectly impacted by the project. This is historic Route 66, a portion of which occurs in the vicinity of Segment 12 of the Proposed Project. The resource would not be directly impacted, but the historic setting of the resource could be adversely affected through the introduction of new visual elements. Several additional resources previously recommended or determined eligible for the NRHP, including a roadway, an aqueduct segment, and several transmission lines, fall into the same category. Although they will not be directly impacted by the Proposed Project, whether they will be indirectly impacted is uncertain. If necessary, a treatment plan would be developed to resolve adverse effects. Given that none of the remaining archaeological resources have been evaluated for eligibility for listing in the NRHP, it is difficult to provide an accurate assessment of adverse effects. It is anticipated that an agreement document and treatment plan would be developed to resolve adverse effects to historic Route 66 and any other significant resource identified through evaluation, though at this point in the inventory effort it would be premature to identify specific resources or applicant proposed measures. Therefore, based on preliminary data, as well as flexibility in the final Coolwater-Lugo design, less than significant impacts are anticipated during construction of the Proposed Project, with application of APM CUL-1 for treatment of known historic properties, and APM CUL-2 for construction monitoring and treatment of unanticipated finds.

Operation Impacts

Operation of the Proposed Project would involve routine inspections, maintenance, and emergency work. Activities associated with operating the Proposed Project would occur within areas previously disturbed during construction and on existing roadways and access roads. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

4.5.5 Applicant Proposed Measures

Consistent with the federal, state, and local laws, ordinances, regulations, and statutes cited in Section 4.5.2, *Regulatory Setting*, the applicant proposes the following measures to avoid, minimize, or mitigate any significant adverse impacts/effects to significant cultural resources.

APM CUL-1: Potential Project effects to Historical Resources/Historic Properties may be mitigated or reduced to a less than significant level by utilizing one, or a combination of standard-practice mitigation scenarios including, but not limited to:

Prehistoric Resources:

a. Avoid (avoidance by design, preserve in place, capping);

b. Minimize (reduction of Area of Direct Impact/Effect);

c. Mitigate (data recovery).

Historic Resources:

a. Avoid (avoidance by design, preserve in place, capping);

b. Minimize (reduction of Area of Direct Impact/Effect);

c. Mitigate (historic context statement, data recovery).

Historic Architecture/Utility Infrastructure:

a. Avoid (avoidance by design, preserve in place);

b. Minimize (reduction of Area of Direct Impact/Effect);

c. Mitigate (historic context statement, Historic American Engineering Record, Historic American Building Survey, advanced DPR recordation).

Traditional Cultural Property:

a. Consult with Native American stakeholders on perceived impacts/effects and negotiate mutually agreeable treatment.

APM CUL-2: During construction, it is possible that previously unknown archaeological or other cultural resources or human remains could be discovered. Prior to construction, SCE would prepare a Construction Monitoring and Unanticipated Cultural Resources Discovery Plan or a similar document to be implemented if an unanticipated discovery is made. At a minimum the Plan would detail the following elements:

- Worker and supervisor training in the identification of cultural remains that could be found in the Proposed Project area, and the implications of disturbance and collection of cultural resources per applicable federal and state laws
- Worker and supervisor response procedures to be followed in the event of an unanticipated discovery, including appropriate points of contact for professionals qualified to make decisions about the potential significance of any find
- Identification of persons authorized to stop or redirect work that could affect the discovery, and their on-call contact information
- Procedures for monitoring construction activities in archaeologically sensitive areas
- A minimum radius around any discovery within which work would be halted until the significance of the resource has been evaluated and mitigation implemented as appropriate
- Procedures for identifying and evaluating the historical significance of a discovery
- Procedures for consulting Native Americans when identifying and evaluating the significance of discoveries involving Native American cultural materials
- Procedures to be followed for treatment of discovered human remains per current state law and protocol developed in consultation with Native Americans

4.5.6 Alternative Project

As described in Section 3.15, *Project Alternatives*, either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Line Route, but not both. A separate impact analysis is provided for these two scenarios.

Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation; the Alternative Transmission Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6; and the Alternative Apple Valley to Desert View and Gale to Pisgah telecommunications routes.

Data on cultural resources for all the Coolwater-Lugo components are presented in Table 4.5-1 and Appendix E. Here, the corresponding Proposed and Alternative project components are compared. Of the resources within the proposed APE, seven resources have been identified in Proposed Segment 3, whereas 14 resources occur in the Alternative Segment 4. Ten resources have been identified in proposed Segment 7, whereas 139 resources occur in the Alternative Segment 6. Ten resources have been identified in the Proposed Segment 1, versus 64 resources in the Alternative Segments 8, 9, and 11. Five resources have been identified along Proposed and Alterative Segment 12. It is important to note that Route 66, the one resource identified as likely to incur impacts from the Proposed Project, occurs in both the Proposed and Alternative Transmission Line Segment 12. Two additional resources recommended or determined eligible for the CRHR and NRHP also occur along the Proposed and Alternative Transmission Line Segment 12.

Based on known eligible resources, potential impacts do not differ between the Proposed and Alternative Project with Segment 9, since these resources occur within both Coolwater-Lugo areas. Based on the numbers of resources as compared above, however, the Proposed Project components contain many fewer resources than the Alternative Project with Segment 9 components (see Table 4.5-1 and Appendix E). That said, it is again worth noting that most of the resources have not been evaluated for eligibility for listing in the NRHP or CRHR. Many of these, particularly along Alternative Segments 6 and 9, are low-density prehistoric lithic artifact scatters and sparse historic debris scatters. It is likely that many of these resources will not be found historically significant. Further, as with the Proposed Project, many of the resources identified within the Alternative Project with Segment 9 may be avoided in the final Coolwater-Lugo design, and may ultimately fall outside the final APE. Also, the types of impacts anticipated from the Alternative Project with Segment 9 do not differ in kind from those of the Proposed Project, and the means for avoiding or mitigating impacts are the same as well. Therefore, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 9, with application of APM CUL-1 for treatment of known significant resources, and APM CUL-2 for construction monitoring and treatment of unanticipated finds.

Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, the Alternative Transmission Line Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and the Apple Valley to Desert View and Gale to Pisgah telecommunication routes. A full description of the Alternative Project components is provided in Section 3.15, *Project Alternatives.*

The Alternative Desert View Substation and Alternative Transmission Line Route with Segment 10 have a similar setting to that of the Proposed Project and the Alternative Project with Segment 9. Aside from one fewer resource in Segment 9 versus Segment 10, there is no substantial difference in potential impacts to significant cultural resources between construction and operation of Segment 9 or Segment 10. As a result, impacts would be similar to those of the Alternative Project with Segment 9. Therefore, less than

significant impacts are anticipated during construction and operation of the Alternative Project with Segment 10, with application of APM CUL-1 for treatment of known significant resources, and APM CUL-2 for construction monitoring and treatment of unanticipated finds.

4.5.7 Paleontological Resources

4.5.7.1 Environmental Setting

Coolwater-Lugo traverses multiple geologic formations of varying ages and paleontological sensitivities. Miocene sandstones and conglomerates (Tss, Tcr), Pleistocene older alluvium (Qoa), Pleistocene fan deposits (Qvof), and late Pleistocene/Holocene lacustrine sediments all have high potential to contain significant fossil resources, and so are assigned high paleontological sensitivity. Holocene alluvium (Qa) is too young to contain *in situ* paleontological resources, and miscellaneous plutonic and metamorphic rocks do not contain significant fossil resources and have low paleontological sensitivity. Miocene-age lacustrine and volcanic sequences are present in several regions adjacent to the Coolwater-Lugo area, including the Mud Hills, the Calico Mountains, Lead Mountain, Harvard Hill, and Daggett Ridge.

In many of these areas, including Daggett Ridge, which lies within the Proposed Project alignment, lacustrine sediments have been demonstrated to be highly fossiliferous (Reynolds and Woodburne 2001). Exposures of Pleistocene and Miocene deposits in the vicinity of the proposed Coolwater-Lugo corridor have yielded fossil remains of extinct camels (Camelidae), antilocaprids (*Merycodus* sp.), horses (*Merychippus* spp., *Archaeohippus* sp.), carnivorans (Amphicyonidae, Canidae, Felidae) and rodents (*Miospermophilus* sp., *Cupidinimus* sp., *Mojavemys* sp., *Peridiomys* sp., *Proheteromys* sp., *Mookomys* sp., etc. (McLeod 2012). Additionally, a recent search of the San Bernardino Museum Regional Paleontologic Locality Inventory has produced the following list of taxa observed in the Daggett Ridge vicinity: Camelidae, Rodentia, *Cupidinimus* cf. *nebraskensis*, Sciuridae, Insecta, Ostracoda, Cyprinidae, Heterocypris, Serpentes, Calamagras, Lacertilia, Rodentia, Miospermophilus, Heteromyidae, *Cupidinimus nebraskensis*, *Cupidinimus* n. (small), *Mojavemys* cf. *lophatus*, *Peridiomys*, *Proheteromys sulculus*, *Mookomys altifluminus*, *Perognathus furlongi*, *Perognathus minutus*, Amphicyonidae, Canidae, Machairodontinae, Felidae, Camelidae (small, medium, and large), Merycodus, Artiodactyla, Archaeohippus, *Merychippus* cf. *carrizoensis*, stylodontus, and Merychippus (large) (Scott 2012). Another locality records search was compiled by Bob Reynolds, a professional paleontologist, and yielded a list of taxa including fish, insects, rodents, and cat and camel tracks (Aron et al. 2013). These previously recorded localities are summarized in Table 4.5-2, *Previously Recorded Fossil Localities Adjacent to the Proposed Project*.

Table 4.5-2 Previously Recorded Fossil Localities Adjacent to the Proposed Project

ID Number	Formation	Taxa	Age
SBCM 1.109.1	Qoa	Camelidae (large) first phalanx, limb fragments	Holocene – Pleistocene
SBCM 1.109.2	Qa	Pltana [sic](= Platanus?), Insecta, Ostracoda, Cyprinidae, *Heterocypris*, Serpentes, Calamagras, Lacertilia, Rodentia, Sciuridae, *Miospermophilus*, Heteromyidae, *Cupidinimus nebraskensis*, *Cupidinimus n*. (small), *Mojavemys* cf. *lophatus*, *Peridiomys*, *Proheteromys sulculus*, *Mookomys altifluminus, Perognathus furlongi*, *Perognathus minutus*, Amphicyonidae, Canidae, Machairodontinae, Felidae, Camelidae (small) (medium) (large), *Merycodus*, Artiodactyla, *Archaeohippus*, *Merychippus* cf. *carrizoensis*, *Merychippus stylodontus*, Merychippus (large)	Holocene – Pleistocene?
SBCM 1.109.3	Qa	Rodentia, Gila (intrusive?)	Holocene – Pleistocene?
SBCM 1.109.4	Qa	Plantae root casts, Insecta casings, Gila (intrusive?), *Cupidinimus* cf. *nebraskensis*, Camelidae (small), Camelidae (large)	Holocene – Pleistocene?
SBCM 1.109.5	Qoa	Sciuridae, Rodentia	Holocene -- Pleistocene
SBCM 1.109.6	Qa/Qoa	Camelidae (large)	Holocene – Pleistocene?
LACM 1224	Qoa?	*Camelops* sp.	Holocene – Pleistocene?
LACM (CIT) 402	Tcr	Turtle, Testudinata, Camel, Camelidae, Horses, *Merychippus tehachapienis*, *Parapliohippus carrizoensis*	Miocene
Bob Reynolds LVL 1	Qa/ Tss	Cat and Camel tracks	Holocene – Pleistocene
Bob Reynolds LVL 2	Qa/Tss	Mammalia	Holocene – Pleistocene
Bob Reynolds LVL 3	Qa/Tss	Mammalia	Holocene – Pleistocene
Bob Reynolds R12-25-1	Tss/Qoa	Rodentia, Insecta	Pleistocene

Table 4.5-2 Previously Recorded Fossil Localities Adjacent to the Proposed Project

ID Number	Formation	Taxa	Age
Bob Reynolds R12-25-2	Tss	Camel tracks	Pleistocene
Bob Reynolds Rer Notes	Qa	Fish	Holocene - Pleistocene

LACM = Los Angeles County Museum
SBCM = San Bernardino County Museum

4.5.8 Regulatory Setting

4.5.8.1 Federal Regulatory Setting

The management and preservation of paleontological resources on public lands is prescribed under various laws, regulations, and guidelines. For the past several decades, the BLM has used the Federal Land Management and Policy Act (FLPMA 1976) as the legislative foundation for its paleontological resource management policies. The BLM has also developed general procedural guidelines (Manual H-8720-1; Instructional Memorandum ["IM"] 2008-009; IM 2009-011) for the management of paleontological resources (BLM 2007, 2008). Paleontological resource management objectives include the evaluation, management, protection and location of fossils on BLM managed lands. Management policy also includes measures to ensure that proposed land-use projects do not inadvertently damage or destroy scientifically significant paleontological resources.

The National Environmental Policy Act [NEPA] of 1969, as amended (Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258 § 4(b), Sept. 13, 1982).

This recognizes the continuing responsibility of the Federal Government to "preserve important historic, cultural, and natural aspects of our national heritage . . ." (Sec. 101 [42 U.S.C. § 4321]) (#382).

Federal Land Management and Policy Act of 1976 (43 U.S.C. 1712[c], 1732[b]); sec. 2, Federal Land Management and Policy Act of 1962 [30 U.S.C. 611]; Subpart 3631.0 et seq.), Federal Register Vol. 47, No. 159, 1982.

This defines significant fossils as unique, rare, or particularly well-preserved; an unusual assemblage of common fossils; being of high scientific interest; or providing important new data concerning [1] evolutionary trends, [2] development of biological communities, [3] interaction between or among organisms, [4] unusual or spectacular circumstances in the history of life, [5] or anatomical structure.

Paleontological Resources Preservation, Omnibus Public Lands Act, Public Law 111-011, Title VI, Subtitle D (OPLA-PRP 2009).

This legislation directs the Secretaries (Interior and Agriculture) to manage and protect paleontological resources on federal land using "scientific principles and expertise." Omnibus Public Lands Act-Paleontological Resources Preservation ("OPLA-PRP") incorporates most of the recommendations of the report of the Secretary of the Interior entitled Assessment of Fossil Management on Federal and Indian Lands (2000) in order to formulate a consistent paleontological resources management framework. In passing the OPLA-PRP, Congress officially recognized the scientific importance of paleontological resources on some federal lands by declaring that fossils from these lands are federal property that must be preserved and protected. The OPLA-PRP codifies existing policies of the BLM, National Park Service, U.S. Forest Service, Bureau of Reclamation, and U.S. Fish and Wildlife Service, and provides the following:

- Uniform criminal and civil penalties for illegal sale and transport, and theft and vandalism of fossils from federal lands
- Uniform minimum requirements for paleontological resource-use permit issuance (terms, conditions, and qualifications of applicants)
- Uniform definitions for "paleontological resources" and "casual collecting"
- Uniform requirements for curation of federal fossils in approved repositories

Federal legislative protections for scientifically significant fossils applies to projects that take place on federal lands (with certain exceptions such as Department of Defense), involve federal funding, require a federal permit, or involve crossing state lines. Since a portion of the Coolwater-Lugo area occurs on BLM managed lands, federal protections for paleontological resources for those areas apply under NEPA, FLPMA, and OPLA-PRP.

All paleontological work on BLM lands must be approved and coordinated by the BLM Barstow Field Office. Paleo Solutions Principal Investigator, Geraldine Aron, holds BLM Paleontological Resources Use Permit # CA-13-01P (expiration 2016). All fossils collected from BLM lands must be housed in a federally approved paleontological repository. The paleontological repository for the above listed permit is the San Bernardino County Museum.

4.5.8.2 State Regulatory Setting

The State of California PRC (Chapter 1.7), Sections 5097.5 and 30244, includes additional state-level requirements for the assessment and management of paleontological resources. These statutes require reasonable mitigation of adverse impacts to paleontological resources resulting from development on state lands, define the removal of paleontological "sites" or "features" from state lands as a misdemeanor, and prohibit the removal of any paleontological "site" or "feature" from state land without permission of the jurisdictional agency. These protections apply only to State of California land, and thus apply only to portions of Coolwater-Lugo that occur on state-owned or administrated lands.

4.5.8.3 Local Regulatory Setting

County of San Bernardino General Plan

The *County of San Bernardino 2007 General Plan* (2013) has requirements in place under Goal Co. 3:

- **Goal Co. 3.4/5**: Project requiring grading plans that are located in areas of known fossil occurrences or demonstrated in a field survey to have fossils present will have rough grading (cuts greater than 3 feet) monitored by trained paleontological crews working under the direction of a qualified professional, so that fossils exposed during grading can be recovered and preserved. Fossils include large and small vertebrate fossils, the latter recovered by screen washing of bulk samples.

A preliminary report must be submitted and approved prior to the granting of building permits, and a final report must be submitted and approved prior to the granting of occupancy permits (as applicable). The adequacy of paleontologic reports is determined in consultation with the Curator of Earth Science, San Bernardino County Museum (County of San Bernardino 2013).

City of Hesperia General Plan

The *City of Hesperia General Plan* (2010) has three requirements regarding paleontological resources:

- **MM CR-3a:** Areas of the City have been determined to exhibit "Low" paleontological resource sensitivity in the technical report written in support of the General Plan Update EIR. If the particular project is located in a region deemed Low and exhibits the following qualities, no further paleontological research is necessary if:

    1. The property has been surveyed by a qualified professional in the last five years, or,

    2. The property has been mass graded for modern construction purposes in the recent past or,

    3. The property is less than five acres in size.

- **MM CR-3b:** In those areas of the City that exhibit "Medium" paleontological resource sensitivity, a qualified paleontologist as part of the planning process must undertake a formal record search of the project at a local museum. A paleontological records search need not take place if City Planning determines that:

    1. The property has been previously evaluated by a qualified paleontological professional, or,

2. The property has been mass graded for modern construction purposes in the recent past. A qualified paleontologist shall monitor areas exhibiting Medium resource sensitivity during construction-related earthmoving if and only if the records search shows that there is some potential for impacts to paleontological resources at the specific site.

- **MM CR-3c:** In those areas of the City that exhibit "High" paleontological resource sensitivity, a qualified paleontologist must undertake a records search and a field survey of the Planning Area. A survey in the High sensitivity areas need not take place if research shows that:

  1. The property has been previously evaluated by a qualified paleontological professional, or,

  2. The property has been mass graded for modern construction purposes in the recent past. A qualified paleontologist shall monitor areas exhibiting high resource sensitivity during construction-related earthmoving in all cases.

4.5.9 Paleontological Resources Significance Criteria

4.5.9.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to paleontological resources come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature

4.5.9.2 NEPA Analysis

Impact significance under NEPA is defined by the Council on Environmental Quality regulations and requires consideration of the temporal scale, spatial extent, and intensity of the change that would be introduced by the Proposed Action.

4.5.9.3 Impact Analysis

As discussed in Chapter 3.0, *Project Description*, either the Proposed Project or Alternative Project would include IBO and FBO of Desert View Substation. There would be no differences in potential impacts on paleontological resources under the IBO and FBO scenarios; therefore, the following impact assessment applies to both scenarios. Full build out of either the Proposed or the Alternative Desert View Substation would occur in the disturbance footprint established during the IBO construction; therefore, no additional lands and associated disturbance would be needed for the FBO of Desert View Substation.

Direct and Indirect Impacts

Direct impacts on paleontological resources could occur as the result of breakage and crushing of surface rocks and sediments, in which fossils are entombed. Indirect impacts result from increased access to paleontological resources by construction personnel and recreational users of public lands as the result of construction related to Coolwater-Lugo, leading to vandalism and unauthorized collection (theft) of resources.

The threshold for significant adverse impacts to paleontological resources is reached with the damage or destruction of fossils that are scientifically significant and the loss of associated scientific information. This includes destruction as the result of surface and subsurface disturbance as well as unlawful vandalism and unauthorized collection of fossil remains. Implementing paleontological mitigation for known fossil sites and unknown subsurface fossil sites would ensure that potential adverse impacts on paleontological resources within the Coolwater-Lugo area are reduced to a less than significant level. This includes collecting or avoiding scientifically significant fossils located on the ground surface and monitoring construction excavations in rocks and sediments with the potential to contain subsurface fossils so that they can be salvaged when they are uncovered.

A project would have a significant paleontological resources impact if it would:

- Damage or destroy a scientifically significant paleontological resource
- Directly or indirectly destroy a unique geologic feature associated with a paleontological resource
- Cause the loss of valuable scientific information by disturbing the geologic context in which scientifically significant paleontological resources are contained

4.5.9.4 Paleontological Resources within the Coolwater-Lugo Area

Qualified paleontological specialists from Paleo Solutions reviewed published and recorded paleontological and geological information and collections, inspected aerial and satellite imagery, compiled geologic maps and GIS data for Coolwater-Lugo, and prepared a summary inventory and assessment of importance for paleontological resources likely to occur in the Coolwater-Lugo area. The Coolwater-Lugo description and available data were then reviewed and potential impacts identified and located. A formal analysis of existing data was performed to comply with BLM standards and requirements (BLM 1998, 2008). A survey of the Coolwater-Lugo area was performed to locate and constrain the locations of potentially fossiliferous sedimentary units and locate any fossils that were exposed on the surface. Applicant Proposed Measures were developed to reduce impacts to less than significant levels. Additional details on these methods are provided below.

To develop a baseline paleontological resource inventory of the Coolwater-Lugo area, the following tasks were conducted in accordance with Society of Vertebrate Paleontology (SVP 2010) and BLM guidelines.

Conduct a Geologic Inventory. Geologic maps and reports covering the surficial geology of the Coolwater-Lugo area were reviewed by qualified paleontological specialists to determine the identity and location of rock units exposed in the Coolwater-Lugo area, particularly those rock units known to contain fossils, and to determine their distribution in the Coolwater-Lugo area.

Conduct a Paleontological Resource Inventory. Published and unpublished geologic and paleontologic literature was reviewed to document both the number and locations of previously recorded fossil sites in and/or near the Coolwater-Lugo area from each rock unit exposed within the Coolwater-Lugo area, and the types of fossils that the rock unit has produced locally. The literature review was supplemented by archival searches conducted at the Department of Vertebrate Paleontology of the Natural History Museum of Los Angeles County, the San Bernardino County Museum, and from specialists familiar with the area. This was done to obtain additional information on known fossil sites in and near the Coolwater-Lugo area.

Assess Paleontological Importance. Fossils identified during the paleontological resource inventory were evaluated in terms of their scientific importance. Identifiable fossil land mammal remains, for example, are considered scientifically important because of their potential use in providing accurate age determinations and environmental reconstructions for the rock units in which they occur. Furthermore, such remains are comparatively rare in the fossil record.

Assess Rock Unit Sensitivity and Importance. The paleontological productivity of rock units within the Coolwater-Lugo area was determined based on existing records of the abundance, distribution, or density of fossils or recorded in the rock unit. Highest potentials were assigned to exposures or occurrences of rock units known to, or are most likely to, yield many complete fossils representing important species in quantities or densities similar to or greater than those previously recorded from the rock unit. Criteria for assessing the paleontological productivity of rock units exposed in the Coolwater-Lugo area were based on the BLM's Potential Fossil Yield Classification ("PFYC") System (BLM 2007). This system bases sensitivity on the potential for a rock unit to produce significant fossils. PFYC Class 1, the lowest sensitivity, is assigned to units that are igneous or highly metamorphosed in nature, where it would be extremely unlikely to impossible to contain or preserve any fossil remains. The highest ranking, PFYC Class 5, is assigned to rock units that consistently produce high-quality, scientifically significant fossil remains. PFYC Class 3 and PFYC Class 4 are assigned to rock units of moderate to high sensitivity, respectively.

Paleontological Survey and Report. Using the PFYC system, the paleontological or scientific importance of a rock unit exposed in the Coolwater-Lugo area was assessed individually to determine its sensitivity. The units of moderate (PFYC Class 3) to high (PFYC Class 4) sensitivity were subjected to a 100% pedestrian paleontological survey. No rock units of very high sensitivity (PFYC Class 5) lie in the APE or within a 250-foot radius of Coolwater-Lugo. Units of very low (PFYC Class 1) to low (PFYC Class 2) were quickly surveyed to determine the accuracy of geologic mapping. A final paleontological survey report was prepared and submitted in accordance with CEQA and

BLM guidelines and requirements. The survey report contains paleontologic and geologic background, applicable laws and regulations, the results of the survey, any fossils observed during the survey, and recommendations.

A field survey was completed in October and November of 2012, and May of 2013. It is assumed that scientifically significant fossils may be located on and under the ground surface in areas with paleontological potential, and the potential for adverse impacts resulting from Coolwater-Lugo-related ground-disturbing actions correlates with the paleontological sensitivity rankings of the geologic formations within the Coolwater-Lugo area as determined using the PFYC system (BLM 2007).

The greater the acreage of surface disturbance in geologic units with paleontological potential (PFYC Classes 3-5), the greater the potential will be for adverse impacts on scientifically significant fossils. Conversely, lesser amounts of disturbance in these same geologic units lower the potential for adverse impacts to scientifically significant fossils.

The potential fossil yield analysis is provided in Tables 4.5-3, *Potential Fossil Yield Summary of the Transmission Line Segments*; 4.5-4, *Potential Fossil Yield Summary of the Proposed Project and Alternative Project Staging Yards*; and 4.5-5, *Potential Fossil Yield Summary of the Proposed and Alternative Desert View Substation*.

Table 4.5-3 Potential Fossil Yield Summary of the Transmission Line Segments

Segment	Miles	PFYC 1 (miles)	PFYC 2 (miles)	PFYC 3 (miles)	PFYC 4 (miles)
01	17.07	0.00	11.00	5.92	0.15
02	11.93	0.82	10.98	0.13	0.00
03	3.85	0.00	3.85	0.00	0.00
04	4.34	0.00	4.03	0.31	0.00
05	12.82	0.83	11.13	0.86	0.00
05 A	0.39	0.00	0.31	0.09	0.00
05 B	1.67	0.00	0.48	1.19	0.00
06	19.67	6.25	3.71	9.32	0.39
07	15.82	0.00	8.42	6.48	0.92
08	10.29	1.94	7.27	1.08	0.00
09	8.61	0.00	4.87	3.74	0.00
10	7.63	0.00	2.58	5.06	0.00
11	1.77	0.00	1.66	0.11	0.00
12	1.25	0.00	1.12	0.13	0.00

PFYC = Potential fossil yield category

Table 4.5-4 Potential Fossil Yield Summary of the Proposed Project and Alternative Project Staging Yards

Potential Staging Yards	Total Surveyed Acres*	PFYC 2 (acres)	PFYC 3 (acres)
Armory Rd – 20 Acres – SCE	24.20	24.20	0.00
Arrowhead Lake Road – 1 to 18 Acres – SCE	22.17	22.17	0.00
Arrowhead Lake Road – 2 to 14 Acres – SCE	12.70	12.70	0.00
Bear Valley Road – 9 Acres – SCE	12.68	12.68	0.00
Coolwater – 2 to 21 Acres – SCE	25.50	25.50	0.00
Coolwater – 1 to 22 Acres – SCE	26.28	26.28	0.00
Desert View Substation – 15 Acres – SCE	15.00	0.00	15.00
Desert View Substation Road – 10 Acres – SCE	10.00	0.00	0.00
Desert View Substation Site – 20 Acres – SCE	20.00	0.00	20.00
East of Lugo Substation – 15 Acres – SCE	16.61	16.61	0.00
Gazelle Rd – 6 Acres – SCE	8.32	8.32	0.00
Future Jasper Substation Site – 10 Acres – SCE	10.00	10.00	0.00
SR-247 at Segment 1 – 20 Acres – SCE	24.08	24.08	0.00
Existing Lugo Substation Transmission Yard – 20 Acres – SCE	24.25	24.25	0.00
Pendleton Road – 20 Acres – SCE	24.54	17.55	6.99
West of Lugo Substation – 13 Acres – SCE	16.61	16.61	0.00

PFYC = Potential Fossil Yield Category

*Acreages slightly larger than the footprint of the yard to account for survey radius greater than the yard footprint.

Table 4.5-5 Potential Fossil Yield Summary of the Proposed and Alternative Desert View Substation

Part	Unit	PFYC	Age	Acres
Alternative	Quaternary alluvium (Qa)	2	Holocene alluvium	122.56
Alternative	Quaternary older alluvium (Qoa)	3a	Holocene to Pleistocene alluvium	24.31
Proposed	Quaternary alluvium (Qa)	2	Holocene alluvium	150.30
Proposed	Quaternary older alluvium (Qoa)	3a	Holocene to Pleistocene alluvium	8.58

4.5.10 PFYC = Potential fossil yield category

4.5.10.1 CEQA Impact Assessment

Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Construction Impacts

Construction of the Proposed Project has the potential to result in significant impacts to significant fossils as the result of ground disturbance. Additionally, increased access to the area by the general public and Coolwater-Lugo personnel may result in indirect impacts to surface fossils that erode onto the surface in the future. Coolwater-Lugo personnel involved in ground-disturbing activities will be trained to recognize the presence of fossils in construction excavations.

To reduce potentially significant impacts to less than significant, SCE has identified one APM (APM PAL-1) that would serve to address potential impacts to paleontological resources and outlines methods by which these impacts may be reduced.

APM PAL-1 requires that a Paleontological Resources Mitigation and Monitoring Plan ("PRMMP") for paleontological resources shall be prepared, which would identify monitoring and treatment requirements for sensitive paleontological resources of significance. The PRMMP shall specify procedures and protocols in the event of fossil discoveries, specific monitoring locations, and long-term management protocols, and shall be prepared based on the results of the technical report accepted by the review agencies and according to BLM guidelines H-8270-1 (BLM 1998) and IM 2009-011 (BLM 2008) as well as applicable State of California (CEQA), San Bernardino County, and City of Hesperia regulations. Contingency plans should be discussed in the PRMMP for discovery of fossil resources on private lands, as these would need to be addressed in a different manner. If unanticipated discoveries occur during Coolwater-Lugo construction, the unanticipated discoveries plan and communications protocol in the PRMMP would be adhered to and followed. Therefore, less than significant impacts are anticipated during the construction of the Proposed Project with implementation of APM PAL-1.

Operation Impacts

Operation of the Proposed Project would involve routine inspections, maintenance, and emergency work. Activities associated with operating the Proposed Project would occur within areas previously disturbed during construction and on existing roadways and access roads. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

4.5.10.2 NEPA Impact Assessment

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (40 CFR 1508.27).

For the purposes of this analysis, the term "Proposed Action" as used in NEPA regulations and analysis is used interchangeably with the "Proposed Project."

Construction of Coolwater-Lugo has the potential to result in adverse or significant impacts to significant fossils as the result of ground disturbance. Additionally, increased access to the area by the general public and project personnel may result in indirect impacts to surface fossils that erode onto the surface in the future. Coolwater-Lugo personnel involved in ground-disturbing activities will be trained to recognize the presence of fossils in construction excavations.

If unanticipated discoveries occur during project construction, the unanticipated discoveries plan and communications protocol will be adhered to and followed.

A PRMMP for paleontological resources shall be prepared, which would identify monitoring and treatment requirements for sensitive paleontological resources of significance. (APM PAL-1). The PRMMP shall specify procedures and protocols in the event of fossil discoveries, specific monitoring locations, and long-term management protocols, and shall be prepared based on the results of the technical report accepted by the review agencies and according to BLM guidelines H-8270-1 (BLM 1998) and IM 2009-011 (BLM 2008) as well as applicable State of California (CEQA) regulations. Contingency plans should be discussed in the PRMMP for discovery of fossil resources on private lands, as these will need to be addressed in a different manner. If unanticipated discoveries occur during Coolwater-Lugo construction, the unanticipated discoveries plan and communications protocol in the PRMMP will be adhered to and followed. Therefore, less than significant impacts are anticipated during the construction and operation of the Proposed Project with implementation of APM PAL-1.

4.5.11 Applicant Proposed Measures

Consistent with the federal, state, and local laws, ordinances, regulations, and statutes cited in Section 4.5.8, *Regulatory Setting*, the applicant proposes the following measures

to avoid, minimize, or mitigate any significant adverse impacts/effects to significant cultural resources.

The goal of paleontological measures is to reduce adverse impacts to a less than significant level by protecting paleontological resources or, if this is not possible, salvaging scientifically important fossil remains and associated data and housing them permanently in a natural history museum. Direct adverse impacts can be successfully mitigated by physically removing scientifically important fossils from the path of construction either during pre-construction paleontological survey or by monitoring of construction excavations and by conserving, analyzing, and interpreting the fossils. Indirect impacts are more difficult to mitigate, and typically involve limiting access to scientifically important fossils through a combination of law enforcement, protective enclosures, and land access restrictions.

APM PAL-1: Paleontological Resource Mitigation and Monitoring Plan. P Potential effects of the Proposed Project to sensitive paleontological resources may be mitigated or reduced to a less than significant level by implementing a Paleontological Resource Mitigation and Monitoring Plan which would identify monitoring and treatment requirements for sensitive paleontological resources of significance.

4.5.12 Alternative Project

As described in Section 3.15, *Project Alternatives*, either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Line Route, but not both. A separate impact analysis is provided for these two scenarios.

Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation; the Alternative Transmission Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6; and the Alternative Apple Valley to Desert View and Gale to Pisgah telecommunications routes.

Data on paleontological resources are presented in Tables 4.5-4 through 4.5-6. Of primary concern is the amount of land with a category of PFYC 3 or higher in each segment or Coolwater-Lugo component for Alternative Project with Segment 9, as compared to the Proposed Project. As seen in Table 4.5-4, the Proposed Segment 3 contains no units of PFYC 3 and 4, whereas the Alternative Segment 4 contains 0.31 linear miles of PFYC 3. The Proposed Segment 7 contains 7.4 linear miles of PFYC 3 and 4, whereas the Alternative Segment 6 contains 9.7 linear miles. The Proposed Segment 1 contains 6.07 linear miles of PFYC 3 and 4, while the Alternative Segments 8, 9, and 11 contain a total of 4.93 linear miles. Finally, as seen in Table 4.5-6, both the Proposed and Alternative Desert View Substation sites have geological units of PFYC 3a, though the Proposed Substation has slightly more acreage due to being located on a larger parcel of land. In all cases but for the Desert View Substation sites, the Proposed Project components contain fewer acres of deposits considered sensitive for paleontological resources than the Alternative Project with Segment 9. That said, with similar types of

impacts, and with APM PAL-1 in place, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 9.

Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, the Alternative Transmission Line Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and the Apple Valley to Desert View and Gale to Pisgah telecommunication routes. A full description of the Alternative Project components is provided in Section 3.15, *Project Alternatives.*

The Alternative Desert View Substation and Alternative Transmission Line Route with Segment 10 have a similar setting to that of the Proposed Project and the Alternative Project with Segment 9. Segment 10 has a higher linear sensitivity of PFYC 3 than Segment 9 (5.06 versus 3.74 miles); however, there is no significant difference in potential impacts to paleontological resources between construction and operation of Segment 9 or Segment 10. As a result, impacts to paleontological resources would be similar to those of the Alternative Project with Segment 9. Therefore, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 10.

4.5.13 References

Apple Valley, Town of. (2009, August). General Plan Archaeological and Historic Resources Element. http://www.applevalley.org/Index.aspx?page=687

Aron, G.L., Kelly, J.C., Raum, J., and Lawson, C. (2013). *Confidential Paleontological Survey Report, Coolwater-Lugo Transmission Project*. In review, 158 pp. with appendices.

Bean, L. J., and C. R. Smith. (1978). Serrano. In *California*, edited by Robert F. Heizer, pp. 570–574. Handbook of North American Indians, Vol. 8, William G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Benedict, R. (1924). A Brief Sketch of Serrano Culture. *American Anthropologist*, 26(3):366–392.

Bettinger, R. L., and J. Eerkens. (1999). Point Typologies, Cultural Transmission, and the Spread of Bow-and-Arrow Technologies in the Prehistoric Great Basin. *American Antiquity* 64(2):231–242.

Bettinger, R. L., and R. E. Taylor. (1974). Suggested Revisions in Archaeological Sequences of the Great Basin in Interior Southern California. *Nevada Archaeological Survey Research Papers* 5:1–26. Reno, Nevada.

Blair, L. M. (1985). Virgin Anasazi Turquoise Extraction and Trade. Paper presented at the 1985 Arizona-Nevada Academy of Sciences, Las Vegas, Nevada. Manuscript on file with author.

Blair, L. M., and D. L. Winslow. (2004). Kern River 2003 Expansion Project, California - Volume I: Prehistoric Turquoise Mining in the Mojave Desert -Data from the Dr. Albert Mohr Collection Kern River 2003 Expansion Project California, Volume I. Harry Reid Center for Environmental Studies, University of Nevada, Las Vegas. Prepared for Kern River Gas Transmission.

Blomberg, N. (1987). A Historic Indian Community at Victorville, California. *Journal of California and Great Basin Anthropology*. 9(1):35–45.

Brooks, G. R., ed. (1977). *The Southwest Expedition of Jedediah S. Smith: His Personal Account of the Journey to California, 1826-1827*. Arthur H. Clark Co., Los Angeles.

Bureau of Land Management (BLM). (1998). *Paleontology Resources Management Manual and Handbook.* H-8270-1.

BLM. (2004a). *BLM Manual 8100: The Foundations for Managing Cultural Resources*. Rel. 8-72. U.S. Department of Interior. Washington, D.C.

BLM. (2004b). *BLM Manual 8100: Identifying and Evaluating Cultural Resources*. Rel. 8-73. U.S. Department of Interior. Washington, D.C.

BLM. (2007). Potential Fossil Yield Classification System: BLM Instruction Memorandum No. 2008-009 (PFYC revised from USFS, 1996).

BLM. (2008). Assessment and Mitigation of Potential Impacts to Paleontological Resources: BLM Instruction Memorandum No. 2009-011.

California Office of Historic Preservation. (1995). *Instructions for Recording Historical Resources*. California Department of Parks and Recreation. Sacramento, California.

City of Hesperia. (2010). City of Hesperia General Plan.

Cook, S. F. (1960). Colonial Expeditions to the Interior of California: Central Valley, 1800-1820. *University of California Anthropological Records,* 16(6): 239–292. Berkeley.

Coues, E. (translator). (1900*). On the Trail of a Spanish Pioneer, the Diary and Itinerary of Francisco Garcés (Missionary Priest) in his Travels through Sonora, Arizona and California 1775-1776*. 2 volumes. Francis Harper, New York.

County of San Bernardino. (2013). General Plan. Electronic document, http://www.sbcounty.gov/sbcountygeneralplan/.

Davis, E. L., K. H. Brown, and J. Nickles. (1980). *Evaluation of Early Human Activities and Remains in the California Desert*. California Bureau of Land Management, Cultural Resource Publications, Anthropology-History. Riverside, California.

Earle, D. D. (1990). New Evidence on the Political Geography of the Antelope Valley and Western Mojave Desert at Spanish Contact. in *Archaeology and Ethnohistory of*

Antelope Valley and Vicinity, Bruce Love and William H. DeWitt, eds., pp. 87–104. Antelope Valley Archaeological Society, Occasional Papers No.2. Antelope Valley Archaeological Society, Lancaster, Ca.

Earle, D. D. (2004). Native Population and Settlement in the Western Mojave Desert in the Eighteenth and Nineteenth Centuries. *Proceedings of the Millennium Conference: The Human Journey and Ancient Life in California's Deserts, Barstow, California, May 9-12, 2001*. Maturango Museum Press, Ridgecrest, California.

Earle, D. D. (2005). The Mojave River and the Central Mojave Desert: Native Settlement, Travel, and Exchange in the Eighteenth and Nineteenth Centuries. *Journal of California and Great Basin Anthropology* 25(1):1–38.

Earle, D. D. (2009). *Ethnohistorical Overview and Cultural Affiliation Study of the Mojave National Preserve*. Prepared for Applied Earthworks, Hemet, Ca. and Mojave National Preserve, National Park Service, Barstow, Ca.

Garrett, L. (1992). Postal History of San Bernardino County. *San Bernardino County Museum Association Quarterly* 39(4):1–73.

Gifford, E. W. (1918). Clans and Moieties in Southern California. *University of California Publications in American Archaeology and Anthropology*, 14(2):155–219. Berkeley.

Grayson, D. K. (1993). *The Desert's Past: A Natural Prehistory of the Great Basin*. Smithsonian Institution Press, Washington, D.C.

Gustafson, L. and P. Serpico. (1996). *Santa Fe Coast Lines Depots: Valley Division*. Omni Publications, Palmdale, California.

Hall, M. C., and J. P. Barker. (1975). *Background to Prehistory of the El Paso/Red Mountain Desert*. Bureau of Land Management, Desert Planning Staff, Riverside.

Jackson, D. and M. L. Spence. (1970). *The Expeditions of John Charles Fremont. Volume I: Travels From 1838 to 1844.* Urbana: University of Illinois Press.

Jackson, Thomas L. (2012). *Work Plan for a Class III Cultural Resource Inventory for the Southern California Edison South of Kramer Project, San Bernardino County, California*. On file at BLM, Barstow.

Kelly, I. T. (1953). Notebooks of Las Vegas Band, Southern Paiute and Chemehuevi field notes. University of California, Archives No. 138.1m. Anthropology Documents 17–18.

Kelly, I. T., and C. S. Fowler. (1986). Southern Paiute. In *Great Basin*, edited by W. L. d'Azevedo, pp. 368–397. Handbook of North American Indians, Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

King, C. (1981). Part 1: Background to Prehistoric Resources of the East Mojave Planning Unit. In *Background to Historic and Prehistoric Resources of the East Mojave*

Desert Region, by Chester King and Dennis Casebier, pp. 3–53. California Bureau of Land Management, Cultural Resource Publications, Anthropology-History. Riverside, California.

Kroeber, A. L. (n.d.) Mojave Ethnographic Notes and Records, 1902–1955. A.L. Kroeber Papers, 1869–1972. University Archive, Bancroft Library, University of California, Berkeley.

Kroeber, A. L. (1925). *Handbook of the Indians of California*. Dover Publications Inc., New York.

Kroeber, A. L. (1959). Ethnographic Interpretations 1–6. University of California Publications in American Archaeology and Ethnology, Vol. XLVII, 1956–1959. University of California Press.

LACM (Los Angeles County Museum). See *McLeod, S. A.*

Laird, C. (1976). *The Chemehuevi*. Malki Museum, Banning.

Leonard, N. N., III, and C. Drover. (1980). Prehistoric Turquoise Mining in the Halloran Springs District, San Bernardino County, California. *Journal of California and Great Basin Anthropology* 2(2):245–256.

Los Angeles Times (1930) Work on Line to Dam begins. *Los Angeles Times*, 17 December 1930, p. A7.

Lyman, E. L. (2004.) *The Overland Journey from Utah to California: Wagon Travel from the City of Saints to the City of Angels*. University of Nevada Press, Reno and Las Vegas.

Lyneis, M. M. (1982). Prehistory in the Southern Great Basin. In *Man and Environment in the Great Basin*, edited by David B. Madsen and James F. O'Connell, pp. 172–185. Society for American Archaeology Papers No. 2. Washington, D.C.

McLeod, S. A. (LACM). (2012). Paleontological resources for the proposed Jasper Project area: Natural History Museum of Los Angeles County.

Mollhausen, B. (1969). 1858] *Diary of A Journey from the Mississippi to the Coasts of the Pacific*, Vol. 2. Johnson Reprint, New York.

Norris, R. M., and R. W. Webb. (1976). *Geology of California*. John Wiley and Sons, Inc., p. 91–122.

Owen, E. (1988). *Quick History of Lucerne Valley*. Compiled by longtime resident Ethel Owen, March 25, 1988. Electronic document http://www.lucernevalley.net/history/owen1.htm.

Palomares, J. (1808). Diary of José Palomares. *Provincial State Papers, Missions and Colonization*, Vol. I, pp.232–242. California State Archives, Sacramento.

Reynolds, S.F.B. and M. O. Woodburne. (2001). Marker Bed Correlations Between the Mud Hills, Calico Mountains, and Daggett Ridge, Central Mojave Desert, California. Cordilleran Section – 97th Annual Meeting, and Pacific Section, American Association of Petroleum Geologists.

Rogers, M. J. (1929). *Report of an Archaeological Reconnaissance in the Mohave Sink Region*. San Diego Museum of Man Papers No. 1.

Rogers, M. J. (1939). *Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Areas*. San Diego Museum of Man Papers No. 3.

Rogers, M. J. (1945). An Outline of Yuman Prehistory. *Southwestern Journal of Anthropology* 1:167–198.

SBCM (San Bernardino County Museum). See *Scott, E.*

Scott, E. (SBCM). (2012). Paleontology literature and records review, South of Kramer Project, and confidential appendices.

Society of Vertebrate Paleontology (SVP). (2010) . Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. 11 p. Electronic document, http://vertpaleo.org/PDFS/68/68c554bb-86f1-442f-a0dc-25299762d36c.pdf

Spaulding, W. G. (1990). Vegetation and Climatic Development of the Mojave Desert: The Last Glacial Maximum to the Present. In *Packrat Middens: The Last 40,000 Years of Biotic Change*, edited by J. L. Betancourt, P. S. Martin and T. R Van Devender. University of Arizona Press, Tucson.

Stickel, E. G., and L. J. Weinmann-Roberts. (1980). *An Overview of the Cultural Resources of the Western Mojave Desert*. Submitted to the Bureau of Land Management, Riverside District Office. Contract No. YA-512-CT8-106. On file, San Bernardino County Museum, Redlands, California.

Strong, W. D. (1929). Aboriginal Society in Southern California. *University of California Publications in American Archaeology and Ethnology* 26(1)1–358. Berkeley.

Sutton, M. Q., M. E. Basgall, J. K. Gardner, and M. W. Allen. (2007). Advances in Understanding Mojave Desert Prehistory. In *California Prehistory Colonization Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar. AltaMira Press, New York.

Thompson, D. G. (1929). The Mohave Desert Region, California: A Geographic, Geologic, and Hydrologic Reconnaissance. *United States Geological Survey Water Supply Paper 578*. United States Department of the Interior, USGS, United States Govt. Printing Office, Washington, D.C.

U.S. Bureau of the Census. (1920). Thirteenth Decennial Census of The United States. Enumeration Sheets for Lucerne Valley Precinct, Victor Township, San Bernardino County, California, January, 1920.

U.S. Department of Agriculture-Natural Resource Conservation Service (USDA-NRCS). (2012). SSURGO database for Mojave River Area, San Bernardino County, California. Accessed online at http://soildatamart.nrcs.usda.gov/on November 2, 2012.

Van Dyke, D. (1976). Life on the Mojave River Valley: The Piutes of 1904. in *Once Upon a Desert: A Bicentennial Project*, Patricia Jernigan Keeling, ed., p. 41. Mojave River Valley Museum Association, Barstow, California.

Van Valkenburgh, R. F. (1976). Chemehuevi Notes [transcribed typescript]. Indian Claims Commission Docket 88-330. In: *American Indian Ethnohistory, California and Basin-Plateau Indians, Paiute Indians II*, pp. 225-253. Garland Publishing, Inc., New York.

Walker, C. J. (1986). *Back Door to California: The Story of the Mojave River Trail*. Mojave River Valley Museum Association, Barstow, California.

Wallace, W. J. (1962). Prehistoric Cultural Developments in the Southern California Deserts. *American Antiquity* 28(2):172-180..

Warren, C. N. (1980). The Archaeology and Archaeological Resources of the Amargosa-Mohave Basin Planning Units. In *A Cultural Resources Overview for the Amargosa-Mohave Basin Planning Units*, edited by C. N. Warren, M. Knack, and E. Warren, pp. 2–134. Unpublished report submitted to the Bureau of Land Management, Desert Planning Staff, Riverside, California.

Warren, C. N. (1984). The Desert Region. In *California Archaeology*, edited by Michael J. Moratto, pp. 338–430. Academic Press, New York.

Warren, C. N., M. Knack, and E. von Till Warren. (1980). *A Cultural Resource Overview for the Amargosa-Mojave Basin Planning Units.* University of Nevada, Las Vegas. Bureau of Land Management, Riverside California.

Warren, C. N., and R. Crabtree. (1986). Prehistory of the Southwestern Area. In *Great Basin*, edited by W. L. d'Azevedo, pp. 183–193. Handbook of North American Indians, Vol. 11, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Weide, M. L. (1976). *A Cultural Sequence for the Yuha Desert. In Background to Prehistory of the Yuha Desert Region*, edited by Philip J. Wilke, pp. 81–94. Ballena Press Anthropological Papers No. 5. Ramona, California.

This page is intentionally blank.

4.6 Geology and Soils

This section describes the geology and soils in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). It analyzes the potential impacts on geology and soils associated with construction and operation of the Proposed Project and the Alternative Project.

4.6.1 Environmental Setting

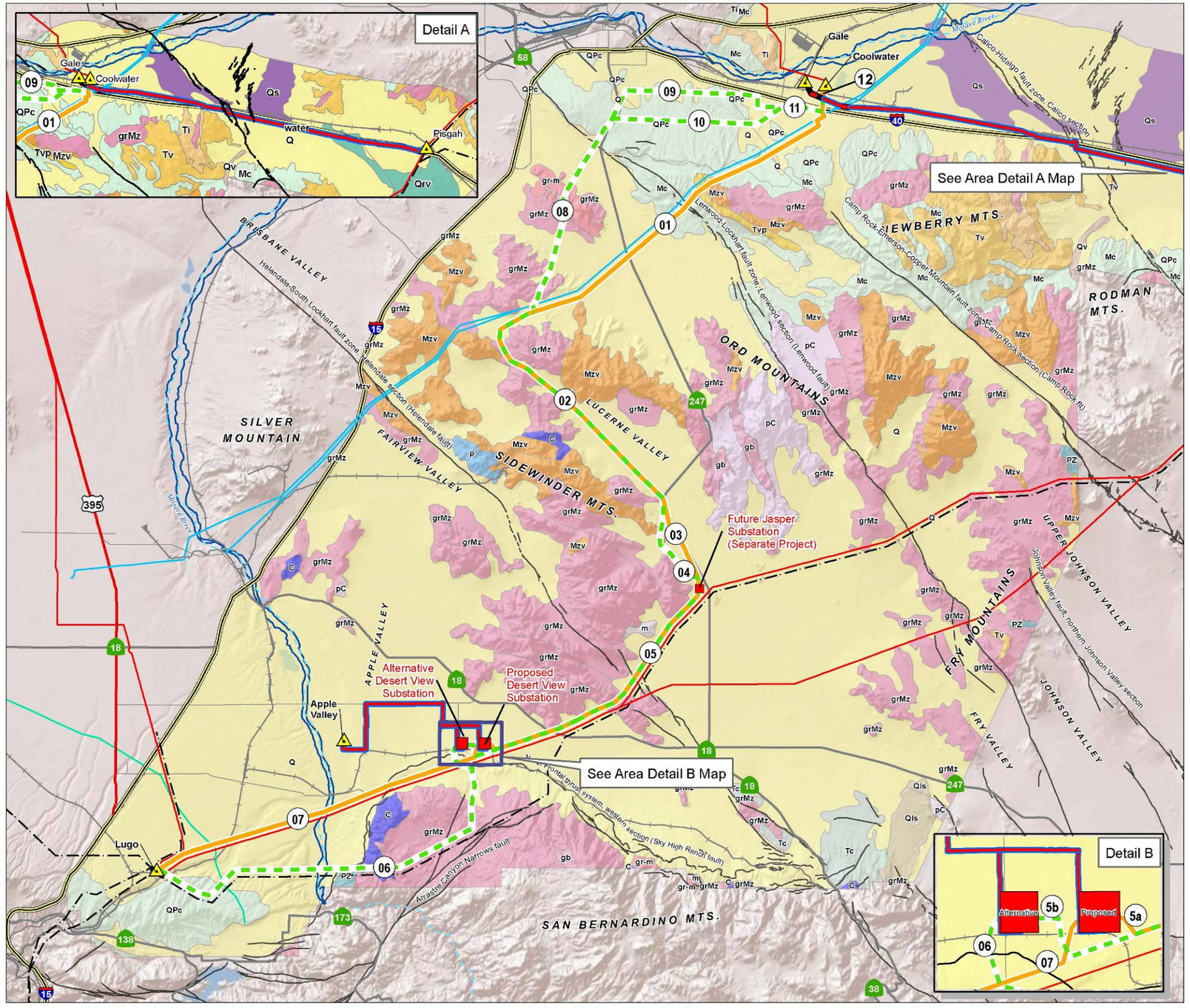
This discussion describes the existing conditions for geology and soils in the Coolwater-Lugo area. The project area is located in the western portion of the Mojave Desert Geomorphic Province ("Mojave province"). The Mojave province is wedged in a sharp angle between the Garlock Fault and the San Andreas Fault. It is characterized by a broad interior region of isolated mountain ranges separated by expanses of desert plains. It has an interior enclosed drainage and many playas. Two important fault trends control topography: a prominent northwest-southeast trend and a secondary east-west trend.

The geology of the project area is shown in Figure 4.6-1, *Geology*. The Coolwater-Lugo is underlain primarily by Quaternary Alluvium (Q) deposits consisting of gravel, sand, silt, and clay deposits that include slope wash, talus deposits, and other surface deposits of late Holocene to late to middle Pleistocene in age (U.S. Geological Survey ["USGS"] 2005). Most of the Gale to Pisgah Telecommunications Route is underlain by Quaternary Alluvium, with some sections of the line crossing over Lake deposits (Ql) and Basalt (Qv). Geologic units beneath the northern portion of Proposed Transmission Line Segment 1 consist of exposed ridges of unnamed Mesozoic continental deposits composed of sandstone (Mc), rhyolite (Tvp), and felsic volcanic rocks (Mzv). Small portions of Proposed Transmission Line Segment 2, Proposed and Alternative Transmission Line Segment 5, and Alternative Transmission Line Segments 6 and 8 are underlain by granitic rocks classified as granodiorites (grMz).

Elevations in the Coolwater-Lugo area range from 650 meters (1,969 feet) above mean sea level ("msl") in the valley floors to 1,050 meters (3,445 feet) above msl in the Granite Mountains (USGS 1982a, 1982b, 1982c, and 1989). Elevations along the Gale to Pisgah Telecommunications Route are fairly consistent throughout, at approximately 650 meters (1,969 feet) above msl with the exception of the area at Troy Dry Lake, where elevations drop to approximately 550 meters (1,804 feet) above msl. The Proposed and Alternative Transmission Line routes range in elevation from approximately 650 meters (1,969 feet) to 1,050 meters (3,445 feet) above msl at the northern end to a high of approximately 1,050 meters (3,445 feet) above msl as Proposed Transmission Line Segment 1 crosses Daggett Ridge. The elevations decrease subtlety toward the Desert View Substation sites, which have an elevation of approximately 975 meters (3,200 feet) above msl. From this point, elevations increase gently along Proposed Transmission Line Segment 7 toward the Lugo Substation to an approximate elevation of 1,130 meters (3,707 feet) above msl. Alternative Transmission Line Segment 6 reaches a high elevation of approximately 1,480 meters (4,855 feet) above msl.

This page is intentionally blank.

Coolwater - Lugo Transmission Project Figure 4.6-1 Geology



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- Railroad

Water (TBM, 2008)
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Geology

C, marble	Tc, conglomerate
Mc, sandstone	Ti, rhyolite
Mzv, felsic volcanic rock	Tv, rhyolite
P, limestone	Tvp, rhyolite
PZ, limestone	gb, gabbro
Q, alluvium	gr-m, plutonic rock (phaneritic)
QPc, sandstone	grMz, granodiorite
Qls, landslide	m, schist
Qrv, tephrite (basanite)	pC, gneiss
Qs, dune sand	Water
Qv, basalt	Fault Traces

Source: Preliminary integrated geologic map database for the United States, USGS, 2005

0 5 10 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.6_1_Geology_20130812.mxd

This page is intentionally blank.

Potential geologic hazards, including faults, earthquakes, liquefaction, landslide, and subsidence, are discussed in the following subsections.

4.6.1.1 Faults

The Coolwater-Lugo area is seismically active and therefore will likely be subjected to ground shaking from movement along one or more of the sufficiently active faults or well-defined faults[1] in the region.

A search of faults within 62 miles (100 kilometers ["km"]) of the Proposed and Alternative Desert View Substation sites was conducted using the Blake (2000) EQFault program with the 2011 updated fault catalog for the Coolwater-Lugo area. The EQFault search for the Desert View Substation sites identified a total of 38 sufficiently active faults and well-defined faults. Sufficiently active faults within a 28-mile (45 km) radius of the Desert View Substation sites with the potential to generate peak ground accelerations ("PGAs") of 0.1 gravity ("g") or greater are listed in Table 4.6-1, *Sufficiently Active Faults and Well-Defined Faults – Desert View Substation*.

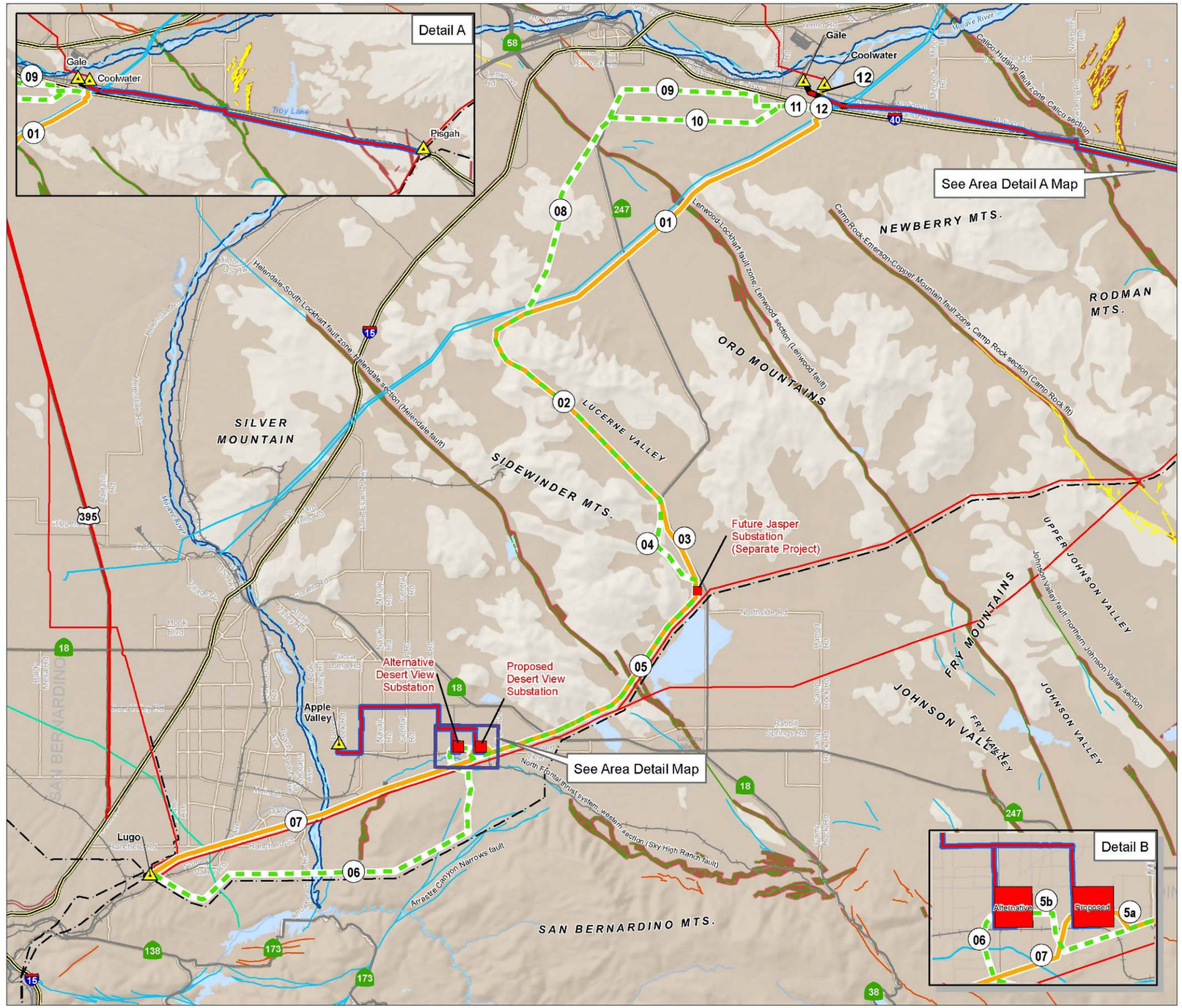
The North Frontal fault zone (West), located approximately 3.3 miles to the southwest of the Desert View Substation sites has the greatest ground acceleration potential, 0.617 g, in the vicinity of the Coolwater-Lugo area (Table 4.6-1). The portion of the North Frontal fault zone with the greatest ground acceleration potential is mapped as an Alquist-Priolo ("AP") fault zones. In addition, the segment of the North Frontal Fault zone located approximately5 miles to the southeast of the Desert View Substation sites is also mapped as an AP fault zone. However, the portion of the North Front fault zone located approximately 1 mile to the south of the Desert View Substation sites is not mapped as an AP earthquake fault zone. The West section (approximately 24 miles long) of the North Frontal fault zone may be capable of generating a maximum earthquake magnitude of 7.2, which would be considered the maximum credible event that could affect the Coolwater-Lugo area (Blake 2000). Studies suggest that the North Frontal fault zone (West) section has a slip rate between 0.2 and 1.0 millimeters per year, with an unknown recurrence interval (Bryant 2003).

Coolwater-Lugo crosses AP fault zones at five locations (Figure 4.6-2, *Regional Faults & Alquist-Priolo Earthquake Fault Zones*). EQFault searches were conducted at these five locations to estimate the maximum earthquake events that could be experienced along the Proposed or Alternative Transmission Line Routes. These five locations represent the points along the transmission line routes that would experience the greatest PGAs.. PGA values at the five locations range from 0.508g to 0.602g. The location where Proposed Transmission Line Segment 7 crosses the North Frontal fault zone (West) has the greatest PGA, 0.602g, followed by the location along Proposed Transmission Line Segment 1 where the Lenwood-Lockhart-Old Woman Springs fault intersect, with a PGA of 0.515.

[1] A "sufficiently active fault" (previously referred to as an "active fault") is defined as a fault that has broken the surface in the past 11,000 years (CGS 2007). A "well-defined fault" (previously referred to as "potentially active fault") is defined as a fault whose trace is clearly detectable by a trained geologist as a physical feature at or just below the ground surface.

This page is intentionally blank.

Coolwater - Lugo Transmission Project
Figure 4.6-2
Regional Faults & Alquist-Priolo Earthquake Fault Zones



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- 4 Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- Railroad

Water (TBM, 2008)
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Quarternary Faults
- Historic Faults <150 years
- Holocene Faults <15,000 years old
- Late Pleistocene Faults <130,000 years old
- Quarternary Faults <1,600,000 years old
- Alquist-Priolo Surface Faults

Seismic Hazard
- High
- Moderate

Source: California Department of Conservation, California Geological Survey, 2005

0 5 10 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SCK\GIS_data\CLTP_mxd_20130812\CLTP_4.6_2_RegioFaults_AP_20130812.mxd

This page is intentionally blank.

Table 4.6-2, *Sufficiently Active Faults and Well-Defined Faults – Transmission Line Route*, lists the active faults near the transmission line routes.

Table 4.6-1 Sufficiently Active Faults and Well-Defined Faults – Desert View Substation (Proposed and Alternative Sites)

Name	Distance from Proposed Site (miles)	Distance from Alternative Site (miles)	Maximum Magnitude (Mw)	Peak Acceleration (g)
North Frontal fault zone (West)	3.3	3.1	7.2	0.617
Helendale-South Lockhart	7.1	7.7	7.3	0.403
Cleghorn	12.5	12.1	6.5	0.171
North Frontal fault zone (East)	20.3	21.2	6.7	0.126
San Andreas - Whole M-1a	20.9	20.3	8.0	0.282
San Andreas - San Bernardino M-1	20.9	20.3	7.5	0.205
San Andreas - SB-Coach. M-2b	20.9	20.3	7.7	0.234
San Andreas - SB-Coach. M-1b-2	20.9	20.3	7.7	0.234
Lenwood-Lockhart-Old Woman Springs	21.3	22.1	7.5	0.201
San Andreas - 1857 Rupture M-2a	24.4	23.5	7.8	0.216
San Andreas - Mojave M-1c-3	24.4	23.5	7.4	0.162
San Andreas - Cho-Moj M-1b-1	24.4	23.5	7.8	0.216
Johnson Valley (Northern)	25.0	26.0	6.7	0.089
Cucamonga	25.3	24.5	6.9	0.110
San Jacinto-San Bernardino	25.7	25.0	6.7	0.086
Landers	27.5	28.1	7.3	0.131

Source: Blake, 2000
Note: Distances generated by Blake (2000) are based on the Quaternary Faults mapped by the U.S. Geological Survey (2011).
g = gravity; Mw = moment magnitude

Table 4.6-2 Sufficiently Active Faults and Well-Defined Faults –Transmission Line Routes

Name (Intersection of Transmission Line Route and Fault Zone)	Maximum Magnitude (Mw)[1]	Peak Acceleration (g)[2]
Gale to Pisgah and Calico-Hidalgo fault zone	7.3	0.508
Segment 1 and Lenwood-Lockhart-Old Woman Springs	7.5	0.515
Segment 5 and Helendale-South Lockhart	7.3	0.508
Segment 7 and North Frontal fault zone (West)	7.2	0.602
Segment 8 and Lenwood-Lockhart-Old Woman Springs	7.5	0.513

Source: Blake, 2000

Note: Distance generated by Blake (2000) are based on the Quaternary faults mapped by the U.S. Geological Survey (2011).

1. Maximum magnitude that would be generated by the fault that intersects the proposed Transmission Line Route. It should be noted that the San Andreas – Whole Fault is capable of generating a Maximum Magnitude of 8.0 at each of the locations listed in the table.
2. Peak accelerations listed in the table represent the greatest "g" that would be generated by the fault that intersects the Transmission Line Routes.

g = gravity; Mw = Moment magnitude

The San Andreas – Whole fault, which is approximately 683 miles long, is located in the vicinity of Proposed Transmission Line and may be capable of generating a 8.0 Mw earthquake. This would be considered the maximum credible event that could affect the Coolwater-Lugo area (Blake 2000). Studies suggest that the San Andreas – Whole fault zone has a slip rate greater than 5.0 millimeters per year, with a recurrence interval of about 100-135 years (Bryant 2002).

It is likely that the Coolwater-Lugo area will experience minor to moderate earthquakes and potentially a major earthquake (7.0 Mw or greater) during the project's service life. A 1995 estimate by the Working Group on California Earthquake Probabilities gave an 80 to 90 percent probability of a 7.0 or greater earthquake in southern California before 2024. It should be noted that Southern California Edison's ("SCE's") structural design standards for transmission lines is conservative and based on wind loading, which is more restrictive than seismic hazard.

4.6.1.2 Fault Rupture

The Coolwater-Lugo area is located in seismically active southern California, a region that has experienced numerous earthquakes. A review of the Aquist-Priolo ("AP") Earthquake Fault maps (CDMG 2000) and the San Bernardino County AP Earthquake Fault Zone Map (San Bernardino County 2013) indicates that the Gale to Pisgah Telecommunications Route and Proposed Transmission Line Segments 1 and 7, Alternative Transmission Line Segment 8, and Proposed and Alternative Line Segment 5, cross established AP Fault Zones. However, structural design for potential accelerations of 0.1 g and above caused by earthquakes can be managed with proper siting and foundation design. Regional faults and AP fault zones in the project area are shown in Figure 4.6-2, Regional Faults and Alquist-Priolo Earthquake Fault Zones.

Fault rupture could occur along any of the AP fault zones in the Coolwater-Lugo area. Proposed Transmission Line Segment 1 crosses two fault splays of the Lenwood-Lockhart AP fault zone. Alternative Transmission Line Segment 8 also crosses the Lenwood-Lockhart AP fault zone. Proposed and Alternative Transmission Line Segment 5 crosses the Helendale-South Lockhart AP fault zone between Lucerne Dry Lake and Rabbit Dry Lake. Proposed Transmission Line Segment 7 crosses the North Frontal AP fault approximately 4.0 miles southwest of the Proposed Desert View Substation Site. The Proposed and Alternative Desert View Substation sites are located approximately 1.0 mile north of the North Frontal fault zone (Ocotillo Ridge Fold section). This Ocotillo Ridge Fold section of the North Frontal fault zone is not included in the North Frontal AP fault zone. Although the Ocotillo Ridge Fold section of the North Frontal fault zone is not included in an AP fault zone, a low potential for ground rupture exists at the Proposed and Alternative Desert View Substation sites because of the nature of the North Frontal fault zone. There is a potential for earthquake-induced ground rupture in the Coolwater-Lugo area because there are several known active or visible fault traces that intersect the Coolwater-Lugo area.

4.6.1.3 Seismic Ground Shaking

Historically, numerous earthquakes of moderate to strong magnitude have occurred in the Coolwater-Lugo area. Two recent major earthquakes, the Landers earthquake of June 1992 (M7.3) and the Hector Mine earthquake of October 1999 (M7.1), caused extensive surface fault rupture but relatively little damage because they occurred in lightly populated areas of the Mojave Desert. The Coolwater-Lugo area has an 80 to100 percent probability of experiencing a quake of 5.0 or greater in the next 50 years.

Based on the California Geological Survey's ("CGS's") Probabilistic Seismic Hazards Mapping Ground Motion Page (2003), there is a 10 percent probability of earthquake ground motion exceeding 0.446 g at the Desert View Substation sites over a 50-year period. The length of most of the transmission line routes is located over alluvial sediments, which typically have a higher acceleration potential than bedrock. The potential for ground acceleration in these areas ranges from 0.338 g to 0.525 g. In the event of an earthquake, Coolwater-Lugo could be subjected to moderate to strong ground shaking.

4.6.1.4 Liquefaction

Liquefaction is a soil condition in which seismically induced ground motion causes an increase in soil water pressure in saturated, loose, sandy soils, resulting in loss of soil shear strength. Liquefaction can lead to near-surface ground failure, which may result in loss of foundation support and/or differential ground settlement. Sandy deposits deeper than 50 feet below ground surface ("bgs") are not usually prone to causing surface damage from liquefaction. In addition, soils above the groundwater table (soils that are not saturated) will not liquefy.

The CGS has mapped the potential for earthquake-induced liquefaction in portions of the state. However, the Coolwater-Lugo area has not been mapped by the CGS (2008). Based

on information in the general plans for San Bernardino County (San Bernardino County 2007) and the Town of Apple Valley (Town of Apple Valley 2009), most of Coolwater-Lugo is located in areas that are not susceptible to liquefaction because depth to groundwater beneath most of the Coolwater-Lugo area is greater than 50 feet bgs. Depth to groundwater at Troy Dry Lake is approximately 55 feet bgs. However, shallow groundwater occurs at about 20–30 feet bgs at the edge of the Mojave River, near the location where Proposed Transmission Line Segment 7 and Alternative Transmission Line Segment 6 crosses the Mojave River (Mojave Water Agency ["MWA"] 2012). Depths to groundwater of 20–30 feet bgs also occur where Proposed and Alternative Transmission Line Segment 5 crosses near Rabbit Dry Lake. The shallow depths to groundwater in these areas increase the likelihood that liquefaction may occur; therefore, the potential for liquefaction in these areas is considered to be moderate. Engineering design will consider any potentially liquefiable soils that may exist in the area. If measures for subgrade improvements are implemented as part of the project design process, the potential for damage from liquefaction is considered to be low.

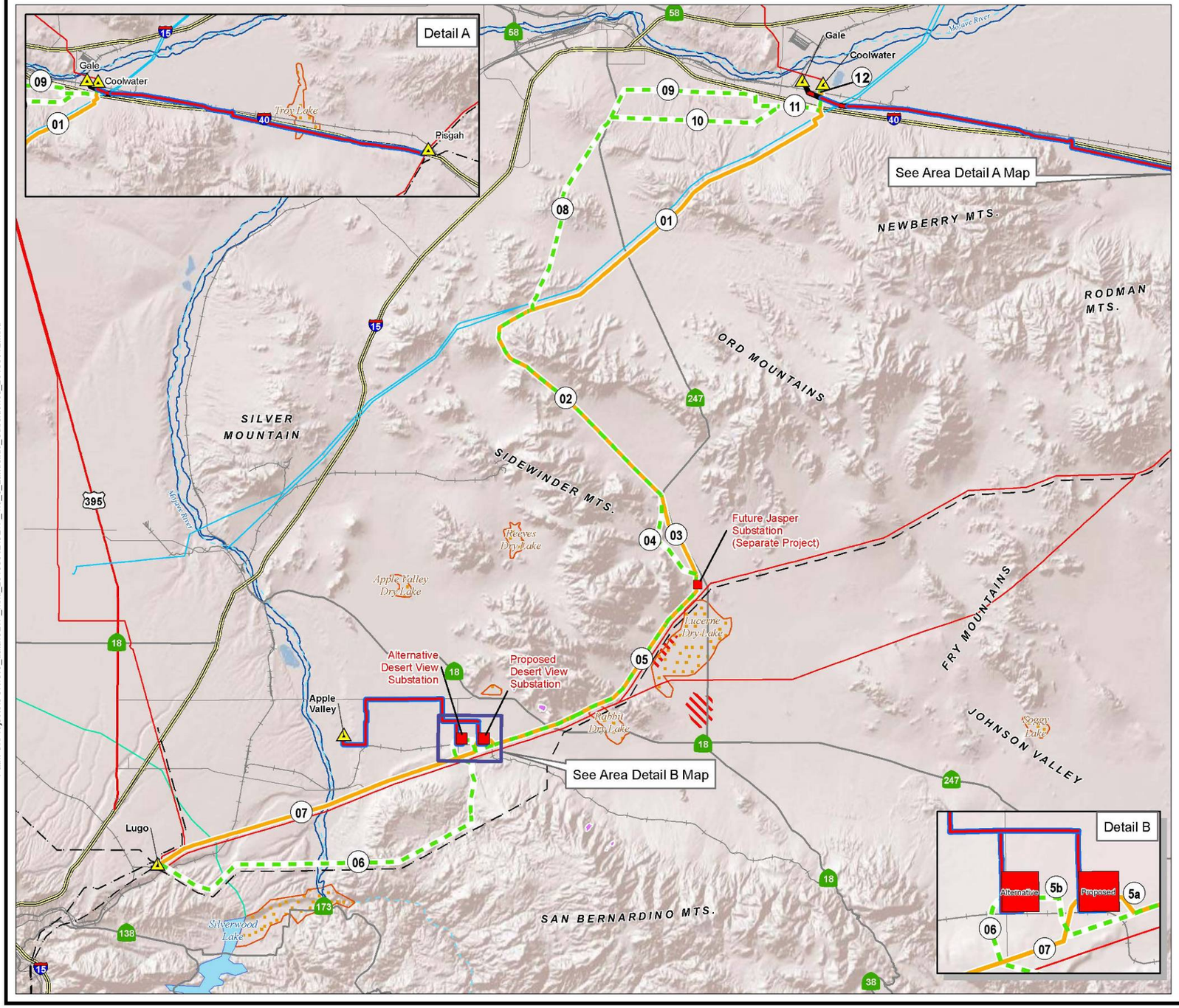
4.6.1.5 Landslides

Figure 4.6-3, *Existing Landslides and Subsidence Areas*, shows existing landslides that have been mapped within a 5.0-mile radius of Coolwater-Lugo. These are in the vicinity of Proposed and Alternative Transmission Line Segment 5 (San Bernardino County 2012). One of the landslides has been mapped approximately 1.0 mile north of Segment 5. However, there are no existing landslides at the Coolwater-Lugo components. Additionally, evidence of active or inactive landslides was not observed during a review of historic (May 1994 through April 2007) and current (June 2009) aerial photographs available for the Coolwater-Lugo area on Google Earth (2013).

Generally, those portions of the Coolwater-Lugo project that pass through or are in the vicinity of mountainous areas (portions of Proposed Transmission Line Segments 1, 2, and 3, Proposed and Alternative Transmission Line Segment 5, and Alternative Transmission Line Segments 4 and 6) would be areas considered potentially susceptible to earthquake-induced landslides. However, according to the San Bernardino County Land Use Plan, Geologic Hazard Maps, the unincorporated mountainous areas of Proposed Transmission Line Segments 1, 2, and 3 are not susceptible to landslides. A large portion of the Coolwater-Lugo components, including the Desert View Substation sites, is located on a topographically flat surface (USGS 1977, 1982a, 1982b, 1982c) and is not susceptible to soil slumps and block slides.

Although no mapped landslides are close to the Transmission Line Routes, portions of Proposed Transmission Line Segment 1, Proposed and Alternative Transmission Line Segment 5, and Alternative Transmission Line Segment 6 cross mountainous terrain; therefore, the potential for landslides exists along portions of these segments. However, the potential for landslides is considered to be low.

Coolwater - Lugo Transmission Project
Figure 4.6-3
Existing Landslides & Areas of Subsidence



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

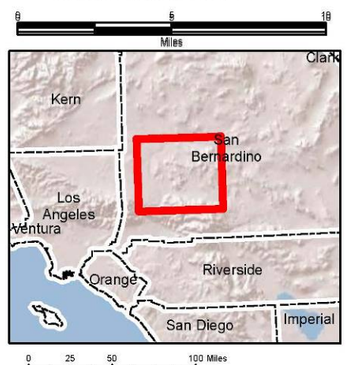
Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- Railroad

Water (TBM, 2008)
- Dry Lake
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Landslide & Subsidence Areas
- Exist. Landslide
- Subsidence Area

Source: USGS, Mojave Water Resources, 2012, Co. of San Bernardino Land Use Services



Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.
© Corporate Real Estate Department, REG = Survey and Mapping

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.6_3_Landslide_Subsidence_20130812.mxd

This page is intentionally blank.

4.6.1.6 Subsidence

Land subsidence is a result of fluid withdrawal from compressible sediments. As fluid is withdrawn, the effective pressure in the drained sediments increases. Compressible sediments are then compacted because the overburden pressure is no longer compensated for by hydrostatic pressure. This effect is most pronounced in younger, uncompacted sediments. Subsidence can be triggered by seismic events. Land subsidence is generally characterized by a broad zone of deformation where differential settlements are small.

Depth to groundwater along the Coolwater-Lugo components varies from approximately 20 feet bgs to approximately 490 feet bgs. Although the area receives substantial natural inflows of water, the High Desert region has been in overdraft for decades. To make up the difference, MWA delivers water from the State Water Project to groundwater recharge sites throughout the region to supplement natural water supplies (MWA 2012).

Land subsidence studies conducted by the USGS and MWA (USGS 2006) on the Mojave River groundwater basin indicate that the greatest areas of historic subsidence are located at Lucerne Dry Lake and an area approximately 2.0 miles south of Lucerne Dry Lake. Subsidence in these areas is potentially a result of groundwater withdrawal. Lucerne Dry Lake is directly adjacent to Proposed and Alternative Transmission Line Segment 5 and approximately 8.5 miles northeast of the Proposed Desert View Substation Site. Based on the analysis of these data, it is uncertain whether future subsidence from groundwater withdrawal will occur in this area. Fissures associated with groundwater levels or faults have not been reported at the Desert View Substation sites, along the Transmission Line, or Telecommunication Routes. Figure 4.6-3, Existing Landslides and Subsidence Areas, shows areas where subsidence has been documented.

The risk of fissures and subsidence at the Coolwater-Lugo area is considered to be low based on the MWA study that showed that subsidence in the area is limited to Lucerne Dry Lake and an area approximately 2.0 miles south of Lucerne Dry Lake. Although the groundwater basins in the area have been in overdraft conditions for decades, fissures or other signs of subsidence have not been documented in the Coolwater-Lugo area. The soils along Proposed and Alternative Transmission Line Segment 5, near Rabbit Dry Lake and Lucerne Dry Lake, should be further evaluated during engineering design to assess the potential for subsidence. If measures for subgrade improvements are implemented as part of the project design process, the potential for damage from subsidence is considered to be low.

4.6.1.7 Collapsible Soils

Some alluvial soils in arid and semi-arid environments have characteristics that make them prone to collapse following an increase in moisture content without an increase in external loads. Soils that collapse during wetting may be encountered in alluvial deposits when rewetting causes chemical or physical bonds between soil particles to weaken. This allows the structure of the soil to collapse and the ground surface to subside. To collapse, soils must have a weak cementation or cohesive structure that can be modified by the

addition of water. The Coolwater-Lugo area is in a geologic environment where some potential exists for the occurrence of collapsible soils.

Soil collapse can occur when there is an increase in moisture content, such as from a rise in groundwater levels or a rain event. In most portions of the arid alluvial valleys of the western Mojave Desert, recharge from precipitation and subsequent movement of water through the unsaturated zone is negligible. However, along intermittent stream channels, water may infiltrate to depths below the root zone and ultimately reach the underlying water table. Both of these conditions exist in the Coolwater-Lugo area; therefore, the potential for soil collapse as a result of rising groundwater levels varies.

Groundwater beneath most of the Coolwater-Lugo components exists at depths deep enough (greater than 50 feet bgs) to make the potential for collapsible soils unlikely. The shallowest groundwater occurs at about 20–30 feet bgs at the edge of the Mojave River, near the location where Proposed Transmission Line Segment 7 crosses the Mojave River (MWA 2012). Depths to groundwater of 20–30 feet bgs also occur where Proposed and Alternative Transmission Line Segment 5 crosses near Rabbit Dry Lake. At Troy Dry Lake, groundwater is approximately 55 feet bgs. The shallow depths to groundwater in these areas increase the likelihood that collapsible soil conditions may develop; therefore, the potential for collapsible soils in these areas is considered to be low to moderate.

The Coolwater-Lugo area is in a region with relatively low precipitation. Therefore, collapse occurring as a result of minimal infiltrating surface waters is considered unlikely. No fissures have been mapped by the MWA (2006), and evidence of collapse at the Desert View Substation sites has not been reported. The potential for collapsible soils is considered unlikely in most of the project area. Additional engineering investigations would be conducted prior to design of the transmission line structure foundations, particularly near Rabbit Dry Lake and Lucerne Dry Lake, in order to identify areas with potentially collapsible soils. Appropriate design features to mitigate the potential for damage from collapsible soils shall be developed and implemented, as necessary. If measures for subgrade improvements are implemented as part of the project design process, the potential for damage from collapsible soils is considered to be low.

4.6.1.8 Seismic Settlement

Seismically induced settlement can occur in areas where earthquake shaking causes densification of relatively loose sediments. Areas that are underlain by young, unconsolidated alluvial deposits and artificial fill may be susceptible to seismically induced settlement. Settlement can result in damage to surface and near-surface structures.

Because several project components are located close to active fault zones, Coolwater-Lugo could experience moderate to high levels of earthquake-induced ground shaking. A geotechnical investigation has been performed at the Proposed and Alternative Desert View Substation sites to evaluate any soils with potential for seismic settlement. The potential damage from seismic settlement is considered to be low. Measures for subgrade

improvements would be implemented as part of the project design process, therefore, the potential for damage from seismic settlement is considered to be low.

4.6.1.9 Erosion

Erosion is the displacement of solids (soil, mud, rock, and other particles) by wind, water, or ice and by downward or down-slope movement in response to gravity. Rain falls infrequently in the desert; however, when it does rain, large quantities of sediment move down slope and into canyons entrained in very turbulent waters during flash-floods, or as debris flows.

Most of the project components are located on soils that are considered well drained with a slight to moderate potential for water erosion (Table 4.6 3, Soil Units in Coolwater-Lugo Area). Towers or structures located in washes, particularly those located at the mouths of canyons, may be subject to flash floods. Portions of Proposed Transmission Line Segment 1, Proposed and Alternative Transmission Line Segment 5, and Alternative Transmission Line Segments 4 and 6 are located at the mouths of canyons and may be subject to flash floods (Figure 4.6-1, Geology); therefore, the potential for erosion from water is high in these areas. Based on soil data from the U.S. Natural Resources Conservation Service (2012), erosion from wind at Coolwater-Lugo is considered to be slight to high (Table 4.6-3, *Soil Units in Coolwater-Lugo Area*).

4.6.1.10 Expansive Soils

Expansive soil is composed of naturally occurring clay that has a material composition susceptible to shrinking and swelling. It is generally found in areas that were historically a floodplain or lake area, but it can also occur in hillside areas. Expansive soil is subject to shrinking and swelling, varying in proportion to the amount of moisture present in the soil and the material composition of the clay. As water is initially introduced into the soil (by rainfall or watering), expansion takes place. If dried out, the soil will contract, often leaving fissures or cracks. Excessive drying and wetting of the soil can progressively deteriorate structures over the years by leading to differential settlement beneath or within buildings and other improvements.

Based on the available soils data for the Desert View Substation sites, soils are expected to consist of sand, silt, and clay. This suggests that the expansion potential exists for on-site soils. However, data from the U.S. Soil Conservation Service (1986) show that 65 percent of the soil types in the Coolwater-Lugo area have a low shrink-swell potential. The remaining 35 percent of the soils have a low to moderate shrink-swell potential. For this reason, the potential for expansive soils at Coolwater-Lugo is considered to be low.

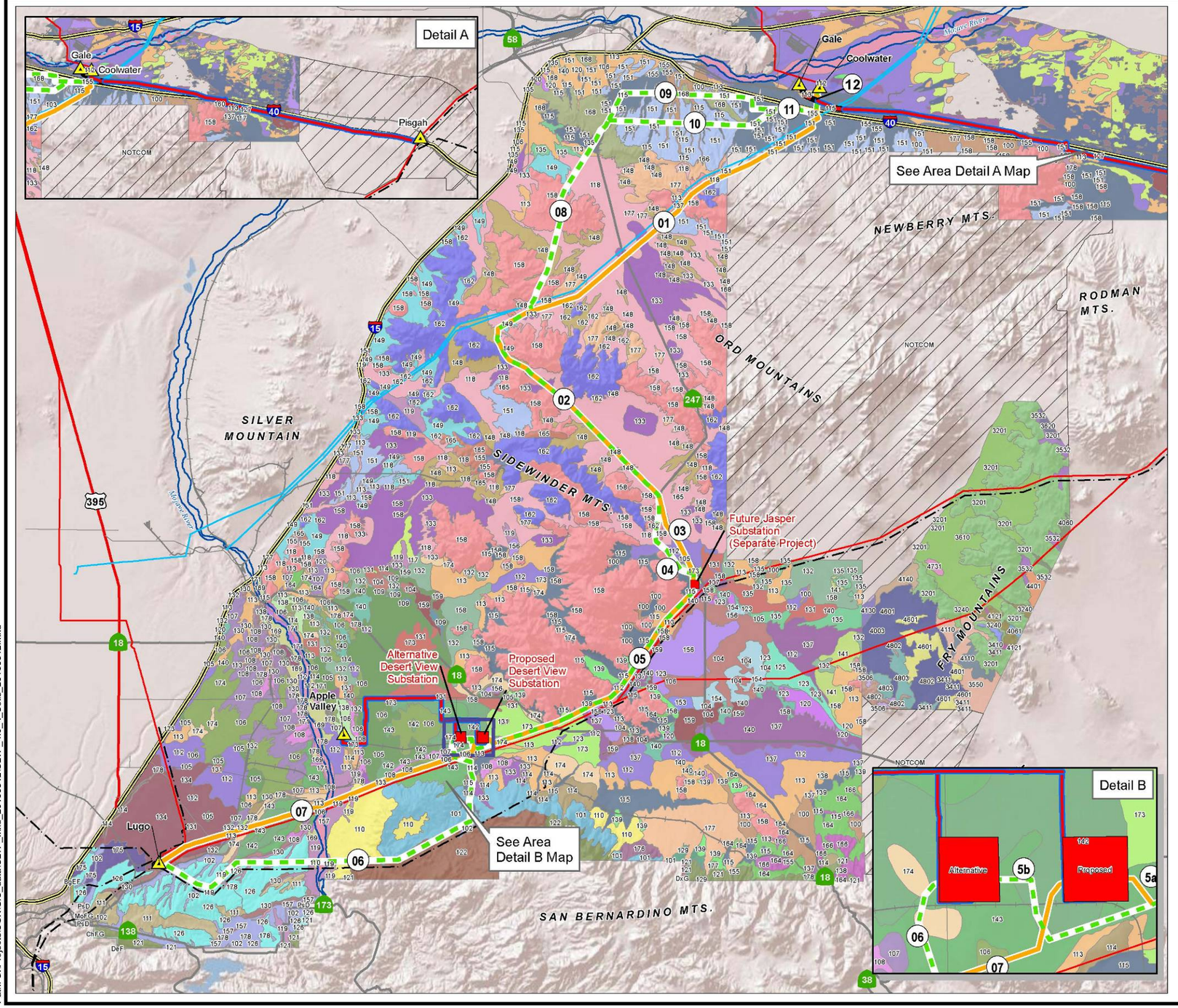
4.6.1.11 Soils

Soils of the Coolwater-Lugo area generally are shallow to very deep and are moderately well drained to somewhat excessively drained (U.S. Department of Agriculture 2009). Excessively drained soils are very porous, are rapidly permeable, and have low available water capacity. The soils consist of sand, loamy sand, loamy fine sand, sandy loam, loam,

and clay. These soils have slight to moderate water erosion potential and a slight to high wind erosion potential. Specific soil types in the Coolwater-Lugo area are listed in Table 4.6-3, *Soil Units in Coolwater-Lugo Area* and shown in Figure 4.6-4, *Soils*.

Coolwater - Lugo Transmission Project
Figure 4.6-4
Soils

Page 1 of 2



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- Railroad

Source: USGS, Mojave Water Resources, 2012, Co. of San Bernardino Land Use Services

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.6_4_Soils_20130812.mxd

Legend

- 100 ARIZO GRAVELLY LOAMY SAND, 2 TO 9 PERCENT SLOPES
- 101 Cajon loamy fine sand, 0 to 2 percent slopes
- 102 Cajon loamy sand, 0 to 2 percent slopes
- 103 Cajon loamy sand, 2 to 9 percent slopes
- 104 Cajon loamy fine sand, 2 to 9 percent slopes
- 105 Cajon loamy coarse sand, 0 to 5 percent slopes
- 106 Cajon-Challenger complex, 2 to 9 percent slopes
- 107 Cajon-Machone complex, 2 to 9 percent slopes
- 108 Cajon-Norob complex, 0 to 5 percent slopes
- 109 Cajon-Norob complex, 2 to 9 percent slopes
- 110 Cajon-Norob complex, 0 to 15 percent slopes
- 111 Challenger sand, 0 to 5 percent slopes
- 112 Challenger-Leuhman complex, 0 to 9 percent slopes
- 113 DeStazo complex, 0 to 5 percent slopes
- 114 Helendale loamy sand, 0 to 2 percent slopes
- 115 Helendale loamy sand, 2 to 5 percent slopes
- 117 Helendale-Cajon complex, 2 to 5 percent slopes
- 118 Helendale-Cajon complex, 2 to 9 percent slopes
- 119 Helendale-Sparkhule complex, 2 to 15 percent slopes
- 120 Helendale-Randsburg complex, 0 to 5 percent slopes
- 121 Hi Vista sandy loam, 2 to 9 percent slopes
- 122 Hi Vista-Machone-Randsburg complex, 2 to 15 percent slopes
- 123 Hi Vista-Rock outcrop complex, 30 to 50 percent slopes
- 125 Leuhman loamy sand, 0 to 2 percent slopes
- 126 Leuhman complex, 0 to 2 percent slopes
- 127 Leuhman-Cajon-Leuhman, eroded, complex, 0 to 9 percent slopes
- 129 Leuhman-Challenger-Cajon complex, 0 to 15 percent slopes
- 130 Machone-Randsburg complex, 2 to 9 percent slopes
- 131 Machone-Randsburg-Hi Vista complex, 2 to 50 percent slope
- 132 Muroc sandy loam, 2 to 5 percent slopes
- 133 Muroc-Randsburg complex, 2 t0 5 percent slopes
- 134 Muroc-Randsburg complex, 5 to 15 percent slopes
- 135 Norob sandy loam, 0 to 2 percent slopes
- 136 Norob sandy loam, 2 to 5 percent slopes
- 137 Norob complex, 0 to 5 percent slopes, overblown
- 138 Norob-Helendale complex, 2 to 5 percent slopes
- 139 Randsburg sandy loam, 2 to 15 percent slopes
- 140 Randsburg-Machone-Rock outcrop complex, 4 to 50 percent slopes
- 141 Randsburg-Rock outcrop complex, 15 to 50 percent slopes
- 142 Sparkhule gravelly sandy loam, 5 to 15 percent slopes
- 143 Sparkhule very gravelly loam, 5 to 15 percent slopes
- 148 MIRAGE SANDY LOAM, 2 TO 5 PERCENT SLOPES*
- 149 MIRAGE-JOSHUA COMPLEX, 2 TO 5 PERCENT SLOPES*
- 151 NEBONA-CUDDEBACK COMPLEX, 2 TO 9 PERCENT SLOPES*
- 153 PETERMAN LOAM
- 154 PETERMAN CLAY
- 155 PITS
- 156 PLAYAS
- 157 RIVERWASH
- 158 ROCK OUTCROP-LITHIC TORRIORTHENTS COMPLEX, 15 TO 50 PERCENT SLOPES*
- 159 ROSAMOND LOAM, SALINE-ALKALI
- 160 ROSAMOND LOAM, STRONGLY SALINE-ALKALI
- 162 SPARKHULE-ROCK OUTCROP COMPLEX, 15 TO 50 PERCENT SLOPES*
- 164 TRIGGER GRAVELLY LOAM, 5 TO 15 PERCENT SLOPES
- 165 TRIGGER-SPARKHULE-ROCK OUTCROP ASSOCIATION, STEEP*
- 166 TRIGGER-ROCK OUTCROP COMPLEX, 30 TO 50 PERCENT SLOPES*
- 168 TYPIC HAPLARGIDS-YERMO COMPLEX, 8 TO 30 PERCENT SLOPES*
- 169 VICTORVILLE SANDY LOAM
- 171 VILLA LOAMY SAND
- 173 WASCO SANDY LOAM, COOL, 0 TO 2 PERCENT SLOPES
- 174 WASCO SANDY LOAM, COOL, 2 TO 5 PERCENT SLOPES
- 175 WRIGHTWOOD-BULL TRAIL ASSOCIATION, SLOPING*
- 176 YERMO GRAVELLY SANDY LOAM, 30 TO 50 PERCENT SLOPES
- 177 YERMO-KIMBERLINA, COOL, ASSOCIATION, SLOPING*
- 178 WATER
- 3201 Dalvord-Rock outcrop association, 15 to 75 percent slopes
- 3240 Langwell-Rock outcrop association, 4 to 30 percent slopes
- 3410 Haleburu association, 2 to 30 percent slopes
- 3411 Haleburu-Rock outcrop association, 8 to 50 percent slopes
- 3506 Cajon sand, 0 to 4 percent slopes, moist
- 3532 Hypoint-Gravesumit association, 2 to 8 percent slopes
- 3550 Olympus-Cajon complex, 2 to 8 percent slopes
- 3610 Burntshack-Hypoint association, 2 to 4 percent slopes
- 3620 Arenic Haplargids, 2 to 4 percent slopes
- 4003 Daisy-Gravesumit-Cajon complex, 2 to 4 percent slopes
- 4060 Gravesumit-Noagua complex, 2 to 4 percent slopes
- 4061 Gravesumit-Daisy complex, 2 to 8 percent slopes
- 4110 Noagua-Popups-Edalph association, 2 to 15 percent slopes
- 4121 Popups-Silvermine complex, 2 to 8 percent slopes
- 4130 Joshua loam, 2 to 5 percent slopes
- 4140 Coyote-Popups association, 2 to 8 percent slopes
- 4401 Daisy-Arizo association, 0 to 4 percent slopes
- 4601 Ironped-Rock outcrop-Cougarbutte complex, 2 to 15 percent slopes
- 4731 Calcic Haplosalids-Sodic Haplosalids complex, 0 to 2 percent slopes
- 4802 Rock outcrop
- 4803 Rock outcrop-Cougarbutte association, 2 to 15 percent slopes
- BeDE Wrightwood-Morical, dry families, association 2 to 30 percent slopes
- BgEF Morical family, dry-Badland association, 15 to 50 percent slopes
- ChFG Typic Xerorthents, warm-Typic Haploxeralfs-Badland complex, 30 to 100 percent slopes
- DeF Tyee-Tollhouse families complex, 30 to 50 percent slopes
- DxE Wapi-Pacifico families, dry-Rock outcrop complex, 15 to 30 percent slopes
- DxF Wapi-Pacifico families, dry-Rock outcrop complex, 30 to 50 percent slopes
- DxG Wapi-Pacifico families, dry-Rock outcrop complex, 50 to 75 percent slopes
- MoFG Typic Xerorthents-Morical family, dry association, 30 to 75 percent slopes
- PsD Avawatz-Oak Glen, dry families association, 2 to 15 percent slopes
- Rw Riverwash
- W Water-perennial
- No Data

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.6_4a_Soils_Legend_20130812.mxd

Coolwater - Lugo Transmission Project
Figure 4.6-4
Soils

Page 2 of 2

Source: USGS, Mojave Water Resources, 2012, Co. of San Bernardino Land Use Services

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Table 4.6-3 Soil Units in Coolwater-Lugo Area

Map Unit Symbol	Soil Type	Location	Erosion Class		Drainage Class	Shrink-Swell Potential
			Water	Wind		
Desert View Substation Sites						
142	Lucerne Sandy Loam, 0 to 2 Percent Slopes	Proposed Substation Site, Alternative Substation Site	Slight	Moderate	Well Drained	Low
143	Lucerne Sandy Loam, 2 to 5 Percent Slopes	Proposed Substation Site, Alternative Substation Site	Slight	Moderate	Well Drained	Low
173	Wasco Sandy Loam, Cool, 0 to 2 Percent Slopes	Proposed Substation Site	Slight	Moderate	Well Drained	Low
Transmission Line and Telecommunication Routes						
100	Arizo Gravelly Loamy Sand, 2 to 9 Percent Slopes	Segments 9 and 10; Gale to Pisgah	Slight	High	Excessively Drained	Low
101	Arrastre-Rock Outcrop Complex, 30 to 50 Percent Slopes	Segments 6 and 7	Moderate	Moderate	Well Drained	Low
102	Avawatz-Oak Glen Association, Gently Sloping	Segment 6	Slight or Moderate	Moderate	Somewhat Excessively Drained	Low
104	Bousic Clay	Segments 4 and 5; Gale to Pisgah	Slight	Slight	Well Drained	High
105	Bryman Loamy Fine Sand, 0 to 2 Percent Slopes	Segment 7; Apple Valley to Desert View	Slight	High	Well Drained	Low to Moderate
106	Bryman Loamy Fine Sand, 2 to 5 Percent Slopes	Segments 5, 6, and 7; Apple Valley to Desert View	Slight	High	Well Drained	Low to Moderate
107	Bryman Loamy Fine Sand, 5 to 9 Percent Slopes	Segment 7; Apple Valley to Desert View	Slight	High	Well Drained	Low to Moderate
108	Bryman Loamy Fine Sand, 9 to 15 Percent Slopes	Segment 7; Apple Valley to Desert View	Moderate	High	Well Drained	Low to Moderate
110	Bryman-Cajon Association, Rolling	Segments 6 and 7	Slight or Moderate	Slight	Well Drained	Low to Moderate
112	Cajon Sand, 0 to 2 Percent Slopes	Segments 3, 4, 5, and 11; Gale to Pisgah; Apple Valley to Desert	Slight	Very High	Somewhat Excessively Drained	Low

Table 4.6-3 Soil Units in Coolwater-Lugo Area

Map Unit Symbol	Soil Type	Location	Erosion Class		Drainage Class	Shrink-Swell Potential
			Water	Wind		
		View				
113	Cajon Sand, 2 to 9 Percent Slopes	Segments 1, 5, 6, 7, 8, 9, and 11; Gale to Pisgah; Apple Valley to Desert View	Slight or Moderate	High	Somewhat Excessively Drained	Low
114	Cajon Sand, 9 to 15 Percent Slopes	Segments 5 and 6; Apple Valley to Desert View	Slight or Moderate	High	Somewhat Excessively Drained	Low
115	Cajon Gravelly Sand, 2 to 15 Percent Slopes	Segments 1, 3, 4, 5, 6, 8, 9, 10, and 11; Gale to Pisgah	Slight	Slight	Somewhat Excessively Drained	Low
118	Cajon-Arizo Complex, 2 to 15 Percent Slopes	Segments 1, 2, 3, 4, and 8	Slight or Moderate	Slight	Somewhat Excessively Drained	Low
119	Cajon-Wasco, Cool Complex, 2 to 9 Percent Slopes	Segments 6 and 7	Slight or Moderate	High	Somewhat Excessively Drained	Low
120	Cave Loam, Dry, 0 to 2 Percent Slopes	Segment 5	Slight	Moderate	Well Drained	Low
122	Cushenbury-Crafton-Rock Outcrop Complex, 15 to 50 Percent Slopes	Segment 6	Moderate	Moderate	Well Drained	Low
123	Dune Land	Segment 5; Gale to Pisgah	Slight	Very High	Excessively Drained	--
126	Gullied Land-Haploxerlafs Association	Segment 6	Moderate or High	--	--	--
127	Halloran Sandy Loam	Gale to Pisgah	Slight	Very High	Moderately Well Drained	Low
128	Halloran-Duneland Complex, 0 to 15 Percent Slopes	Gale to Pisgah	Slight	Very High	Moderately Well Drained	Low
130	Haplargids-Calciorthids Complex, 15 to 50 Percent Slopes	Segments 6 and 7	Moderate or High	Moderate or High	--	--
131	Helendale Loamy Sand, 0 to 2 Percent Slopes	Apple Valley to Desert View	Slight	High	Well Drained	Low

Table 4.6-3 Soil Units in Coolwater-Lugo Area

Map Unit Symbol	Soil Type	Location	Erosion Class		Drainage Class	Shrink-Swell Potential
			Water	Wind		
132	Helendale-Loamy Sand, 2 to 5 Percent Slopes	Segment 7; Apple Valley to Desert View	Slight	High	Well Drained	Low
133	Helendale-Bryman Loamy Sands, 2 to 5 Percent Slopes	Segments 1, 2, 6, 7, and 8	Slight	High	Well Drained	Low
134	Hesperia Loamy Fine Sand, 2 to 5 Percent Slopes	Segments 6 and 7	Slight	High	Well Drained	Low
135	Joshua Loam, 2 to 5 Percent Slopes	Segment 8	Slight	Slight	Well Drained	Low to Moderate
137	Kimberlina Loamy Fine Sand, Cool, 0 to 2 Percent Slopes	Segments 1 and 5; Gale to Pisgah	Slight	High	Well Drained	Low to Moderate
138	Kimberlina Loamy Fine Sand, Cool, 2 to 5 Percent Slopes	Apple Valley to Desert View	Slight	High	Well Drained	Low
139	Kimberlina Gravelly Sandy Loam, Cool, 2 to 5 Percent Slopes	Segment 5	Slight	Slight	Well Drained	Low
140	Lavic Loamy Fine Sand	Segments 3, 4, and 5; Apple Valley to Desert View	Slight	High	Moderately Well Drained	Low
142	Lucerne Sandy Loam, 0 to 2 Percent Slopes	Segments 5 and 7; Apple Valley to Desert View	Slight	Moderate	Well Drained	Low
143	Lucerne Sandy Loam, 2 to 5 Percent Slopes	Segments 5, 6, and 7; Apple Valley to Desert View	Slight	Moderate	Well Drained	Low
148	Mirage Sandy Loam, 2 to 5 Percent Slopes	Segments 1, 2, and 8	Slight	Slight	Well Drained	Low to Moderate
151	Nebona-Cuddeback Complex, 2 to 9 Percent Slopes	Segments 1, 8, 9, 10, and 11; Gale to Pisgah	Slight or Moderate	Slight	Well Drained	Low
155	Pits	Segments 1, 5, and 11; Gale to Pisgah	--	--	--	--
156	Playas	Segment 5; Gale to Pisgah	Slight	Very High	--	--
157	Riverwash	Segment 6	--	--	--	--
158	Rock Outcrop-Lithic Torriorthents Complex, 15 to 50 Percent Slopes	Segments 1, 2, 3, 4, 5, and 8; Gale to Pisgah	High	Slight	--	--

Table 4.6-3 Soil Units in Coolwater-Lugo Area

Map Unit Symbol	Soil Type	Location	Erosion Class		Drainage Class	Shrink-Swell Potential
			Water	Wind		
159	Rosamond Loam, Saline-Alkali	Segment 5; Gale to Pisgah	Slight	Moderate	Well Drained	Low to Moderate
160	Rosamond Loam, Strongly Saline-Alkali	Gale to Pisgah	Moderate	Moderate to High	Well Drained	Low to Moderate
162	Sparkhule-Rock Outcrop Complex, 15 to 50 Percent Slopes	Segments 1, 2, and 4	Slight or Moderate	Slight	Well Drained	Low to Moderate
168	Typic Haplargids-Yermo Complex, 8 to 30 Percent Slopes	Segments 8, 9, and 10	Moderate or High	Slight or Moderate	Well Drained	--
169	Victorville Sandy Loam	Apple Valley to Desert View	Slight	Moderate to High	Moderately Well Drained	Low
173	Wasco Sandy Loam, Cool, 0 to 2 Percent Slopes	Segments 3, 4, 5, and 7; Apple Valley to Desert View	Slight	Moderate	Well Drained	Low
174	Wasco Sandy Loam, Cool, 2 to 5 Percent Slopes	Segment 5; Apple Valley to Desert View	Slight	Moderate	Well Drained	Low
177	Yermo-Kmberlina, Cool, Association, Sloping	Segment 1	Moderate	Slight	Somewhat Excessively Drained	Low
178	Water	Segments 6 and 7; Gale to Pisgah	--	--	--	--

Source: U.S. Natural Resources Conservation Service, 2013

4.6.2 Regulatory Setting

4.6.2.1 Federal Regulatory Setting

Clean Water Act

The federal Clean Water Act ("CWA"), as amended by the Water Quality Act of 1987, regulates water quality in the United States. The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. These waters include all navigable waters and tributaries thereto, and adjacent wetlands.

In 1972, the CWA was amended to specify that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System permit. Subsequent amendments and regulations to the CWA established a framework for regulating municipal and industrial stormwater discharges and permit application requirements.

The United States Environmental Protection Agency has authorized the Regional Water Quality Control Boards to implement this program. On August 19, 1999, the State Water Board reissued the General Construction Storm Water Permit (Water Quality Order 99-08-DWQ). On December 8, 1999, the State Water Board amended Order 99-08-DWQ to apply to sites as small as 1.0 acre.

4.6.2.2 State Regulatory Setting

Alquist-Priolo Earthquake Fault Zoning Act

The AP Earthquake Fault Zoning Act was enacted by the State of California in 1972 to mitigate the hazard of surface faulting to structures planned for human occupancy and other critical structures. The State has established regulatory zones (known as Earthquake Fault Zones and often referred to as "AP zones") around the surface traces of active faults and has issued Earthquake Fault Zone Maps to be used by government agencies in planning and reviewing new construction. In addition to residential projects, structures planned for human occupancy that are associated with industrial and commercial projects are of concern.

AP Zone Maps were reviewed for the locations of known active faults near the Coolwater-Lugo area (including all project components). Several of the Transmission Line and Telecommunication routes are located within AP fault zones; however, there are no proposed structures planned for human occupancy. Subsequently, the AP Earthquake Fault Zoning Act does not apply to Coolwater-Lugo.

4.6.2.3 Local Regulatory Setting

The California Public Utilities Commission ("CPUC") has sole exclusive State jurisdiction over the siting and design of Coolwater-Lugo because the CPUC regulates and authorizes the construction of investor-owned public utility facilities. Such projects

are exempt from local land use and zoning regulations and permitting in accordance with CPUC General Order ("G.O.") No. 131-D, which is applicable to all components of the Project including but not limited to the transmission lines, substations, staging yards, and marshaling yards. However, Section XIV.B requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain a nondiscretionary local permit." As part of its environmental review process, SCE considers local and State land use plans, and policies, and local land use priorities and concerns.

The County of San Bernardino General Plan

The County of San Bernardino 2007 General Plan is a comprehensive, long-range plan that provides policies and goals to serve as the guide for the physical development of the County. Coolwater-Lugo would be located within the County's Desert Region of the General Plan. Policies and goals that are applicable to land uses are identified within the Countywide Goals and Policies and Desert Region (San Bernardino County 2013).

San Bernardino County Development Code

The San Bernardino County Development Code (San Bernardino County 2013) implements the County General Plan by classifying and regulating the uses of land and structures within unincorporated San Bernardino County; by preserving and protecting the county's important agricultural, cultural, natural, open space and scenic resources; and by protecting and promoting the public health, safety, comfort, convenience, prosperity, and general welfare of residents and businesses in the county.

More specifically, the purposes of the Development Code are to: (1) provide standards and guidelines for the continuing orderly growth and development of the county that will assist in protecting the character and identity of San Bernardino County and its distinct communities; (2) conserve and protect the county's important agriculture, cultural, natural, open space and scenic resources; (3) create a comprehensive and stable pattern of land uses upon which to plan transportation, water supply, sewerage, energy, drainage/flood control and other public facilities and utilities; (4) encourage the most appropriate uses of land in order to prevent overcrowding of land and avoid undue concentration of population, and maintain and protect the value of property; and (5) ensure compatibility between different types of development and land use [Geological Hazards Overlay Chapter 82.15, Condition Grading Compliance Chapter 83.04, and Flood Hazard Development Review Chapter 85.07].

Department of Building and Safety Requirements

Coolwater-Lugo is subject to the applicable sections of the California Building Code ("CBC"), which is administered by the California Building Standards Commission. The City of Hesperia, City of Victorville, the Town of Apple Valley, and the San Bernardino County Building Departments are responsible for implementing the CBC for Coolwater-Lugo.

Coolwater-Lugo is subject to the building and safety requirements of the City of Hesperia and San Bernardino County Building Departments. The San Bernardino County Grading Code requires a grading permit for the following conditions:

- An excavation is greater than 2 feet in depth or an excavation creates a cut slope from 2 feet to 5 feet in height with a slope steeper than one and one-half horizontal to one vertical or an excavation creates a cut slope greater than 5 feet in height
- A fill 1 foot or more in thickness. A 3-foot fill may be placed without a permit if it does not exceed 50 cubic yards, does not obstruct a drainage course and is not intended to support a structure
- A fill less than 1 foot in thickness is placed on natural terrain steeper than five horizontal to one vertical

A ministerial grading permit shall be obtained before the grading is commenced. A grading plan would be submitted as part of the grading permit application. All grading in excess of 5,000 cubic yards shall be in accordance with the approved grading plan prepared by a California professional civil engineer. SCE would obtain any necessary ministerial permits as needed.

Town of Apple Valley General Plan

The Geotechnical Element of the Town of Apple Valley General Plan (Town of Apple Valley 2009) is intended to provide information about the geological and seismic conditions and hazards that affect the Town of Apple Valley and its sphere of influence. This element establishes a series of goals, policies, and programs that focus on reducing potential impacts, such as loss of life and property damage, associated with seismic and geologic hazards.

4.6.3 Significance Criteria

4.6.3.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to geology and soils come from the California Environmental Quality Act ("CEQA") Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, or injury, or death involving: rupture of a known earthquake fault, as delineated on the most recent AP Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (California Division of Mines and Geology Special Publication 42); strong seismic ground shaking; seismic-related ground failure, including liquefaction; and landslides
- Result in substantial soil erosion or the loss of topsoil

- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse

- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property

- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water

4.6.3.2 NEPA Analysis

Unlike CEQA, NEPA does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27).

4.6.4 Impact Analysis

This section discusses the potential impact of implementing the Proposed Project on geology and soil resources, and the potential impact of geology and soil resources on the Proposed Project. The Proposed Project's consistency with applicable policies and regulations was also considered. Impacts from the Alternative Project are discussed in Section 4.6.5, Alternative Project.

As discussed in Chapter 3, Project Description, either the Proposed Project or Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. Generally, the following impact assessment applies to both scenarios for Desert View Substation. Any differences between the two scenarios in relation to potential impacts are discussed in the applicable section below. Full build out of either the Proposed or Alternative Desert View Substation would occur within the disturbance footprint established during the IBO of Desert View Substation construction; therefore, no disturbance of additional lands would be needed for the FBO of Desert View Substation are exempt from local land use and zoning regulations and permitting in accordance with CPUC General Order ("G.O.") No. 131-D, which is applicable to all components of the Project including but not limited to the transmission lines, substations, staging yards, and marshaling yards. However, Section XIV.B requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain a nondiscretionary local permit." As part of its environmental review process, SCE considers local and State land use plans, and policies, and local land use priorities and concerns.

The County of San Bernardino General Plan

The County of San Bernardino 2007 General Plan is a comprehensive, long-range plan that provides policies and goals to serve as the guide for the physical development of the

County. Coolwater-Lugo would be located within the County's Desert Region of the General Plan. Policies and goals that are applicable to land uses are identified within the Countywide Goals and Policies and Desert Region (San Bernardino County 2013).

San Bernardino County Development Code

The San Bernardino County Development Code (San Bernardino County 2013) implements the County General Plan by classifying and regulating the uses of land and structures within unincorporated San Bernardino County; by preserving and protecting the county's important agricultural, cultural, natural, open space and scenic resources; and by protecting and promoting the public health, safety, comfort, convenience, prosperity, and general welfare of residents and businesses in the county.

More specifically, the purposes of the Development Code are to: (1) provide standards and guidelines for the continuing orderly growth and development of the county that will assist in protecting the character and identity of San Bernardino County and its distinct communities; (2) conserve and protect the county's important agriculture, cultural, natural, open space and scenic resources; (3) create a comprehensive and stable pattern of land uses upon which to plan transportation, water supply, sewerage, energy, drainage/flood control and other public facilities and utilities; (4) encourage the most appropriate uses of land in order to prevent overcrowding of land and avoid undue concentration of population, and maintain and protect the value of property; and (5) ensure compatibility between different types of development and land use [Geological Hazards Overlay Chapter 82.15, Condition Grading Compliance Chapter 83.04, and Flood Hazard Development Review Chapter 85.07].

Department of Building and Safety Requirements

Coolwater-Lugo is subject to the applicable sections of the California Building Code ("CBC"), which is administered by the California Building Standards Commission. The City of Hesperia, City of Victorville, the Town of Apple Valley, and the San Bernardino County Building Departments are responsible for implementing the CBC for Coolwater-Lugo.

Coolwater-Lugo is subject to the building and safety requirements of the City of Hesperia and San Bernardino County Building Departments. The San Bernardino County Grading Code requires a grading permit for the following conditions:

- An excavation is greater than 2 feet in depth or an excavation creates a cut slope from 2 feet to 5 feet in height with a slope steeper than one and one-half horizontal to one vertical or an excavation creates a cut slope greater than 5 feet in height

- A fill 1 foot or more in thickness. A 3-foot fill may be placed without a permit if it does not exceed 50 cubic yards, does not obstruct a drainage course and is not intended to support a structure

- A fill less than 1 foot in thickness is placed on natural terrain steeper than five horizontal to one vertical

A ministerial grading permit shall be obtained before the grading is commenced. A grading plan would be submitted as part of the grading permit application. All grading in excess of 5,000 cubic yards shall be in accordance with the approved grading plan prepared by a California professional civil engineer. SCE would obtain any necessary ministerial permits as needed.

Town of Apple Valley General Plan

The Geotechnical Element of the Town of Apple Valley General Plan (Town of Apple Valley 2009) is intended to provide information about the geological and seismic conditions and hazards that affect the Town of Apple Valley and its sphere of influence. This element establishes a series of goals, policies, and programs that focus on reducing potential impacts, such as loss of life and property damage, associated with seismic and geologic hazards.

4.6.5 Significance Criteria

4.6.5.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to geology and soils come from the California Environmental Quality Act ("CEQA") Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, or injury, or death involving: rupture of a known earthquake fault, as delineated on the most recent AP Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (California Division of Mines and Geology Special Publication 42); strong seismic ground shaking; seismic-related ground failure, including liquefaction; and landslides

- Result in substantial soil erosion or the loss of topsoil

- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse

- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property

- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water

4.6.5.2 NEPA Analysis

Unlike CEQA, NEPA does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27).

4.6.6 Impact Analysis

This section discusses the potential impact of implementing the Proposed Project on geology and soil resources, and the potential impact of geology and soil resources on the Proposed Project. The Proposed Project's consistency with applicable policies and regulations was also considered. Impacts from the Alternative Project are discussed in Section 4.6.5, Alternative Project.

As discussed in Chapter 3, Project Description, either the Proposed Project or Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. Generally, the following impact assessment applies to both scenarios for Desert View Substation. Any differences between the two scenarios in relation to potential impacts are discussed in the applicable section below. Full build out of either the Proposed or Alternative Desert View Substation would occur within the disturbance footprint established during the IBO of Desert View Substation construction; therefore, no disturbance of additional lands would be needed for the FBO of Desert View Substation

Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, or injury, or death involving: rupture of a known earthquake fault, as delineated on the most recent AP Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (Refer to Division of Mines and Geology Special Publication 42); strong seismic ground shaking; seismic-related ground failure, including liquefaction; and landslides?

Construction Impacts

Construction of the Proposed Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, or injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, or seismic-related ground failure, including liquefaction and landslides.

In the area near the Mojave River, Rabbit Dry Lake, and Lucerne Dry Lake, the Proposed Project has an increased potential to experience liquefaction and ground failure due to the shallow groundwater in these areas. Additional engineering investigations would be conducted prior to design of the transmission line structure foundations, particularly near the Mojave River, Rabbit Dry Lake, and Lucerne Dry Lake, in order to identify areas with potentially collapsible soils. Appropriate design features to mitigate the potential for damage from collapsible soils shall be developed and implemented, as necessary.

Due to its proximity to active fault zones, the Proposed Project could experience moderate to high levels of earthquake-induced ground shaking, as well as ground rupture. The potential for ground rupture is high in the portions where the Proposed Transmission Routes cross AP Fault Zones, however, the placement of project components would avoid the mapped fault traces. A segment of the North Frontal thrust system is mapped as passing within 1.0 mile to the south of the Proposed Desert View Substation. However, structures would be designed consistent with the IEEE 693, Recommended Practices for Seismic Design of Substations. The Proposed Transmission Route would be designed consistent with CPUC G.O. 95, which contains SCE's structural design basis for transmission lines. The structural design basis is conservative and based on wind load, which is more restrictive than any risk presented by seismic hazard. Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Operation of the Proposed Project would not expose people or structures to potential substantial adverse effects, including the risk of loss, or injury, or death involving: rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction and landslides.

As discussed under Construction Impacts, in the area near the Mojave River, Rabbit Dry Lake, and Lucerne Dry Lake, the Proposed Project has an increased potential to experience liquefaction and ground failure due to the shallow groundwater in these areas. Additional engineering investigations would be conducted prior to design of the transmission line structure foundations, particularly near the Mojave River, Rabbit Dry Lake, and Lucerne Dry Lake, in order to identify areas with potentially collapsible soils. Appropriate design features to mitigate the potential for damage from collapsible soils shall be developed and implemented, as necessary.

Due to its proximity to an active fault zone, the Proposed Project could experience moderate to high levels of earthquake-induced ground shaking as well as ground rupture. Even though the Proposed Project is located in an area susceptible to earthquake forces, the structures would not be utilized for human occupancy and would be unmanned with the exception of routine maintenance activities. Structures would also be designed consistent with the IEEE 693, Recommended Practices for Seismic Design of Substations. The Proposed Transmission Route would be designed consistent with CPUC G.O. 95, which contains SCE's structural design basis for transmission lines. The structural design basis is conservative and based on wind load, which is more restrictive than any risk presented by seismic hazard. Therefore, less than significant impacts due to seismic activity are anticipated during operation of the Proposed Project.

Would the project result in substantial soil erosion or the loss of topsoil?

Construction Impacts

During construction, erosion could result from construction activities including the operation of heavy machinery on unimproved roadways; grading activities; excavation;

drilling; or wind or water erosion of stockpiled fill/excavated materials at staging areas, laydown areas, or marshalling yards. Preparation of the marshalling yard would include the application of road base or crushed rock which would serve to reduce erosion potential. Existing and new access roads would also be compacted, which would serve to minimize erosion on roadways.

Erosion and loss of topsoil due to water and wind would be minimized by the implementation of best management practices ("BMPs") that will be provided in the Storm Water Pollution Prevention Plan ("SWPPP") prepared for Coolwater-Lugo (please see Section 3.2, Proposed Project Construction Plan, for more information on BMPs and the SWPPP). In addition, the grading permit issued by San Bernardino County would include provisions for construction of surface improvements that would minimize soil erosion and the loss of topsoil at the Proposed Desert View Substation Site. Implementation of the Worker Environmental Awareness Program ("WEAP"), as described in Section 3.9 of the Project Description, Worker Environmental Awareness Training would provide site personnel with instruction on the individual responsibilities under the CWA, the Project SWPPP, and site-specific BMPs. Site preparation, design, and construction would be performed in compliance with the SWPPP and any grading permits required. Therefore, less than significant impacts to soil erosion and loss of topsoil are anticipated during construction of the Proposed Project.

Operation Impacts

The Proposed Project has been mapped as having potential for slight to high erosion potential from wind and water. However, the surface of the Proposed Desert View Substation will have semi-permeable and impervious materials, reducing the erosion potential or loss of the topsoil. Design and construction of the substation site would include measures to control surface drainage for the Proposed Desert View Substation. For any temporary disturbance caused by construction activities that could result in soil movement due to water runoff or wind during operations, those areas would be stabilized or restored to minimize the impacts for the Proposed Project. Less than significant impacts to soil erosion and loss of topsoil are anticipated during operation of the Proposed Project.

Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Construction Impacts

The potential for risk from on- or off-site landslides during construction is considered to be low because the topography of the majority of the Proposed Project is relatively flat and these areas are not susceptible to soil slumps and block slides. Portions of Segments 1, 2, 3, and 5 pass through or are in the vicinity of mountainous areas. Typically, these areas would be considered susceptible to earthquake-induced landslides. According to the San Bernardino County Land Use Plan, Geologic Hazard Maps, there are no existing landslides in the mountainous areas of Segments 1, 2, 3, and 5. Although there are no

mapped landslides in close proximity of the Proposed Transmission Routes, portions of Segments 1 and 5 cross mountainous terrain; therefore, the potential for landslides exists along portions of these segments. Although the potential for damage from landslides exists, the probability of a landslide occurring is considered to be low.

The potential for fissures and subsidence and collapsible soils throughout the majority of the Proposed Project is considered to be very low, with the exception of the project components (Segment 5) located in the vicinity of Rabbit Dry Lake and Lucerne Dry Lake, and near the Mojave River channel (Segment 7). Shallow groundwater (approximately 20–30 feet bgs) in these areas creates a moderate potential for fissures, subsidence, and collapsible soils to occur. Depth to groundwater at Troy Dry Lake is at approximately 55 feet bgs. This depth to groundwater is only slightly deeper than 50 feet bgs; therefore, the potential for subsidence and collapsible soils, and liquefaction is considered to be moderate. Coolwater-Lugo will be designed to appropriate engineering standards, and the potential for damage from collapsible soils and seismically induced settlement is considered to be low.

A geotechnical investigation has been conducted at the Proposed Desert View Substation that determined that unstable geologic units are not present at the site. Engineering design for the Proposed Project would consider water table depth, evidence of faulting, liquefaction potential, physical properties of subsurface soils, soil resistivity, and slope stability. Project design would consider and minimize to the extent feasible potential impacts related to these issues. Therefore, less than significant impacts due to unstable geologic units or soils are anticipated during construction of the Proposed Project.

Operation Impacts

The potential for risk from on- or off-site landslides is considered to be low because the majority of the topography of the Proposed Project is relatively flat and these areas are not susceptible to soil slumps and block slides. Although there are no mapped landslides in close proximity of the Proposed Transmission Routes, portions of Segments 1, 2, 3, and 5 cross over mountainous terrain. As discussed under Construction Impacts, the potential for landslides exists along portions of these segments; however, the potential for damage from landslides is considered to be low.

The potential for fissures and subsidence and collapsible soils for the majority of the Proposed Project are considered to be very low, with the exception of the Project components near Rabbit Dry Lake and Lucerne Dry Lake (Segment 5), in the vicinity of Troy Dry Lake (Gale to Pisgah Telecommunications Route), and near the Mojave River channel (Segment 7).

No unstable geologic units have been identified at the Proposed Desert View Substation site. Engineering design for the Proposed Project would consider water table depth, evidence of faulting, liquefaction potential, physical properties of subsurface soils, soil resistivity, and slope stability. Project design would consider and minimize to the extent feasible potential impacts related to these issues. Therefore, less than significant impacts

due to unstable geologic units or soils are anticipated during operation of the Proposed Project.

Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Construction Impacts

Based on the soil information obtained from the U.S. Natural Resources Conservation Service Web Soil Survey Web site (2013), soils at the Proposed Desert View Substation have a low shrink-swell potential. The soils along the Proposed Transmission Line Route and Proposed Telecommunication Route have a low to moderate shrink-swell potential.

A geotechnical investigation has been conducted at the Proposed Desert View Substation; it was determined that no expansive soils are present at the site. Engineering design for the Proposed Project would consider expansive soils, and would consider and minimize to the extent feasible potential impacts related to this issue. Therefore, less than significant impacts from expansive soils are anticipated during construction of the Proposed Project.

Operation Impacts

As discussed under Construction Impacts, soils along the Proposed Transmission Line Route and Proposed Telecommunication Routes have a low to moderate shrink-swell potential. The geotechnical investigation determined that no expansive soils are present at the Proposed Desert View Substation. Engineering design for the Proposed Project would consider expansive soils, and would consider and minimize to the extent feasible potential impacts related to this issue. Therefore, less than significant impacts from expansive soils are anticipated during operation of the Proposed Project.

Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

Construction Impacts

No septic tanks or alternative waste water disposal systems would be used during Proposed Project construction activities. Therefore, no impacts are anticipated during construction of the Proposed Project.

Operation Impacts

At IBO, the substation would be equipped with a self-contained restroom maintained by an outside service company. Following IBO and prior to FBO, no septic tanks or alternative waste water disposal systems would be used.

At FBO, SCE plans to install a permanent restroom inside the Test & Maintenance Building and/or the Control Room. Sewer services may be provided by future sewer line

construction or by a septic tank system. If a septic system is installed, a site-specific percolation test would be conducted, and the design of the septic system would be based on the results of that test. SCE would obtain any necessary ministerial permits as needed. Because the substation would be unmanned, restroom use and resultant wastewater generation would be minimal. Therefore, less than significant impacts from waste water disposal systems are anticipated during operation of the Proposed Project

4.6.6.1 NEPA Impact Assessment

Based on the analysis performed, it is anticipated that the Project would not result in significant effects under NEPA.

4.6.7 Applicant Proposed Measures

No potentially significant impacts relative to geology and soil resources are anticipated from or to the Proposed Project; therefore, no applicant proposed measures are identified.

4.6.8 Alternative Project

As described in Section 3.14, Project Alternatives, either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Line Route, but not both. A separate impact analysis is provided for these two scenarios.

4.6.8.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation, the Alternative Transmission Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6, and the Alternative Apple Valley to Desert View and Gale to Pisgah telecommunications routes.

The Alternative Desert View Substation is very similar to the Proposed Desert View Substation in topography, soils, and potential geologic hazards. It is not located in an area with a known fault trace or in an earthquake-induced landslide hazard area. However, due to its proximity to an active fault zone, the Alternative Project could experience moderate to high levels of earthquake-induced ground shaking, which is the same potential as for the Proposed Desert View Substation. The North Frontal thrust system is mapped as passing within 0.5 mile to the south of the Alternative Desert View Substation. Even though the Alternative Desert View Substation is located in an area susceptible to earthquake forces, the structures would not be utilized for human occupancy and would be unmanned with the exception of routine maintenance activities. In addition, the Alternative Desert View Substation has a low potential for seismic settlement, subsidence, expansive soils, erosion, and is not susceptible to liquefaction. The Alternative Desert View Substation Site has the same potential for experiencing strong ground shaking in the event of an earthquake as the Proposed Desert View Substation. As a result, construction and operation at the Alternative Desert View Substation would have similar impacts to and from geology and soils as the Proposed Desert View Substation Site.

Geologic and soil conditions for the Alternative Project with Segment 9 are similar to those of the Proposed Project. Therefore, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 9.

4.6.8.2 Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, the Alternative Transmission Line Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and the Alternative Apple Valley to Desert View and Gale to Pisgah telecommunications routes.

The setting and potential impacts from and to the Alternative Project with Segment 10 are considered the same as the Alternative Project with Segment 9. Therefore, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 10.

4.6.9 References

Blake, T. F. 2000. EQFAULT, A Computer Program for the Deterministic Prediction of Peak Horizontal Acceleration from Digitized California Faults, A User's Manual. This computer program was run with the 2011 update to the earthquake catalogue.

Bryant, W. A., compiler. 2000. Fault number 111b, Lenwood-Lockhart fault zone, Lenwood section, in Quaternary fault and fold database of the United States: U.S. Geological Survey Web site. Retrieved from http://earthquakes.usgs.gov/regional/qfaults

Bryant, W. A., compiler. 2003. Fault number 109a, North Frontal thrust system, Western section, in Quaternary fault and fold database of the United States: U.S. Geological Survey Web site. Retrieved from http://earthquakes.usgs.gov/regional/qfaults

California Division of Mines and Geology. 1988. State of California (Alquist-Priolo) Special Studies Zones, Lockhart Quadrangle, Official Map: dated March 1.

California Geomorphic Provinces, Note 36.

California Geological Survey. 2003. Seismic Hazard Shaking in California. Retrieved from http://www.consrv.ca.gov/cgs/rghm/pshamap/pshamain.html

California Geological Survey. 2007.

California Geological Survey. 2008. Seismic Hazard Zonation Program. Retrieved from www.conservation.ca.gov/cgs/shzp

CDMG. See California Division of Mines and Geology.

Mojave Water Agency. 2006.

Mojave Water Agency. 2012. Alto East, Alto West, Baja and Este Hydrographs February 2012; map of Water Delivery Facilities, not dated; and online information.

MWA. See Mojave Water Agency.

San Bernardino County. 2007. Land Use Services, Planning, Zoning & Overlay Maps, Geologic Hazard Maps, Desert Region, Hesperia, Barstow, Apple Valley, Lucerne Valley, and Newbury Springs areas.

San Bernardino County. 2012. Land Use Services, Planning, Zoning & Overlay Maps, Zoning Maps, Desert Region, Hesperia, Barstow, Apple Valley, Lucerne Valley, and Newbury Springs areas.

San Bernardino County. 2013. San Bernardino County 2007 General Plan, Adopted March 13, 2007. Amended June 18, 2013.

Town of Apple Valley. 2009. Town of Apple Valley General Plan.

U.S. Geological Survey. 1956. Lake Arrowhead Quadrangle, California - San Bernardino County, 15 Minute Series (Topographic).

U.S. Geological Survey. 1982a. Victorville, California, 30 x 60 Minute Series (Topographic), 1:100,000-Scale Metric Topographic Map.

U.S. Geological Survey. 1982b. Big Bear Lake, California, 30 x 60 Minute Series (Topographic), 1:100,000-Scale Metric Topographic Map.

U.S. Geological Survey. 1982c. San Bernardino, California, 30 x 60 Minute Series (Topographic), 1:100,000-Scale Metric Topographic Map.

U.S. Geological Survey. 1989. Newberry Springs, California, 30 x 60 Minute Series (Topographic), 1:100,000-Scale Metric Topographic Map,1977 (Photoinspected 1989).

U.S. Geological Survey. 2005 . Preliminary integrated geologic map databases for the United States - western states: California, Nevada, Arizona, Washington, Oregon, Idaho, and Utah. Retrieved from http://pubs.usgs.gov/of/2005/1305/

U.S. Geological Survey. 2006. Mojave Water Resources, Water-Level and Land-Subsidence Studies in the Mojave River and Morongo Groundwater Basins, Mojave Water Resources Interactive Map. Retrieved from http://ca.water.usgs.gov/mojave/

USGS. See U.S. Geological Survey.

U.S. Natural Resources Conservation Service. 2013. Custom Soil Resource Report for San Bernardino County, California, Mojave River Area, report generated February 20, 2013.

U.S. Soil Conservation Service. 1986. Soil Survey of San Bernardino County California Mojave River Area.

U.S. Natural Resources Conservation Service. 2012. Web Soil Survey, Custom Soils reports for the Proposed Project features. Retrieved from http://websoilsurvey,nrcs,usda.gov/app/WebSoilSurvey.aspx

Bryant, W.A., and Lundberg, M. Matthew, compilers, 2002, Fault number 1h, San Andreas fault zone, Mojave section, in Quaternary fault and fold database of the United States: U.S. Geological Survey website. Retrieved from http://earthquakes.usgs.gov/hazards/qfaults, accessed 06/18/2013 05:13 PM.

This page is intentionally blank.

4.7 Greenhouse Gas Emissions

This section describes existing greenhouse gas ("GHG") conditions in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). It analyzes potential GHG impacts associated with the construction and operation of the Proposed Project and the Alternative Project.

4.7.1 Environmental Setting

GHGs refer to gases that trap heat in the atmosphere, causing a greenhouse effect. GHGs include, but are not limited to, carbon dioxide ("CO_2"), methane ("CH_4"), nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride ("SF_6"). Atmospheric concentrations of the two most important directly emitted, long-lived GHGs, CO_2 and CH_4, are currently well above the range of atmospheric concentrations that occurred over the last 650,000 years (Pew Center 2008). According to the Intergovernmental Panel on Climate Change ("IPCC"), increased atmospheric levels of CO_2 are correlated with rising temperatures; concentrations of CO_2 have increased by 31 percent above pre-industrial levels since the year 1750. Climate models show that temperatures will probably increase by 1.4 degrees Celsius ("°C") to 5.8°C by the year 2100 (IPCC 2007).

Global warming potential ("GWP") estimates how much a given mass of a GHG contributes to climate change. The term enables comparison of the warming effects of different gases. GWP uses a relative scale that compares the warming effect of the gas in question with that of the same mass of CO_2. The CO_2 equivalent ("CO_2e") is a measure used to compare the effect of emissions of various GHGs based on their GWP, when projected over a specified time period (generally 100 years). CO_2e is commonly expressed as metric tons ("MT")[1] of CO_2e ("$MTCO_2e$"). The CO_2e for a gas is obtained by multiplying the mass of the gas (in tons) by its GWP.

In Assembly Bill 32, the legislature recognized California's particular vulnerability to the effects of global warming, finding that global warming will have detrimental effects on some of California's largest industries, including agriculture, wine, tourism, skiing, recreational and commercial fishing, and forestry (Health and Safety Code Section 38501[b]).

4.7.2 Regulatory Setting

4.7.2.1 Federal Regulatory Setting

Federal Mandatory Reporting of Greenhouse Gases (Title 40 Code of Federal Regulations Parts 86, 87, 89 et. al)

The U.S. Environmental Protection Agency ("EPA") promulgated this rule in 2009 to require mandatory reporting of GHG from large GHG emissions sources within 31 source

[1] A metric ton is equal to 1,000 kilograms, or 2,205 pounds.

categories in the U.S. In general, the threshold for reporting is 25,000 MTs or more per year of CO_2e. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHGs, along with vehicle and engine manufacturers, will report at the corporate level. Facilities and suppliers began collecting data on January 1, 2010. The first emissions report was due on March 31, 2011, for emissions during 2010. Manufacturers of vehicles and engines outside of the light-duty sector began reporting CO_2 for model year 2011 and other GHGs in subsequent model years as part of existing EPA certification programs. This rule does not currently require reporting SF_6 emissions from electrical equipment.

4.7.2.2 State Regulatory Setting

Global Warming Solutions Act (Assembly Bill ["AB"] 32)

The California Global Warming Solutions Act of 2006 (AB 32) charges the California Air Resource Board ("CARB") with the responsibility to monitor and regulate sources of GHG emissions in order to reduce those emissions. CARB established a scoping plan in December 2008 for achieving reductions in GHG emissions and developed regulations by January 1, 2011, for reducing those emissions by the year 2020. AB 32 also directs CARB to recommend a *de minimis* threshold of GHG emissions below which emission reduction requirements will not apply.

In February 2011, CARB presented a document titled *Approved Regional Greenhouse Gas Emission Reduction Targets*. The 2020 target is an 8 percent reduction in GHG emissions and a 13 percent reduction by 2035 (CARB 2011a).

Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear

CARB adopted this rule in 2011 to reduce SF_6 emissions from gas insulated switch ("GIS") gear, such as circuit breakers that use SF_6 as an electrical insulating medium. The rule specifies maximum annual SF_6 emission rates for each GIS owner's active GIS equipment. These emission rates decrease with time. The rule also specifies recordkeeping and reporting requirements.

4.7.2.3 Local Regulatory Setting

Coolwater-Lugo would be located in unincorporated areas of San Bernardino County, the City of Hesperia, the Town of Apple Valley, the City of Barstow, and the communities of Lucerne Valley, Daggett, and Newberry Springs.

San Bernardino County Greenhouse Gas Emissions Reduction Plan

The County of San Bernardino's GHG Emissions Reduction Plan (GHG Plan) was adopted on December 6, 2011, and became effective on January 6, 2012 (County of San Bernardino 2011). The GHG Plan establishes a GHG emissions reduction target for the year 2020 that is 15 percent below 2007 emissions. The plan is consistent with AB 32 and sets the County on a path to achieve more substantial long-term reduction in the post-

2020 period. Achieving this level of emissions will ensure that the contribution to GHG emissions from activities covered by the GHG Plan will not be cumulatively considerable.

Implementation of the County's GHG Plan is achieved through the Development Review Process by applying appropriate reduction requirements to projects, which reduce GHG emissions. All new development is required to quantify the project's GHG emissions and adopt feasible mitigation to reduce project emissions below a level of significance. A review standard of 3,000 $MTCO_2e$ per year (from operational emissions plus 30-year amortized construction emissions) is used to identify and mitigate project emissions.

Communities of Lucerne Valley, Daggett, and Newberry Springs (Unincorporated San Bernardino County)

San Bernardino County's GHG Plan applies to the unincorporated communities of Lucerne Valley, Daggett, and Newberry Springs. There are no separate policies related to GHGs that apply to these communities.

City of Hesperia

The Conservation Element section of the *City of Hesperia General Plan 2010* (City of Hesperia 2011) includes the following policies that address GHG emissions and climate change:

- **Policy CN-7.1**: Coordinate with the regional councils of government in developing appropriate regional climate action policies.
- **Policy CN-7.2**: In conjunction with regional councils of government, prepare and implement a city climate actions plan.
- **Policy CN-7.4**: Promote the utilization of alternative energy resources such as wind and solar in new development.
- **Policy CN-7.5**: Promote the utilization of environmentally sensitive construction materials to limit impacts on the ozone, global climate change and mineral resources.
- **Policy CN-7.6**: Preserve land resources for the utilization of energy resources, including wind and solar energy resources.
- **Policy CN-7.7**: Promote energy conservation through site layout, building design, natural light, and efficient mechanical and electrical products in development.
- **Policy CN-7.8**: Continue the existing recycling programs and utilization of the material recovery facility program while exploring additional methods of reducing waste.

- **Policy CN-7.9**: Promote sustainable principles in development that conserve such natural resources as air quality and energy resources.

The City of Hesperia adopted a Climate Action Plan ("CAP") in 2010 as its primary strategy for ensuring that the build out of its General Plan would not conflict with the implementation of AB 32 (City of Hesperia 2010). The purposes of the CAP are as follows:

- Outline a course of action for the city government and the community of Hesperia to reduce per capita GHG emissions 29 percent below business as usual by 2020 and adapt to effects of climate change

- Provide clear guidance to City staff regarding when and how to implement key provisions of the CAP. The CAP sets out an implementation and monitoring framework for monitoring its strategies

The CAP includes strategies in the following categories:

- California Environmental Quality Act ("CEQA") compliance
- Parking measures
- Mixed-use development
- Energy efficiency
- Transit-oriented development
- Water conservation and reuse
- Compact development
- Waste reduction and recycling
- Pedestrian connections
- Regional cooperation
- Bicycle infrastructure
- Government operations
- Traffic calming
- Climate change adaptation

Town of Apple Valley

According to the *Town of Apple Valley General Plan* (2009), Apple Valley will continue to act locally to meet existing and future State and Federal air quality regulations. Apple Valley is pursuing alternative energy options, such as wind turbines, solar energy, electric and alternative fuel vehicles, and green building technology as viable options for enhancing air quality by reducing GHG emissions and other air pollutants (Town of Apple Valley 2009).

The Town of Apple Valley adopted a CAP in 2010 (Town of Apple Valley 2010). The CAP includes general information about GHG and climate change, assumptions and data used to determine a 2005 GHG inventory and baseline, a 2020 forecast under business as usual conditions, and the proposed reduction measures that will enable the town to achieve targeted reduction level, thereby doing its part to limit GHG emissions statewide that contribute to climate change. The CAP is divided into community-wide emissions and municipal-specific emissions. The proposed reduction measures include measures related to transportation, energy efficiency, renewable energy, solid waste management, and general measures for new development, primarily for residential and mixed use development.

City of Barstow

The *City of Barstow General Plan* (City of Barstow 1997) does not contain policies related to GHGs, and the City has not developed a plan to address climate change. The portion of Coolwater-Lugo that lies in the City of Barstow is also located entirely in the Marine Corps Logistics Base ("MCLB") Barstow. This area is zoned as a Military Zone District, and all land uses and activities in this area are under the jurisdiction of the U.S. Department of Defense (City of Barstow 1997). Therefore, no other City of Barstow policies apply.

4.7.3 Significance Criteria

4.7.3.1 CEQA Significance Thresholds

The significance criteria for assessing the impacts to GHG come from the CEQA Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs

The Coolwater-Lugo area is located within the jurisdiction of the Mojave Desert Air Quality Management District ("MDAQMD"). The MDAQMD has adopted the *CEQA and Federal Conformity Guidelines* (MDAQMD 2011) to assist persons preparing

environmental analysis or reviewing documents for any project within the jurisdiction of the MDAQMD by providing background information and guidance on the preferred analysis approach. For the purposes of evaluating the GHG impacts of a project under CEQA, the MDAQMD CEQA Guidelines include a quantitative annual threshold of 100,000 tons CO_2e. Although these are guidelines only, and their use is not required or mandated by the MDAQMD, they are considered appropriate for evaluating potential air quality impacts from construction and operation of the Proposed Project.

4.7.3.2 NEPA Analysis

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (40 Code of Federal Regulations 1508.27).

4.7.4 Impact Analysis

This assessment is based on the potential impacts of the Proposed Project on GHGs. The impact assessment was conducted to identify impacts of GHG emissions from implementing the Proposed Project. Impacts from the Alternative Project are discussed in Section 4.7.6, *Alternative Project*.

As discussed in the project description, the Proposed Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. For purposes of GHG impact analysis for both the Proposed Project and Alternative Project, GHG emissions from IBO were assumed to occur during the first year of project construction. To represent a worst-case scenario of the earliest possible construction start for FBO, GHG emissions from FBO were assumed to occur during the second year of project construction. Therefore, GHG emissions from both IBO and FBO construction of the Proposed and Alternative Desert View Substation are included in the GHG emission calculations that were used in the impact assessment.

GHG emissions anticipated during construction and operation of the Proposed and Alternative Project were estimated for comparison with the significance thresholds.

Construction Emissions

GHG emissions during construction would be produced by off-road construction equipment and on-road motor vehicles. The methodology used to evaluate sources of construction emissions are discussed below.

Off-Road Construction Equipment. Daily GHG emissions from the operation of diesel-fueled off-road equipment were estimated using equipment-specific emission factors. For purposes of this analysis, the emission factors were calculated using the CARB OFFROAD20071 emissions model (CARB 2007) and represent the fleet-wide average

[1] CARB released the OFFROAD 2011 off-road equipment emissions model in September 2011. The OFFROAD 2011 model was developed primarily to support CARB regulatory activities to reduce

emission factors within the MDAQMD jurisdiction during 2016, the assumed first full year of construction activities. Daily construction emissions, schedule assumptions, hours of operation, equipment type, and detailed emission calculations are provided in Appendix C of this Proponent's Environmental Assessment ("PEA").

Aircraft Sources. GHG emissions from helicopters were estimated using emission factors from the 2013 Climate Registry Default Emission Factors (Climate Registry 2013) and estimated fuel use from the Swiss Federal Office of Civil Aviation's Guidance on the Determination of Helicopter Emissions (Federal Office of Civil Aviation 2009). Daily construction emissions, schedule assumptions, hours of operation, equipment type, and detailed emission calculations are provided in Appendix C of the PEA.

On-Road Motor Vehicles. Daily GHG emissions from the operation of gasoline-fueled and diesel-fueled on-road motor vehicles, such as worker commute vehicles, haul trucks, dump trucks and flat-bed trucks, were estimated using emission factors from CARB's On-Road EMFAC2011 mobile source emissions model (CARB 2011b). For this analysis, it has been assumed that field/construction workers come from the Barstow and Hesperia areas and would travel a roundtrip distance of 58 miles, which is two times the average one-way travel distances from Hesperia and Barstow to the Proposed and Alternative Project components. It has also been assumed that concrete supplies and locations where excavated soil would be hauled would be located on average approximately 30 miles from the Proposed and Alternative Project components, which is a standard industry default assumption. Therefore, it was assumed that concrete trucks and material import and export trucks would travel a roundtrip distance of 60 miles. Travel distances for other vehicles are based on proximity to the material staging yards anticipated to be used during construction activities.

Indirect Emission Sources. Emissions from the generation of purchased electrical power used during construction of the Proposed Project would be minimal, including operation of temporary trailers. Electric-driven components consuming purchased power are assumed to be minimal and would result in negligible emissions. Additional analysis has not been conducted.

Annual Construction Emissions. Annual construction GHG emissions were estimated for comparison with the MDAQMD's annual CEQA emission threshold. The following steps were used to estimate annual emissions during construction:

- Total GHG emissions during each of the construction activities in the Construction Equipment and Workforce Estimates tables in Chapter 3 were calculated as described above using construction data in Chapter 3, *Project Description* (please see Appendix C, *Air Quality Calculations*, for details)

emissions from in-use off-road equipment. The OFFROAD 2011 model does not include emissions and emission factors for all of the types of construction equipment that are anticipated to be used for construction activities for the Proposed Project, and it also does not include emissions of greenhouse gases. Because of the limitations in the OFFROAD 2011 model, it was not used for these analyses.

- The annual GHG emissions that may occur for each construction activity during each of three 12-month periods (the first 12 months of construction, construction months 1 through 12, the second 12 months of construction, construction months 13 through 24, and the last 12 months of construction, construction months 19 through 30) were estimated by multiplying the total emissions for each construction activity by the fraction of the emissions anticipated to occur during each of the three 12-month periods

- Total annual GHG emissions during each 12-month period were estimated by adding together the emissions for each construction activity during each 12-month period

- Peak total annual GHG emissions during construction of the Proposed Project were estimated as the highest emissions estimated during the three 12-month periods

Operational Emissions

Operational GHG emission sources include worker vehicle trips associated with routine operation and maintenance ("O&M") activities for the Proposed Project. In addition, the 500 kilowatt diesel-fueled standby emergency generator at the Proposed Desert View Substation would be operated for periodic maintenance and testing, which would generate GHG emissions. GHG emissions may also be generated by potential SF_6 leakage from circuit breakers containing SF_6 as an electrical insulating medium. SCE anticipates that five circuit breakers containing a total of 3,756 pounds of SF_6 would be installed for the Proposed and Alternative Projects.

GHG emissions from maintenance trips were estimated using CARB's On-Road EMFAC2011 mobile source emission factors. For this analysis, it has been assumed that trips by maintenance personnel would originate within 30 miles from the Proposed Desert View Substation and within 30 miles from the ends of the Proposed Transmission and Telecommunication Lines. Thus, maintenance personnel would travel a roundtrip distance of 60 miles for O&M activities for the Proposed Desert View Substation and 60 miles plus the length of the Proposed Transmission and Telecommunication Lines for O&M activities for the Proposed Transmission and Telecommunication Lines. It is anticipated that 48 trips per year would be made for O&M activities for the Proposed Desert View Substation, two trips per year would be made for O&M activities for the Proposed Transmission Line Routes, and one trip per year would be made for O&M activities for the Telecommunication Line Routes.

GHG emissions from maintenance and testing of the standby emergency generator were estimated from GHG emission factors from Table C-1 of Title 40, Code of Federal Regulations, Subpart 98 for No. 2 distillate fuel oil (diesel). It is anticipated that the standby emergency generator would be operated 1 hour per day, 52 days per year, assuming a weekly test.

GHG emissions from potential SF_6 leakage from circuit breakers were estimated using an assumed leakage rate of 0.5 percent per year and the anticipated quantities of SF_6 that would be contained in the circuit breakers.

4.7.4.1 CEQA Impact Assessment

Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction Impacts

Peak annual GHG emissions from each construction component are based on the 12-month period with the highest construction emissions. These peak annual component emissions are listed in Table 4.7-1, *Total Annual Construction Greenhouse Gas Emissions*. The sum of each component's emissions are added together to represent the Project's total annual emissions, which are compared to the MDAQMD significance threshold. These estimates represent a worst-case construction schedule scenario.

Estimated total annual construction GHG emissions are below the MDAQMD significance threshold. Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Table 4.7-1 Total Annual Construction Greenhouse Gas Emissions[1]

Construction Component	Annual GHG Emissions (short tons of CO_2e/year)
Desert View Substation	4,038.46
Distribution for Substation Light & Power	32.88
Modifications to Existing Substations	894.34
Transmission and Potential Subtransmission Line Relocations	20,788.65
Telecommunication System	353.20
Total Emissions	**26,107.52**
MDAQMD Threshold	100,000
Would the Proposed Project Exceed the MDAQMD Threshold?	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C of the PEA

Operation Impacts

Annual emissions during operation of each emission source of the Proposed Project are listed in Table 4.7-2, *Total Annual Operation Greenhouse Gas Emissions*. Estimated total annual operation GHG emissions are below the MDAQMD significance threshold.

Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Table 4.7-2 Total Annual Operation Greenhouse Gas Emissions[1]

Source	Annual GHG Emissions (short tons of CO_2e/year)
Standby Emergency Generator Testing	18.38
SF6 Leakage	224.42
Motor Vehicle Exhaust	1.25
Total Emissions	**244.05**
MDAQMD Threshold	100,000
Would the Proposed Project Exceed the MDAQMD Threshold?	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C of the PEA

Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Construction and Operation Impacts

For purposes of analyzing impacts related to this CEQA criterion, construction and operation emissions are combined in order to compare them against the applicable standards.

Currently, State law does not require GHGs to be included in Air Quality Management Plans and they are not currently regulated by local Air Quality Management Districts. Statewide GHG emissions are regulated through AB 32, which codifies the State's GHG emissions target by requiring the State's GHG emissions be reduced to 1990 levels by 2020 and directs CARB to enforce the Statewide CAP that would begin phasing in by 2012. As shown in Tables 4.7-1 and 4.7-2 above, the Proposed Project emissions are less than the MDAQMD thresholds and, therefore, would not conflict with any State targets for GHG emission reductions.

As discussed in Section 4.7.2.2, *State Regulatory Setting*, CARB adopted the *Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* in 2011. Southern California Edison ("SCE") would comply with the requirements in this rule, including limits on maximum SF_6 leakage rates and recordkeeping and reporting requirements. Therefore, the Proposed Project would not conflict with the requirements of this rule.

Additionally, SCE has developed SF_6 Gas Management Guidelines that require proper documentation and control of SF_6 gas inventories, whether in equipment or in cylinders.[1] Inventories are documented on both a quarterly and a yearly basis. SCE assumes that any SF_6 gas that is purchased and not used to fill new equipment is needed to replace SF_6 gas that has inadvertently leaked from equipment already in service. This assumption forms the basis for SCE to track and manage SF_6 gas emissions. Currently, SCE voluntarily reports these emissions to the California Climate Action Registry, which was created by the California legislature to help companies track and reduce GHG emissions.

SCE has taken proactive steps in the effort to minimize GHG emissions since 1997. In 1997, SCE established an SF_6 Gas Resource Team to address issues pertaining to the environmental impacts of SF_6. The team developed the Gas Management Guidelines that allow for rapid location and repair of equipment leaking SF_6 gas. In addition, in 2001, SCE's parent organization, Edison International, joined the EPA's voluntary SF_6 gas management program, committing SCE to join the national effort to minimize emissions of this GHG. Importantly, SCE's SF_6 emissions in 2006 were 41 percent less than in 1999, while the inventory of equipment containing SF_6 gas actually increased by 27 percent during the same time period.

SCE has made a significant investment in not only improving its SF_6 gas management practices, but also in purchasing state-of-the-art gas handling equipment that minimizes SF_6 leakage. The new equipment has improved sealing designs that virtually eliminate possible sources of leakage. SCE has also addressed SF_6 leakage on older equipment by performing repairs and replacing antiquated equipment through its infrastructure replacement program. It is expected that the Proposed Project would have a minimal amount of SF_6 leakage as a result of the installation of state-of-the-art equipment and SCE's SF_6 gas management practices.

The majority of the Proposed Project is located in unincorporated areas of San Bernardino County. As discussed in Section 4.7.2.3, *Local Regulatory Setting*, San Bernardino County's GHG Plan includes a review standard of 3,000 $MTCO_2e$ per year to identify and mitigate project emissions. Because GHG emissions from construction activities are temporary in nature, San Bernardino County recommends total construction GHG emissions are amortized over a 30-year assumed project lifetime and added to annual operation GHG emissions to calculate total annual GHG emissions for comparison with this review standard.

Total construction emissions for the duration of the Project are estimated at 48,440 $MTCO_2e$. For the purposes of this analysis, the amortized construction emissions are estimated to be 1,615 $MTCO_2e$ over a 30 year project lifetime (48,440/30=1,615), which is then added to annual operational emissions to estimate amortized GHG emissions.

[1] Until CARB finalizes its proposed SF_6 emissions reductions rules, SCE will continue to follow its internal company policy.

Total amortized construction GHG emissions and total annual operation GHG emissions from the Proposed Project are listed in Table 4.7-3, *Total Annual Amortized Greenhouse Gas Emissions and Comparison with SB County Review Standard*.

Table 4.7-3 Total Annual Amortized Greenhouse Gas Emissions and Comparison with SB County Review Standard[1]

Phase	Emissions ($MTCO_2e$)
Construction Emissions Amortized over 30 years (MT/year)	1,615
Annual Operation Emissions (MT/year)	221
Total Annual Amortized Emissions (MT/year)	**1,836**
San Bernardino County Review Standard (MT/year)	3,000
Would the Proposed Project Exceed the San Bernardino County Review Standard?	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C of the PEA

As shown in Table 4.7-3, *Total Annual Amortized Greenhouse Gas Emissions and Comparison with SB County Review Standard*, estimated annual amortized GHG emissions during construction and operation of the Proposed Project are 1,836 $MTCO_2e$ per year, which is less than the SB County Review Standard of 3,000 $MTCO_2e$ per year. Therefore, less than significant impacts are anticipated from construction and operation of the Proposed Project, and the Proposed Project would not conflict with San Bernardino County's GHG Plan.

A portion of the Proposed Transmission Line Route Segment 7 would be located in the City of Hesperia. As discussed in Section 4.7.2.3, *Local Regulatory Setting*, the City of Hesperia's CAP includes strategies to reduce GHG emissions from business as usual levels. Most of these strategies relate to developmental projects, such as residential, commercial and institutional development, and would not apply to the Proposed Project. Additionally, as shown in Table 4.7-3, *Total Annual Amortized Greenhouse Gas Emissions and Comparison with SB County Review Standard*, annual amortized GHG emissions from the Proposed Project would be 1,814 $MTCO_2e$ per year. The City of Hesperia's CAP estimates that annual GHG emissions in the City of Hesperia were 639,419 MT CO_2e in 2005 and are projected to be 678,226 MT CO_2e in 2020 with the reductions included in the City's CAP (City of Hesperia 2010). Thus, annual amortized GHG emissions from the Proposed Project would only be about 0.3 percent of the 2005 and 2020 GHG emissions in the City of Hesperia. Furthermore, the annual GHG emissions for the portion of Proposed Transmission Line Segment 7 located in the City of Hesperia would only be a small fraction of the Proposed Project's total emissions. Therefore, the Proposed Project would not conflict with the City of Hesperia's CAP.

A portion of the Proposed Apple Valley to Desert View Telecommunication Route would be located in the Town of Apple Valley. As discussed in Section 4.7.2.3, *Local*

Regulatory Setting, the Town of Apple Valley's CAP includes recommended measures to reduce GHG emissions from business as usual levels. Most of these strategies relate to transportation, energy efficiency, renewable energy, solid waste management, and general measures for new development, primarily for residential and mixed use development, which would not apply to the Proposed Project. Additionally, as shown in Table 4.7-3, *Total Annual Amortized Greenhouse Gas Emissions and Comparison with SB County Review Standard*, annual amortized GHG emissions from the Proposed Project would be 1,814 $MTCO_2e$ per year. The Town of Apple Valley's CAP estimates that annual GHG emissions in the Town of Apple Valley were 748,594 tons[1] CO_2e in 2009 and are projected to be 636,245 tons CO_2e in 2020 with the reductions included in the Town's CAP (Town of Apple Valley 2010). Thus, annual amortized GHG emissions from the Proposed Project would only be about 0.2 percent of the 2009 emissions and 0.3 percent of the 2020 GHG emissions in the Town of Apple Valley. Furthermore, the annual construction and operation GHG emissions for the portion of the Proposed Apple Valley to Desert View Telecommunication Route in the Town of Apple Valley would only be a small fraction of the Proposed Project's total emissions. Therefore, the Proposed Project would not conflict with the Town of Apple Valley's CAP.

In addition, as discussed in more detail in Section 1.1, *Project Purpose*, the purpose of Coolwater-Lugo includes complying with the state mandated Renewables Portfolio Standard requiring 33% renewable energy by 2020, supporting the California GHG Reduction Program, and assisting the BLM in meeting the Federal Renewable Energy Mandate. The Proposed Project would facilitate the interconnection of renewable energy generation projects; therefore, would it would also facilitate a reduction in GHGs emitted by energy generation.

Therefore, less than significant impacts are anticipated during construction and operation of the Proposed Project.

4.7.4.2 NEPA Impact Assessment

Based on the analysis performed, it is anticipated that the Proposed Project would not result in significant effects under NEPA.

4.7.5 Applicant Proposed Measures

Because no potentially significant impacts related to GHG emissions are anticipated to result from construction and operation of the Proposed Project, no applicant-proposed measures related to GHG emissions are identified.

[1] The Town of Apple Valley's CAP does not specify whether GHG emissions listed in the CAP are in metric tons or short tons.

4.7.6 Alternative Project

As described in Section 3.14, *Project Alternatives*, either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Line Route, but not both. A separate impact analysis is provided for these two scenarios.

4.7.6.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation, the Alternative Transmission Line Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6, and the Alternative Apple Valley to Desert View and Gale to Pisgah Telecommunications Routes.

Peak annual GHG emissions from each construction component are based on the 12-month period with the highest construction emissions. These peak annual component emissions are listed in Table 4.7-4, *Total Annual Construction Greenhouse Gas Emissions for Alternative Project with Segment 9*. The sum of each component's emissions are added together to represent the Project's total annual emissions, which are compared to the MDAQMD significance threshold. These estimates represent a worst-case construction schedule scenario.

Estimated total annual construction GHG emissions are below the MDAQMD significance threshold. Therefore, less than significant impacts are anticipated during construction of the Alternative Project with Segment 9.

Table 4.7-4 Total Annual Construction Greenhouse Gas Emissions for Alternative Project with Segment 9[1]

Construction Component	Annual GHG Emissions (short tons of CO_2e/year)
Alternative Desert View Substation	3,540.09
Distribution for Station Light & Power	32.88
Modifications to Existing Substations	894.34
Transmission and Potential Subtransmission Line Relocations	27,683.01
Telecommunication System	343.83
Total Emissions	**32,494.15**
MDAQMD Threshold	100,000
Would the Alternative Project with Segment 9 Exceed the MDAQMD Threshold?	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C of the PEA

Annual emissions during operation of each emission source of the Alternative Project with Segment 9 are listed in Table 4.7-5, *Total Annual Operation Greenhouse Gas Emissions for Alternative Project with Segment 9*. Estimated annual operation GHG emissions are below the MDAQMD significance threshold.

Table 4.7-5 Total Annual Operation Greenhouse Gas Emission for Alternative Project with Segment 9[1]

Source	Annual GHG Emissions (short tons of CO2e/year)
Standby Emergency Generator Testing	18.38
SF6 Leakage	224.42
Motor Vehicle Exhaust	1.25
Total Emissions	**244.05**
MDAQMD Threshold	100,000
Would the Alternative Project with Segment 9 Exceed the MDAQMD Threshold?	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C of the PEA

As with the Proposed Project, GHG emissions for the Alternative Project with Segment 9 are below the MDAQMD threshold. Additionally, SCE would comply with the requirements in the *Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear* including limits on maximum SF_6 leakage rates and recordkeeping and reporting requirements. Therefore, the Alternative Project with Segment 9 would not conflict with State targets for GHG emission reductions.

As with the Proposed Project, the majority of the Alternative Project with Segment 9 is located in unincorporated areas of San Bernardino County. As discussed in Section 4.7.2.3, *Local Regulatory Setting*, San Bernardino County's GHG Plan includes a review standard of 3,000 $MTCO_2e$ per year to identify and mitigate project emissions. Because GHG emissions from construction activities are temporary in nature, San Bernardino County recommends total construction GHG emissions are amortized over a 30-year assumed project lifetime and added to annual operation GHG emissions to calculate total annual amortized GHG emissions for comparison with this review standard.

Total construction emissions for the duration of the Alternative Project with Segment 9 are estimated at 55,413 $MTCO_2e$. For the purposes of this analysis, the amortized construction emissions are estimated to be 1,847 $MTCO_2e$ over a 30 year project lifetime (55,413/30=1,847), which is then added to annual operational emissions to estimate amortized GHG emissions.

Total amortized construction GHG emissions and total annual average operation GHG emissions from the Alternative Project with Segment 9 are listed in Table 4.7-6, *Annual Amortized Greenhouse Gas Emissions for Alternative Project with Segment 9*.

Table 4.7-6 Annual Amortized Greenhouse Gas Emission for Alternative Project with Segment 9[1]

Phase	Emissions ($MTCO_2e$)
Construction Emissions Amortized over 30 years (MT/year)	1,847
Annual Operation Emissions (MT/year)	221
Total Annual Amortized Emissions	**2,068**
San Bernardino County Review Standard (MT/year)	3,000
Would the Alternative Project with Segment 9 Exceed the San Bernardino County Review Standard?	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C of the PEA

As shown in Table 4.7-6, total annual amortized emissions are less than the San Bernardino County review standard. Therefore, the Alternative Project with Segment 9 would not conflict with San Bernardino County's GHG Plan.

Also, similar to the Proposed Project, the Alternative Project with Segment 9 would not conflict with the City of Hesperia's CAP or the Town of Apple Valley's CAP.

4.7.6.2 Alternative Project with Transmission Line Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, the Alternative Transmission Line Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and the Alternative Apple Valley to Desert View and Gale to Pisgah Telecommunication Routes.

Peak annual GHG emissions from each construction component are based on the 12-month period with the highest construction emissions. These peak annual component emissions are listed in Table 4.7-7, *Total Annual Construction Greenhouse Gas Emissions for Alternative Project with Segment 10*. The sum of each component's emissions are added together to represent the Project's total annual emissions, which are compared to the MDAQMD significance threshold. These estimates represent a worst-case construction schedule scenario.

Estimated total annual construction GHG emissions are below the MDAQMD significance threshold. Therefore, less than significant impacts are anticipated during construction of the Alternative Project with Segment 10.

Table 4.7-7 Total Annual Construction Greenhouse Gas Emissions for Alternative Project with Segment 10[1]

Construction Component	Annual GHG Emissions (short tons of CO_2e/year)
Alternative Desert View Substation	3,540.09
Distribution for Station Light & Power	32.88
Modifications to Existing Substations	894.34
Transmission and Potential Subtransmission Line Relocation	27,375.94
Telecommunication System	343.83
Total Emissions	**32,187.08**
MDAQMD Threshold	100,000
Would the Alternative Project with Segment 10 Exceed the MDAQMD Threshold?	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C of the PEA

Annual emissions during operation of each emission source of the Alternative Project with Segment 10 are listed in Table 4.7-8, *Total Annual Operation Greenhouse Gas Emissions for Alternative Project with Segment 10*. Estimated annual operation GHG emissions are below the MDAQMD significance threshold.

Table 4.7-8 Total Annual Operation Greenhouse Gas Emission for Alternative Project with Segment 10[1]

Source	Annual GHG Emissions (short tons of CO_2e/year)
Emergency Generator Testing	18.38
SF_6 Leakage	224.42
Motor Vehicle Exhaust	1.25
Total Emissions	**244.05**
MDAQMD Threshold	100,000
Would the Alternative Project with Segment 10 Exceed the MDAQMD Threshold?	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C of the PEA

As with the Proposed Project, the majority of the Alternative Project with Segment 10 is located in unincorporated areas of San Bernardino County. As discussed in Section 4.7.2.3, *Local Regulatory Setting*, San Bernardino County's GHG Plan includes a review standard of 3,000 $MTCO_2e$ per year to identify and mitigate project emissions. Because GHG emissions from construction activities are temporary in nature, San Bernardino County recommends total construction GHG emissions are amortized over a 30-year assumed project lifetime and added to annual operation GHG emissions to calculate total annual amortized GHG emissions for comparison with this review standard.

Total construction emissions for the duration of the Alternative Project with Segment 10 are estimated at 54,262 $MTCO_2e$. For the purposes of this analysis, the amortized construction emissions are estimated to be 1,809 $MTCO_2e$ over a 30 year project lifetime (54,262/30=1,809), which is then added to annual operational emissions to estimate amortized GHG emissions.

Total amortized construction GHG emissions and total annual operation GHG emissions from the Alternative Project with Segment 9 are listed in Table 4.7-9, *Annual Amortized Greenhouse Gas Emissions for Alternative Project with Segment 10*.

Table 4.7-9 Annual Amortized Greenhouse Gas Emission for Alternative Project with Segment 10[1]

Phase	**Emissions ($MTCO_2e$)**
Construction Emissions Amortized over 30 years (MT/year)	1,809
Annual Operation Emissions (MT/year)	221
Total Annual Amortized Emissions	**2,030**
San Bernardino County Review Standard (MT/year)	3,000
Would the Alternative Project with Segment 10 Exceed the San Bernardino County Review Standard?	No

Source: Data compiled by AECOM in 2013
Note: [1] Assumptions and detailed calculations are provided in Appendix C of the PEA

As shown in Table 4.7-9, total annual emissions are less than the San Bernardino County review standard. Therefore, the Alternative Project with Segment 10 would not conflict with San Bernardino County's GHG Plan.

Also, similar to the Proposed Project, the Alternative Project with Segment 10 would not conflict with the City of Hesperia's CAP or the Town of Apple Valley's CAP.

4.7.7 References

California Air Resources Board (CARB). (2007). OFFROAD2007 model. [online] http://www.arb.ca.gov/msei/documentation.htm

CARB. (2011a). The Greenhouse Effect and California: Fact Sheet.

CARB. (2011b). EMFAC2011 model [online] http://www.arb.ca.gov/msei/categories.htm#onroad_motor_vehicles

City of Barstow. (1997). City of Barstow General Plan.

City of Hesperia. (2010). City of Hesperia Climate Action Plan

City of Hesperia. (2011). Hesperia General Plan

Climate Registry. (2013). 2013 Climate Registry Default Emission Factors.

Council on Environmental Quality (CEQ). (2010). Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions [Nancy H. Sutley]. February 18, 2010.

County of San Bernardino. (2011). County of San Bernardino Greenhouse Gas Emissions Reduction Plan.

Federal Office of Civil Aviation (FOCA). (2009). Guidance on the Determination of Helicopter Emissions, Federal Department of the Environment, Transport, Energy and Communications, DETEC, Federal Office of Civil Aviation FOCA, Division Aviation Policy and Strategy, Swiss Confederation. Retrieved from http://www.bazl.admin.ch/experten/regulation/03312/03419/03532/index.html?lang=en

Intergovernmental Panel on Climate Change (IPCC). (2007). Climate Change 2007: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Parry, Martin L., Canziani, Osvaldo, et. al.]. Cambridge University Press, Cambridge, United Kingdom.

Mojave Desert Air Quality Management District (MDAQMD). (2011). California Environmental Quality Act (CEQA) and Federal Conformity Guidelines.

Pew Center on Global Climate Change. (2008). The Causes of Global Climate Change (science brief). U.S. Environmental Protection Agency. 2009a. 2009 Monitor Values Report: Criteria Air Pollutants.

Town of Apple Valley. (2009). Town of Apple Valley General Plan.

Town of Apple Valley. (2010). Town of Apple Valley Climate Action Plan.

This page is intentionally blank.

4.8 Hazards and Hazardous Materials

This section describes the known and potential hazards and hazardous materials in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). It analyzes potential impacts on and from hazards and hazardous materials associated with construction and operation of the Proposed Project and Alternative Project.

4.8.1 Environmental Setting

Most of Coolwater-Lugo area is located in unincorporated San Bernardino County; a portion of it crosses the Cities of Barstow and Hesperia and the Town of Apple Valley. Much of Coolwater-Lugo would be located on U.S. Bureau of Land Management ("BLM") land. Aspects of potential hazards addressed include impacts on emergency response plans, potential contact with contaminated soils, and collocation with utilities such as natural gas pipelines and fiber optic cables. The potential natural hazard in this area that is addressed in this section is damage from wildland fires. Other potential natural hazards are addressed in Section 4.6, *Geology and Soils*, and Section 4.9, *Hydrology and Water Quality*. This discussion of environmental setting outlines known and potential hazards in the Coolwater-Lugo area.

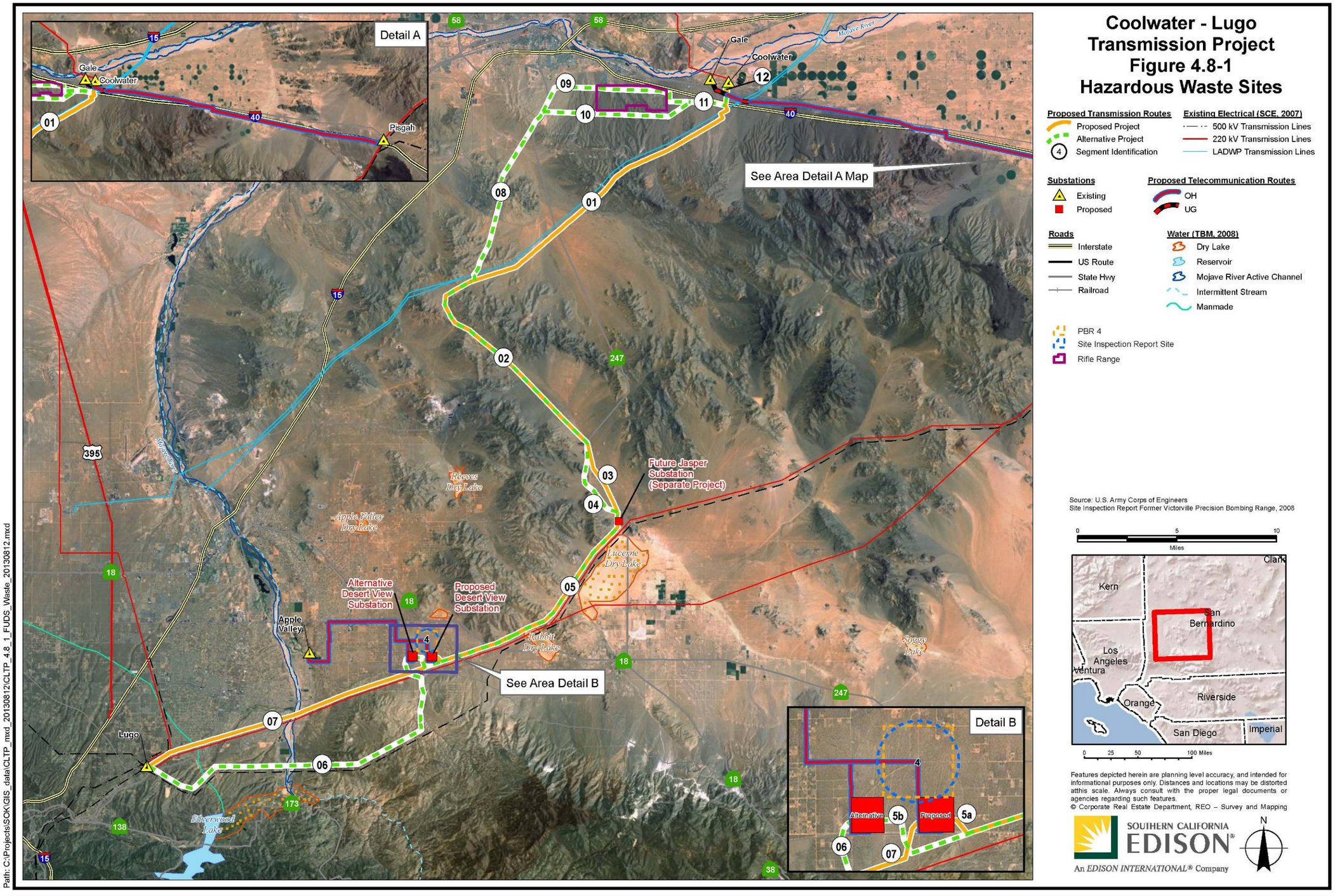
4.8.1.1 Hazardous Waste

Southern California Edison ("SCE") conducted two low-level screening environmental site assessments: one for the Proposed and Alternative Desert View Substation sites and one for the Proposed and Alternative Transmission Line Routes between Lugo Substation and Coolwater Switchyard.

The low-level screen environmental site assessments included a 1-mile search radius for records via NETROnline and HazardHunter database tools, the California Department of Toxic Substance Control's ("DTSC's") Envirostor online database (DTSC 2013), and the State Water Resources Control Board's ("SWRCB's") GeoTracker online database (SWRCB 2013).

Portions of the Apple Valley to Desert View Telecommunications Route pass through the World War II Victorville Precision Bombing Range ("PBR") No. 4, and the Proposed Desert View Substation is situated immediately adjacent to PBR No. 4 on the south. PBR No. 4 was used to train World War II pilots using sand and cement filled shells with spotting charges. Munitions or explosives of concern ("MEC") and unexploded ordinance ("UXO") are of potential concern in this area. According to Archives Search Report Findings for Victorville PBR No. 4 by the U.S. Army Corps of Engineers, the results of a pedestrian site inspection conducted during January 22–26, 1998, indicated that the potential exists for UXO throughout the site. The Site Inspection Report indicated that no munitions or explosives were found during the field inspection, but munitions debris was identified. Soil samples were collected from the Victorville PBR property and analyzed for metals.

This page is intentionally blank.



Coolwater - Lugo Transmission Project
Figure 4.8-1
Hazardous Waste Sites

Proposed Transmission Routes
- Proposed Project
- Alternative Project
- 4 Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- Railroad

Water (TBM, 2008)
- Dry Lake
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

- PBR 4
- Site Inspection Report Site
- Rifle Range

Source: U.S. Army Corps of Engineers
Site Inspection Report Former Victorville Precision Bombing Range, 2008

0 5 10 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.
© Corporate Real Estate Department, REO – Survey and Mapping

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.8_1_FUDS_Waste_20130812.mxd

This page is intentionally blank.

The results indicate that lead, barium, and aluminum were the only metals detected slightly above background concentrations. According to the screening values used by this report, concentrations are below human health screening levels[1].

To further delineate the potential risk from MEC/UXO at the Proposed Desert View Substation site, SCE contractor New World Environmental, Inc. conducted field inspections of the site. During New World Environmental, Inc.'s field-based investigations from November 6, 2012, through December 4, 2012, no unexploded ordinance or MECs were encountered. However, during this field review, two articles of munitions debris were identified[2].

An active Federal military Superfund site is located at the Marine Corps Logistics Base ("MCLB") Barstow. The Superfund site is composed of three areas: the Yermo Annex, Nebo Main Base, and Rifle Range. Alternative Transmission Line Segment 9 would traverse the existing Rifle Range. A 400 by 200 foot waste disposal area is located within the Rifle Range and is designated as Contaminated Area of Concern ("CAOC") 33. It was formerly assigned to Operable Unit ("OU") 6 for remediation efforts. However, it has since been removed from that OU and has been approved for elimination from the remedial investigation/feasibility study process. No significant areas of soil contamination have been identified and a soil gas survey conducted at CAOC 33 did not reveal the presence of significant petroleum and chlorinated hydrocarbon or methane concentrations (Marine Corps Logistics Base Barstow 1994).

PBR No. 4 and the Rifle Range are shown on Figure 4.8-1, *Hazardous Waste Sites*.

4.8.1.2 Emergency Response

The San Bernardino County Office of Emergency Services has developed both an Operational Area Emergency Operations Plan and an Operational Area Multi-Jurisdictional Local Hazard Mitigation Plan to respond to a number of natural and human-made disasters (SBCFD 2005). Additional detail regarding fire protection services provided in San Bernardino County is provided in Section 4.14, *Public Services*.

4.8.1.3 Wildland Fires

Fire protection throughout the Coolwater-Lugo area is provided by the California Department of Forestry and Fire Protection ("CAL FIRE") and by the BLM in the State

[1] This report used the USEPA Region 9 Residential Soil Preliminary Remediation Goals ("PRG") supplemented with the Cal-Modified Region 9 Residential Soil PRGs for analysis of potential impacts to human health, USEPA Region 9 Residential Soil Preliminary Remediation Goals ("PRG") are now called Regional Screening Levels (RSL). These levels represent is the current state of the science of toxicology and risk assessment. Current RSL tables are available at http://www.epa.gov/region9/superfund/prg/index.html.

[2] According to its field report, NWE did encounter munitions debris from 100-lb. sand filled bombs at two separate sites, including a tail fin assembly and an uncategorized piece of debris.

Responsibility Areas. San Bernardino County Fire Department ("SBCFD") and the local jurisdictional fire departments of the Town of Apple Valley and the Cities of Hesperia and Barstow also provide fire protection in their respective areas of the Coolwater-Lugo area.

The City of Hesperia Fire Department is on contract with SBCFD. SBCFD provides the City of Hesperia with fire protection and emergency medical services, as well as emergency preparedness and response programs.

The Apple Valley Fire Protection District ("AVFPD") provides firefighting and prevention services to the Town of Apple Valley, including hazardous materials and technical rescue response capabilities, and disaster preparedness programs. The AVFPD currently operates seven fire stations (AVFD 2012).

The Barstow Fire Protection District ("BFPD") provides firefighting and prevention services to the City of Barstow. BFPD currently operates three fire stations (USA Fire Departments 2013).

Approximately 6.1 miles of Alternative Transmission Line Route Segment 6 are classified as very high fire hazard areas (CAL FIRE 2007). The Lugo Substation and portions of Segment 6 and Proposed Transmission Line Route Segment 7 (approximately 10.3 miles of Segment 6 and 7.8 miles of Segment 7) are classified as high fire hazard areas (CAL FIRE 2007). However, most of the transmission line routes are classified as moderate fire hazard, non-wildland/non-urban, or as urban unzoned (CAL FIRE 2007). Figure 4.8-2, *Fire Hazard Severity Zones and Jurisdiction Areas*, presents the five hazard classes found in the vicinity of Coolwater-Lugo.

4.8.1.4 Airports and Airstrips

One public airport and two private airstrips are located within 2 miles of Coolwater-Lugo:

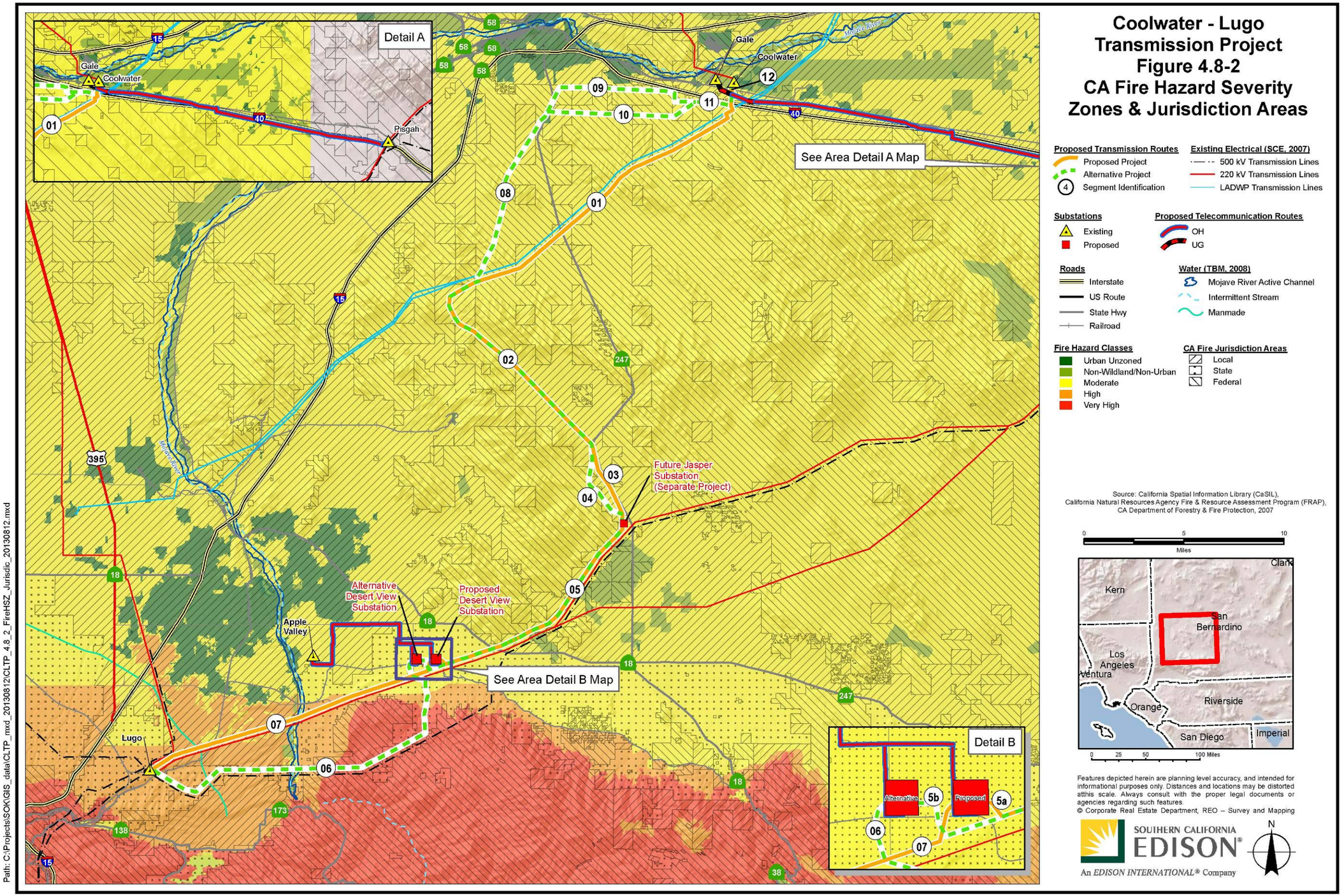
- Hesperia Airport is a private, general aviation airport, located approximately 0.2 mile south of the Proposed Transmission Line Segment 7 and approximately 0.9 mile north of the Alternative Transmission Line Segment 6

- Rabbit Ranch Airport is a private airstrip located approximately 0.7 mile south of Proposed and Alternative Transmission Line Segment 5

- Barstow-Daggett Airport is a public airport located approximately 0.3 mile north of the Gale to Pisgah Telecommunication Route

Three private heliports are located within 2 miles of Coolwater-Lugo:

- SCE Barstow Service Center Heliport is a private heliport located approximately 1.2 miles north of the Alternative Transmission Line Segment 9


Detail A
Gale
Coolwater
Pisgah
See Area Detail A Map
Future Jasper Substation (Separate Project)
Alternative Desert View Substation
Proposed Desert View Substation
Apple Valley
Lugo
See Area Detail B Map
Detail B
Alternative
Proposed
5a
5b
06
07
Mojave River
Coolwater - Lugo Transmission Project
Figure 4.8-2
CA Fire Hazard Severity Zones & Jurisdiction Areas
Proposed Transmission Routes
Proposed Project
Alternative Project
Segment Identification
Existing Electrical (SCE, 2007)
500 kV Transmission Lines
220 kV Transmission Lines
LADWP Transmission Lines
Substations
Existing
Proposed
Proposed Telecommunication Routes
OH
UG
Roads
Interstate
US Route
State Hwy
Railroad
Water (TBM, 2008)
Mojave River Active Channel
Intermittent Stream
Manmade
Fire Hazard Classes
Urban Unzoned
Non-Wildland/Non-Urban
Moderate
High
Very High
CA Fire Jurisdiction Areas
Local
State
Federal
Source: California Spatial Information Library (CaSIL), California Natural Resources Agency Fire & Resource Assessment Program (FRAP), CA Department of Forestry & Fire Protection, 2007
0 5 10 Miles
Clark
Kern
San Bernardino
Los Angeles
Ventura
Orange
Riverside
San Diego
Imperial
0 25 50 100 Miles
Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.
© Corporate Real Estate Department, REO – Survey and Mapping
SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company
N
Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.8_2_FireHSZ_Jurisdic_20130812.mxd

This page is intentionally blank.

- SCE Solar I Heliport is a private heliport located approximately 1.4 miles northeast of the Coolwater Switchyard
- SCE Lugo Substation Heliport is a private heliport located at existing Lugo Substation

Portions of Alternative Transmission Line Segment 6 and Proposed Transmission Line Segment 7 are located in Hesperia Airport Safety Zones II and III. These zones are exclusionary of certain developments, primarily high-density residential land uses, and provide guidance for structure heights. Figure 4.8-3, *Airport Safety Zones*, depicts the location of these airports with respect to Coolwater-Lugo.

4.8.1.5 Schools

No private or public preschool/day care centers or K-12 schools were identified within one-quarter mile of Coolwater-Lugo (Local School Directory 2012; Apple Valley Unified School District 2012; Hesperia Unified School District 2012; Google Earth 2012). Schools nearest to Coolwater-Lugo are depicted in Figure 4.14-2, *Schools and Libraries*.

4.8.2 Regulatory Setting

4.8.2.1 Federal Regulatory Setting

Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) of 1980

The Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA") (42 U.S. Code ["U.S.C."] Section 9601 et seq.), and all subsequent amendments provide a Federal Superfund to clean up uncontrolled or abandoned hazardous-waste sites, including those affected by unauthorized releases of pollutants and contaminants. CERCLA grants the U.S. Environmental Protection Agency ("EPA") authority to assign responsible parties to a contamination event and to seek remuneration for its restoration.

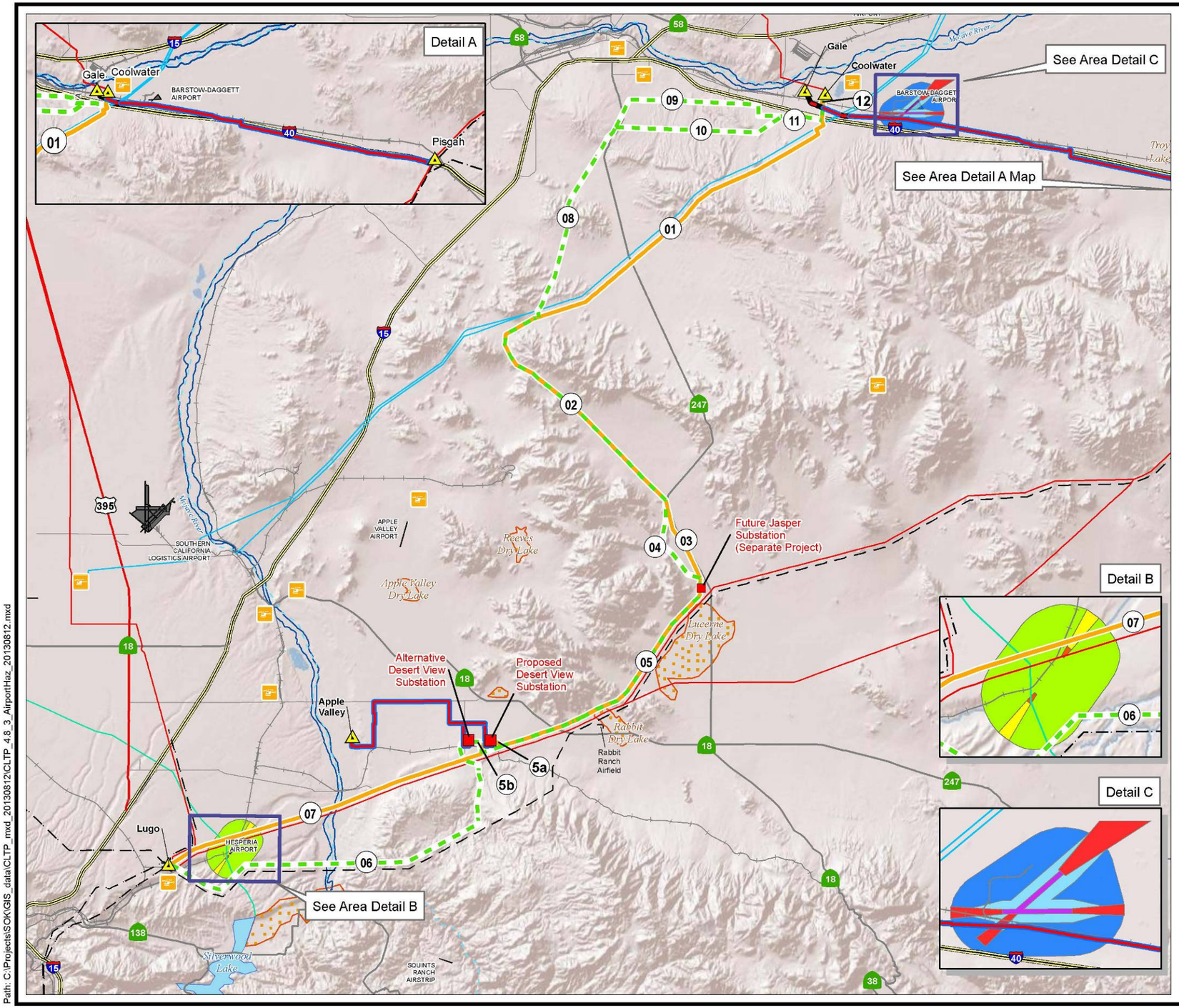
Superfund Amendments and Reauthorization Act of 1986

The Superfund Amendments and Reauthorization Act ("SARA") (42 U.S.C. Section 9601 et seq.) established a nationwide emergency planning and response program and imposed reporting requirements for businesses that store, handle, or produce substantial quantities of extremely hazardous materials. SARA requires the states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. Additionally, SARA identifies requirements for planning, reporting, and notification concerning hazardous materials.

EPA maintains a database of sites that are included on the National Priorities List ("NPL") (40 Code of Federal Regulations ["CFR"] Part 300). The NPL is the list of national priorities among the known releases or threatened releases of hazardous

This page is intentionally blank.

Coolwater - Lugo Transmission Project
Figure 4.8-3
Airport Safety Zones



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- County
- Railroad

Water (TBM, 2008)
- Dry Lake
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Hesperia Airport Safety Zones
- II
- III
- Runway Protection Zone
- Airport
- Heliport

Barstow -Daggett Airport Safety Zones
- Approach
- Horizontal
- Primary
- Transition

Source: Comprehensive Land Use Plan, Hesperia Airport & Barstow-Daggett Airport, San Bernardino Co. Airport Land Use Commission, 1991 & 1992

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.8_3_AirportHaz_20130812.mxd

This page is intentionally blank.

substances, pollutants, or contaminants throughout the United States and its territories. The NPL is intended primarily to guide the EPA in determining which sites warrant further investigation and remediation. Sites are listed on the NPL upon completion of a Hazard Ranking System screening, followed by consideration of public comments on proposed listings.

Resource Conservation and Recovery Act

The Federal Resource Conservation and Recovery Act ("RCRA") (40 CFR Parts 239–282), which amended the Solid Waste Disposal Act (42 U.S.C. Section 6901 et seq.), establishes a framework for the proper management of hazardous and nonhazardous solid waste. This Act, along with the Toxic Substances Control Act of 1976, enacted a program administered by the EPA for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act ("HSWA"), which affirmed and extended the "cradle to grave" system of regulating hazardous wastes from their creation to disposal. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the HSWA. RCRA focuses on active and future facilities; it does not address abandoned or historical sites, which are managed under CERCLA.

Hazardous Materials Regulations

The Federal hazardous materials regulations (49 CFR 171-180) identify the required shipping papers, package marking, labeling, transport vehicle placarding, training, and registrations applicable to the shipment and transportation of hazardous materials. Sections 5101-5127 regulate the transportation of hazardous materials through the Hazardous Materials Transportation Act ("HMTA"). Under the HMTA, the Department of Transportation has the responsibility for safe transit of hazardous materials.

Occupational Safety and Health Act

The Occupational Safety and Health Act ("OSHA") was passed by Congress in 1970 and is the primary Federal law that governs occupational health and safety in the workplace. In part, it governs hazards in a working environment, such as exposure to toxic chemicals, excessive noise levels, mechanical dangers, heat or cold stress, or unsanitary conditions.

Toxic Substances Control Act

The Toxic Substances Control Act of 1976 (15 U.S.C. Section 2601 et seq.) was enacted by Congress to give the EPA the ability to track the 75,000 industrial chemicals currently produced or imported into the United States. The EPA repeatedly screens these chemicals and can require reporting or testing of those that may pose an environmental human-health hazard. It can ban the manufacture and import of those chemicals that pose an unreasonable risk.

Clean Water Act

The Clean Water Act (33 U.S.C. Section 1251 et seq.) was enacted to restore and maintain the chemical, physical, and biological integrity of the nation's waters by regulating point and nonpoint pollution sources, providing assistance to publicly owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands. This includes the creation of the National Pollutant Discharge Elimination System ("NPDES"), which requires states to establish discharge standards specific to water bodies and regulates storm water discharge from construction sites through the implementation of a storm water pollution prevention plan ("SWPPP").

Spill Prevention, Control, and Countermeasure Rule

The Federal Spill Prevention, Control, and Countermeasure Rule (40 CFR Part 112) was enacted to require response and cleanup after a spill occurs and prevent discharge of oil into navigable waters of the United States or adjoining shorelines. Facilities subject to the rule must prepare and implement a plan called a spill prevention, control and countermeasure ("SPCC") plan.

Federal Aviation Regulation

The Federal aviation regulation (14 CFR Part 77) establishes standards and notification requirement for objects that may affect navigable airspace.

4.8.2.2 State Regulatory Setting

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act ("Porter-Cologne") (California Water Code Section 13000 et seq.) is a State law that provides a comprehensive water quality management system for the protection of California waters. Porter-Cologne designated the State Water Resources Control Board as the ultimate authority over State water rights and water quality policy and established nine Regional Water Quality Control Boards ("RWQCBs") to oversee water quality on a day-to-day basis at the local/regional level. The RWQCBs have the responsibility of granting NPDES permits for stormwater runoff from construction sites.

CPUC General Orders 95, 128, and 165

General Orders ("G.O.") 95, 128, and 165, issued by the California Public Utilities Commission ("CPUC"), specify construction, operation, and maintenance requirements for electrical facilities. Specifically, G.O. 95 provides rules for overhead electric line construction, G.O. 128 provides rules for construction of underground electric supply and communication systems, and G.O. 165 provides inspection cycles for electric distribution facilities (CPUC 2012).

California Code of Regulations

The California Code of Regulations ("CCR") is a catalog of State laws and regulations adopted by State agencies, including the following:

- 8 CCR 2700 et seq., High Voltage Electrical Safety Orders, establishes essential requirements and minimum standards for installation, operation, and maintenance of electrical equipment to provide practical safety and freedom from danger.

- 14 CCR 1250–1258, Fire Prevention Standards for Electric Utilities, provides specific exemptions from electric pole and tower firebreak and electric conductor clearance standards, and specifies when and where standards apply.

California Health and Safety Code Section 25501

California law defines a hazardous material as any material that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may pose a present or potential hazard to human health and safety or to the environment if released in the workplace or the environment (California Health and Safety Code Section 25501). A hazardous waste is defined as a discarded material of any form (i.e., solid, liquid, gas) that may pose a present or potential hazard to human health and safety or to the environment when improperly treated, stored, transported, disposed of, or otherwise managed (California Health and Safety Code Section 25117).

California Resource Conservation Recovery Act

California's RCRA (22 CCR Division 4.5) hazardous waste program is more stringent than the Federal counterpart, and certain wastes that would not qualify as hazardous based on Federal standards may still qualify as hazardous waste according to California standards (termed non-RCRA hazardous waste).

California Occupational Safety and Health Administration Enforcement Unit

The California Occupational Safety and Health Administration ("Cal/OSHA") enforcement unit has jurisdiction over every employer and place of employment in California, which is necessary to adequately enforce and administer all occupational safety and health standards and regulations. This includes the requirement that Material Safety Data Sheets ("MSDS") for hazardous materials be available.

California Occupational Safety and Health Administration (CCR Title 8)

The Department of Industrial Relations in the Labor and Workforce Development Agency has administered the Cal/OSHA program since 1973, when California's plan was submitted to Federal OSHA for approval. Cal/OSHA protects workers and the public from safety hazards through its occupational safety and health, elevator, amusement ride, aerial tramway, ski lift, and pressure vessel inspection programs, and it provides consultative assistance to employers. Handling and storage of fuels, flammable materials, and common construction-related hazardous materials are governed by Cal/OSHA.

California Public Resources Code

California Public Resources Code ("PRC") Sections 4292 and 4293 specify requirements related to vegetation management in transmission line corridors.

PRC Section 4292 states:

> any person that owns, controls, operates, or maintains any electrical transmission or distribution line […] shall, during such times and in such areas as are determined to be necessary by the director or the agency, which has primary responsibility for fire protection of such areas, maintain around and adjacent to any pole or tower which supports a switch, fuse, transformer, lightning arrester, line junction, or dead end or corner pole, a firebreak which consists of a clearing of not less than 10 feet in each direction from the outer circumference of such a pole or tower.

PRC Section 4293 states:

> any person that owns, controls, operates, or maintains any electrical transmission or distribution line upon any mountainous land, or in forest-covered land, brush-covered land, or grass-covered land shall, during such times and in such areas as are determined to be necessary by the director or the agency which has primary responsibility for the fire protection of such areas, maintain a clearance of the respective distances which are specified in this section in all directions between all vegetation and all conductors which are carrying electric current:
>
> (a) For any line which is operating at 2,400 or more volts, but less than 72,000 volts, four feet
>
> (b) For any line which is operating at 72,000 or more volts, but less than 110,000 volts, six feet
>
> (c) For any line which is operating at 110,000 or more volts, 10 feet
>
> In every case, such distances shall be sufficiently great to furnish the required clearance at any position of the wire, or conductor when the adjacent air temperature is 120 degrees Fahrenheit, or less. Dead trees, old decadent or rotten trees, trees weakened by decay or disease and trees or portions thereof that are leaning toward the line which may contact the line from the side or may fall on the line shall be felled, cut, or trimmed so as to remove such hazard.

4.8.2.3 Local Regulatory Setting

The CPUC has sole and exclusive State jurisdiction over the siting and design of the Proposed Project because the CPUC regulates and authorizes the construction of investor-owned utility facilities. Although such projects are exempt from local land use and zoning regulations and permitting, G.O. 131-D, Section XIV.B, requires "the utility

to communicate with, and obtain the input of, local authorities regarding land use matters and obtain any non-discretionary local permits."

The County of San Bernardino 2007 General Plan and the City of Barstow and City of Hesperia General Plans all include a safety element, establishing the policies to protect the communities from risks associated with natural and human-made hazards.

Certified Unified Program Agency

A Certified Unified Program Agency ("CUPA") is an agency certified by the Secretary of California Environmental Protection Agency to conduct the Unified Program. The Unified Program consolidates the administration, permits, inspections, and enforcement activities of the following environmental and emergency management programs: Hazardous Materials Release Response Plans and Inventories (Business Plans); California Accidental Release Prevention Program; Area Plans for Hazardous Materials Emergencies; Underground Storage Tank Program; Aboveground Petroleum Storage Act Program; Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting) Programs; and California Uniform Fire Code: Hazardous Material Management Plans and Hazardous Material Inventory Statements (27 CCR Section 15100 et seq.). The San Bernardino County Fire Department, Hazardous Materials Division, is the CUPA responsible for administering the hazardous materials program in San Bernardino County.

San Bernardino County Land Use Services

San Bernardino County Land Use Services has prepared Land Use Compatibility Plans for Barstow-Daggett Airport and for Hesperia Airport. These plans identify restrictions for construction near airports, based on the height of construction, the level of service provided by the airport, and the distance of the nearest runway. Based on these factors, each airport has an extended Runway Protection Zone ("RPZ") and different level of safety zones.

Barstow-Daggett Airport Comprehensive Land Use Plan

The Comprehensive Land Use Plan ("CLUP") for the Barstow-Daggett Airport (San Bernardino Planning Department, 1992) classifies Barstow-Daggett Airport as a utility airport, serving predominantly Groups I and II type aircraft. This plan is directed toward protecting areas around the airport to the extent that such areas are not already devoted to incompatible uses. The CLUP identifies various safety zones surrounding the airport and provides guidelines for land uses in these zones to protect people in the vicinity of the airport. These safety zones are shown in Figure 4.8-3, *Airport Safety Zones*.

Hesperia Airport Comprehensive Land Use Plan

The CLUP for the Hesperia Airport was prepared in 1991 for the San Bernardino County Airport Land Use Commission (San Bernardino County 1991). The CLUP identifies areas, located outside of the airport proper, that are influenced by the operations of the airport. The CLUP identifies various safety zones surrounding the airport and provides

guidelines for land uses in these zones to protect people in the vicinity of the airport. These safety zones are shown in Figure 4.8-3, *Airport Safety Zones*.

4.8.3 Significance Criteria

4.8.3.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to hazards and hazardous materials come from the California Environmental Quality Act ("CEQA") Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school
- Be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area
- For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands

4.8.3.2 NEPA Analysis

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (40 CFR 1508.27).

4.8.4 Impact Analysis

This analysis of the potential impacts of implementing the Proposed Project related to hazards and hazardous materials focuses on possible impacts on the health and safety of the public. Impacts associated with implementing the Alternative Project are discussed in Section 4.8.6, *Alternative Project*.

Analysis of impacts from hazards and hazardous materials includes an identification of hazardous materials and activities that are potentially necessary for the construction and operation of the Proposed Project as currently described. Additional potential impacts on the environment and public health were assessed by evaluating available data regarding existing and historic uses of the Proposed Project and adjacent properties. This included a radius search of 1 mile. Schools within one-quarter of a mile and airports within 2 miles are also included.

The potential for activities and equipment that could pose fire hazards was evaluated through review of State fire hazard maps. Additional public safety issues were addressed through research related to nearby schools and airports.

As discussed in Chapter 3, *Project Description*, either the Proposed Project or Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. For hazards and hazardous materials the primary differences under the IBO and FBO scenarios would be related to the quantity of hazardous materials used on site and the use of a fuel storage tank as part of FBO at the Proposed and Alternative Desert View Substations. This impact is discussed under the impact assessment. Otherwise, full build out of either the Proposed or Alternative Desert View Substation would occur within the substation boundary established during the IBO of Desert View Substation construction, and FBO construction activities would be less extensive than IBO construction activities; therefore, FBO construction would be expected to require less use of hazardous materials than would IBO construction activities. Therefore, except as noted, the following impact assessment applies to both scenarios for Desert View Substation.

4.8.4.1 CEQA Impact Assessment

Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction Impacts

No acutely hazardous materials would be used or stored on location during construction of the Proposed Project. Construction of the Proposed Project would require the use of gasoline, diesel fuel, oil, solvents, and lubricants associated with vehicles and construction activities. Hazardous materials management would include compliance with a project-specific SWPPP and SPCC Plan, as applicable, and implementation of best management practices ("BMPs") related to fueling and the handling, use and storage of hazardous materials. All transport of hazardous materials would be in compliance with

applicable laws, rules, regulations, and would use applicable BMPs, including the acquisition of required shipping papers, package marking, labeling, transport vehicle placarding, training, and registrations. SCE crews and/or construction contractor would implement proper hazardous materials management activities, which would include preparation and implementation of plan(s) for the Proposed Project before field construction activities that would outline the proper procedures for the handling, use, storage, and disposal of hazardous materials.

Before existing poles are removed, existing subtransmission and distribution lines would be transferred to new poles. Depending on the type, condition, and original chemical treatment, any wood poles removed would be returned to the Material Staging Yard and reused by SCE, returned to the manufacturer, disposed of in a Class I hazardous waste landfill, or disposed of in the lined portion of an SCE-approved landfill with RWQCB approval for the disposal of treated wood waste.

Although a very low potential exists for contaminated soil to be encountered during excavation or other ground-disturbing activities, if encountered, contaminated soil would be segregated, sampled, and tested to determine appropriate treatment and disposal options. If the soil is classified as hazardous, it would be properly managed on location and transported in accordance with the U.S. Department of Transportation regulations using a Uniform Hazardous Waste Manifest to a Class I Landfill or other appropriate soil treatment or recycling facility. Similarly, there is a very low potential for encountering groundwater during excavation or other ground-disturbing activities. No contaminated groundwater underlying the Proposed Project site was identified during the EDR review. If, however, groundwater is encountered, then groundwater samples would be collected and tested to determine appropriate treatment and disposal. All hazardous materials would be transported, used, and disposed of in accordance with applicable rules, regulations, and SCE standard protocols designed to protect the environment, workers, and the public.

Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

No acutely hazardous materials would be used or stored on location during operation and maintenance (O&M) of the Proposed Project. Hazardous materials to be used during the O&M of the Proposed Project would include gasoline, diesel fuel, oil, solvents, and lubricants associated with vehicles and O&M activities. All hazardous materials would be transported, used, and disposed of in accordance with applicable rules, regulations, and SCE standard protocols designed to protect the environment, workers, and the public. Hazardous materials management would include compliance with a project-specific SWPPP and SPCC Plan, as applicable, and implementation of BMPs related to fueling and the handling, use and storage of hazardous materials. Therefore, less than significant impacts are anticipated during the operation of the Proposed Project.

Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Construction Impacts

Construction of the Proposed Project would require the limited use of hazardous materials, such as fuels, lubricants, and cleaning solvents. As described in Section 3.2.3.11, *Helicopter Use*, fuel storage and refueling of helicopters may occur in designated areas during construction activities. A low volume of hazardous materials with low toxicity are anticipated to be used during the construction of the Proposed Project. All hazardous materials would be stored, handled, and used in accordance with applicable regulations, and MSDS would be available. The most likely incidents involving these hazardous materials are associated with minor spills or drips. Impacts from such incidents would be avoided by thoroughly cleaning up minor spills as soon as they occur.

At FBO, the Proposed Desert View Substation would contain more than 1,320 gallons of liquid hazardous materials (e.g., mineral oil). The substation would also include an emergency generator with a 1,600-gallon fuel tank. Therefore, an SPCC Plan, as described in Section 3.6, *Hazardous Materials*, would be required if it is determined that a release from the site could affect navigable waterways. A site-specific construction SWPPP would also be prepared (see Section 3.2.1.2, *Storm Water Pollution Prevention Plan*, for more detail). The SWPPP would be followed, as applicable, to ensure quick response to minor spills and minimal impacts on the environment. The SWPPP would identify the locations for storing hazardous materials during construction, as well as protective measures, notifications, and cleanup requirements for any incidental spills or other potential releases of hazardous materials. Any impacts that would result from an accidental release would be addressed through the SWPPP.

In the event of a release of hazardous materials, such as minor spills and drips from construction equipment and helicopter refueling, SCE would use the SWPPP as guidance for appropriate handling and response. In addition, implementation of the WEAP, as described in Section 3.9, *Worker Environmental Awareness Training*, would provide site personnel with instruction on the SWPPP and site-specific BMPs, when applicable.

During construction activities for the Proposed Project, the potential exists that subsurface utilities (e.g., a natural gas line) or structures (e.g., an underground storage tank) might be encountered and damaged, resulting in a release of a hazardous material. During construction, screening activities would include contacting DigAlert[1], conducting visual observations, and using buried line locating equipment. In addition, SCE would implement appropriate plans, when applicable to reduce the risk of hazards to the public, workers, and the environment.

[1] DigAlert is a southern California service for detection of buried/underground facilities. It is unlawful to dig prior to contacting DigAlert and delineating underground infrastructure. Marked facilities may include gas lines, electric lines, fiber optics, communication lines and water conveyance systems.

Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

The existing Coolwater Switchyard and existing Lugo Substation are currently equipped with transformer banks that contain mineral oil with the potential for leaks or spills if the transformers were damaged from a seismic event, fire, or other accident. The Proposed Desert View Substation would be equipped with transformer banks that contain mineral oil with the potential for leaks or spills if the transformers were damaged from a seismic event, fire, or other accident. To minimize potential impacts in the event that the transformer is damaged, substation design provides secondary containment and/or diversionary structures or equipment to prevent discharge of an oil spill. SPCC Plans specific to each substation would be prepared, as applicable, and implemented by SCE before any oil-containing equipment is brought to the substation sites. In the case of the Coolwater Switchyard and the existing Lugo Substation, an existing SPCC Plan would be revised to reflect the changes that would occur as a result of implementing the Proposed Project. Less than significant impacts are anticipated during operation of the Proposed Project.

Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Construction Impacts

No existing or proposed schools are located within one-quarter mile of the Proposed Project. Therefore, no impacts are anticipated during construction of the Proposed Project. See Section 4.14, *Public Services*, Figure 4.14-2, *Schools and Libraries* for schools nearest to the Proposed Project.

Operation Impacts

No existing or proposed schools are located within one-quarter mile of the Proposed Project. Therefore, no impacts are anticipated during operation of the Proposed Project.

Would the project be located on a site, which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Construction Impacts

The Proposed Project would not be constructed on site that is currently identified on a list compiled pursuant to Government Code Section 65962.5. Therefore, no impact is anticipated from construction of the Proposed Project.

Operation Impacts

The Proposed Project would not be located on site that is currently identified on a list compiled pursuant to Government Code Section 65962.5. Therefore no impact is anticipated from operation of the Proposed Project.

For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

Construction Impacts

The public Barstow-Daggett Airport, owned by San Bernardino County, is located approximately 0.3 mile north of the Gale to Pisgah Telecommunication Route. The Telecommunication Route passes through the area addressed by the CLUP for that airport. Installation of the Gale to Pisgah Telecommunication Route would occur on existing wood poles or replacement poles. This construction activity would be similar to routine O&M that would be required for existing transmission, distribution, and telecommunications structures, and therefore would not result in a change to the existing conditions of structures near the airport. Therefore, the Proposed Project would not create a safety hazard to people residing or working in the Proposed Project area near Barstow-Daggett Airport.

Proposed Transmission Line Segment 7 would traverse the area addressed by the CLUP for the Hesperia Airport. The private Hesperia Airport is a general aviation airport with a land use plan. It is located approximately 0.2 mile south of Segment 7. Approximately 0.3 mile of Segment 7 would be located in the airport's Safety Zone II, and 2.2 miles of Segment 7 would be located in Safety Zone III. No part of the Proposed Project would occur in the RPZ. The portion of the Proposed Project that would occur in the area addressed by the CLUP is currently occupied by two parallel 220 kilovolt ("kV") transmission lines: the Lugo-Pisgah No. 1 and No. 2 lines. Under the Proposed Project, these would both be removed and replaced with one 500 kV transmission line, initially energized at 220 kV. Therefore, there would not be a substantial change in conditions in the area addressed by the CLUP, and the Proposed Project would not create a safety hazard to people residing or working in the Proposed Project area near Hesperia Airport. SCE would coordinate the final engineering design and construction of the proposed transmission structures in the airport area with the Federal Aviation Administration ("FAA") and Hesperia Airport. SCE would implement FAA recommendations to reduce the hazards posed to the public or workers on the Proposed Project as a result of proximity to the Hesperia Airport. SCE would consult with Hesperia airport regarding the portion of Coolwater-Lugo that is within the Hesperia airport CLUP. Rabbit Ranch Airport is a private airstrip located approximately 0.7 mile south of Proposed and Alternative Transmission Segment 5. It does not have a land use plan.

SCE has filed documentation for the Proposed Project with the FAA for the portions of the project in proximity to Hesperia Airport, Rabbit Ranch Airport, and Barstow-Daggett Airport. Pending FAA determinations, SCE would work to address potential

recommendations if needed into the Proposed Project design during the final engineering phase of the project.

The portion of the Proposed Project that would be located in areas addressed by airport land use plans would be within existing SCE right-of-way, and all construction activities would be performed far enough from airport activity to ensure the safety of construction crews. Additionally, SCE would coordinate with the local airports prior to and during construction activities to ensure the safety of people residing or working in the vicinity of the airport. As described in Section 3.2.1.5, *FAA Notification*, SCE would submit electronic notifications to the FAA, in accordance with FAA procedures. Because of planned coordination with the area airports, and the temporary nature of construction activities, safety hazards are avoided to the extent possible for personnel associated with the Proposed Project construction; therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Operation of the Proposed Project would involve routine inspections and emergency work, which would not adversely affect airport operation at the Barstow-Daggett Airport or Hesperia Airport. Proposed structures are not anticipated to adversely affect the approach of aircraft to and the departure of aircraft from the airports. When appropriate, SCE would coordinate with the applicable jurisdictions and/or FAA for operations, maintenance, and emergency work to ensure the safety of personnel associated with operation of the Proposed Project. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

Construction Impacts

Installation of Segment 5 would occur in the vicinity of the private Rabbit Ranch Airport Currently, there are two parallel SCE 500 kV transmission lines and two 220 kV transmission lines in the vicinity of the airstrip: the Lugo-Mohave 500 kV line, the Eldorado-Lugo 500 kV line, and the Lugo-Pisgah No. 1 and No. 2 220 kV lines. Proposed Project activities that would occur in the vicinity of the airstrip include the removal of Lugo-Pisgah No. 1 220 kV Transmission Line and its replacement with a new 220 kV Transmission Line (Segment 5). The southwestern portion of Segment 5 would be installed adjacent to the Lugo-Pisgah No. 2 220 kV Transmission Line, from the Proposed Desert View Substation to a point northeast of Rabbit Dry Lake where the Lugo-Pisgah No. 2 ROW deviates from the Lugo-Pisgah No. 1 ROW. The Lugo-Pisgah No. 2 line would remain in place under the Proposed Project. Segment 5 would consist of double-circuit structures which would replace the current single-circuit structures and therefore may be taller than the existing structures. However, to the west of the airstrip, the existing two 500 kV transmission lines are in closer proximity to the airstrip than Segment 5 would be, and to the north of the airstrip, the existing Lugo-Pisgah No. 2 220 kV line is also in closer proximity to the airstrip runway than Segment 5 would be. A

temporary helicopter operations yard may be used for construction activities near Joshua Road, southwest of the airstrip. SCE would coordinate with the airstrip prior to and during construction activities to ensure the safety of people residing or working in the vicinity of the airport. Given the existing and proposed facilities in the vicinity of the Rabbit Ranch Airport, and the east-west orientation of the airstrip runway, no substantial change in conditions is anticipated in its vicinity. Construction activities would not be expected to result in a safety hazard for people residing or working in the vicinity of the airstrip. Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

The existing Lugo-Pisgah No. 1 220 kV Transmission Line, which is north of the Rabbit Ranch Airport, would be replaced by a new 220 kV transmission line (Segment 5). Operation of the new transmission line would entail the same types of and intensity of activities that currently occur as part of the operations and maintenance of the existing transmission lines in the vicinity of the airstrip. Because there would be no significant change in activities, operation of the Proposed Project would not result in a safety hazard in the vicinity of the Rabbit Ranch Airport. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Construction Impacts

In places where the components of the Proposed Project span a road or require a lane closure, construction activities would be coordinated with the local jurisdictions; these traffic control measures would be consistent with those published in the California Joint Utility Traffic Control Manual (California Inter-Utility Coordinating Committee 2010). In the event of a temporary roadway or lane closure, SCE would coordinate with local jurisdictions to minimize impacts to emergency access and evacuation routes. As a result, construction of the Proposed Project would not physically interfere with or impair the implementation of adopted emergency response and evacuation plans. Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Routine inspections and maintenance during operation of the Proposed Project would not be expected to require closures of roadways or lanes. If emergency work requires temporary roadway or lane closures, the work would be coordinated with the local jurisdiction in the same manner as described above for construction activities. Therefore, as with the temporary closure of lanes or roadways during construction, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Construction Impacts

The existing Lugo Substation and approximately 7.8 miles at the western end of Proposed Transmission Line Segment 7 are classified as high fire hazard areas (CAL FIRE 2007). However, most of the Proposed Transmission Line Route is classified as moderate fire hazard, non-wildland/non-urban, or as urban un-zoned (CAL FIRE 2007). Figure 4.8-2, *Fire Hazard Severity Zones and Jurisdiction Areas*, presents the hazard classes found in the vicinity of the Proposed Project.

In addition, SCE participates with CAL FIRE, the California Emergency Management Agency, the U.S. Forest Service, and various city and county fire agencies in the Red Flag Fire Prevention Program and complies with PRC Sections 4292 and 4293, which are related to vegetation management in transmission line corridors.

During times when a Red Flag Warning has not been issued, fire risks during construction would be moderated because the preparation of construction areas for the Proposed Project would typically include vegetation clearing, blade-grading, grubbing, mowing, or re-compacting, and BMPs as required, before the staging of equipment, minimizing the potential that construction equipment would start a fire. Therefore, less than significant impacts are anticipated during the construction of the Proposed Project.

Operation Impacts

The Proposed Project would be constructed and maintained in a manner consistent with CPUC G.O. 95, G.O. 128, G.O. 165, and G.O. 166[1]. Consistent with these and other applicable State and Federal laws, SCE would maintain an area of cleared brush around the project components, minimizing the potential for fire. Therefore, implementing the Proposed Project would not pose a fire hazard as vegetation or other obstructions would not come into contact with energized electrical equipment.

In addition, SCE participates with CAL FIRE, the California Emergency Management Agency, the U.S. Forest Service, and various city and county fire agencies in the Red Flag Fire Prevention Program and complies with PRC Sections 4292 and 4293, which are related to vegetation management in transmission line corridors. Therefore, less than significant impacts are anticipated during the operation of the Proposed Project.

4.8.4.2 NEPA Impact Assessment

Based on the analysis performed, it is anticipated that the Project would not result in significant effects under NEPA.

[1] Per paragraph E of G.O. 166, SCE filed a Fire Prevention Plan with the CPUC pursuant to Decision 12-01-032 (Advice Letter 2828-E).

4.8.5 Applicant Proposed Measures

No potentially significant impacts related to hazards and hazardous materials are anticipated to result from construction and operation of the Proposed Project; therefore, no applicant proposed measures related to hazards and hazardous materials have been identified.

4.8.6 Alternative Project

As described in Section 3.14, *Project Alternatives*, either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Route, but not both. Separate impact analyses are provided for these two scenarios.

4.8.6.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation, the Alternative Transmission Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6, and the Alternative Apple Valley to Desert View and Gale to Pisgah telecommunications routes.

The Alternative Project is spatially similar to the Proposed Project and would require nearly identical quantities of potentially hazardous materials for construction and operation. The Alternative Project is located in proximity to three area airports: Barstow-Daggett Airport (Segment 12 and the Gale to Pisgah Telecommunication Route), Rabbit Ranch Airfield (Segment 5) and Hesperia Airport (Segment 6). Segment 12, 5 and the Gale to Pisgah Telecommunication Route are common to the Proposed and Alternative Project. Alternative Transmission Line Segment 6 would be approximately 0.8 mile farther from the Hesperia Airport than would the Proposed Transmission Line Segment 7. As with Segment 7 under the Proposed Project, Alternative Transmission Line Segment 6 would also traverse Zone III of the airport, but unlike Segment 7, it would avoid Zone II. Segment 6 would be installed parallel to two existing 500 kV lines that currently traverse the area addressed by the Hesperia Airport CLUP.

SCE would follow the same FAA notification procedures as described for the Proposed Project. SCE has provided notification to the FAA of the Alternative Project structures, and FAA determination is not complete at this time. FAA recommendations would be implemented into the design, construction, and operation of the Alternative Project.

Alternative Transmission Line Segment 9 traverses the existing MCLB Barstow Rifle Range, an active Superfund site. CAOC 33 is located in the area where Segment 9 would be constructed. However, no significant areas of soil contamination have been identified at CAOC 33, and a soil gas survey did not reveal the presence of significant petroleum and chlorinated hydrocarbon or methane concentrations. Given these findings and the distance of the area from Segment 9 (at least 150 linear feet), CAOC 33 is not anticipated to pose a hazard to the construction and operation of Segment 9.

As discussed in Section 4.8.1, approximately 6.1 miles at the eastern end of Segment 6 of the Alternative Transmission Line Route are classified by CAL FIRE as very high fire

hazard areas, and approximately 10.3 miles of the western end of Segment 6 are classified as high fire hazard areas (CAL FIRE 2007). In comparison, none of the Proposed Project components would be located in a very high fire hazard area, and more of the Alternative Project would be located in a high fire hazard area than would the Proposed Project (10.3 miles compared to 7.8 miles). However, impacts related to wildland fires would be slightly higher than those described for the Proposed Project in Section 4.8.4.1, but would be considered to be less than significant due to participation in the Red Flag Fire Prevention Program, compliance with applicable laws, and construction and maintenance practices that would minimize the potential for construction equipment to start a fire.

No significant reduction or increase of impacts from hazards or hazardous materials compared with the Proposed Project would be anticipated under the Alternative Project with Segment 9. Therefore, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 9.

4.8.6.2 Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, the Alternative Transmission Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and the Alternative Apple Valley to Desert View and Gale to Pisgah telecommunications routes.

The potential impacts from implementing the Alternative Project with Segment 10 would be similar to those under the Alternative Project with Segment 9. The most substantial difference between the two options is that Segment 10 would traverse an area south of the MCLB Barstow and therefore would avoid any potential soil contamination issues associated with ground-disturbing activities in the existing MCLB Barstow Rifle Range area on the base. There would be no difference in impacts related to airports and airspace between the Alternative Project with Segment 10 and the Alternative Project with Segment 9 because neither segment would be located near an airport. No significant reduction or increase of impacts from hazards or hazardous materials compared with the proposed project would be anticipated under the Alternative Project with Segment 10.

Therefore, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 10.

4.8.7 References

Apple Valley Fire Protection District (AVFPD). (2012). AVFPD website. Retrieved from http://www.applevalleyfd.com/

Apple Valley Unified School District. (2012). Apple Valley Unified School District Web site. Retrieved from http://www.avusd.org/our-schools-1

California Department of Forestry and Fire Protection (CAL FIRE). (2007). Draft Fire Hazard Severity Zones in LRA, Southwestern San Bernardino County. Retrieved from http://frap.fire.ca.gov/data/frapgisdata/select.asp

California Department of Toxic Substance Control (DTSC). (2013). EnviroStor: Department of Toxic Substances Control database of cleanup sites and hazardous waste permitted sites. Retrieved from http://www.envirostor.dtsc.ca.gov/public/

California Inter-Utility Coordinating Committee. (2010). California Joint Utility Traffic Control Manual: 5th Edition.

California Public Utilities Commission (CPUC). (2012). General Order Index Page. Retrieved from http://www.cpuc.ca.gov/PUC/documents/go.htm.

CERCLIS. (2013). U.S. Environmental Protection Agency (EPA) Superfund Information System. Retrieved from http://cfpub.epa.gov/supercpad/cursites/srchsites.cfm

ECHO. (2013). EPA Enforcement and Compliance History Online (ECHO). Retrieved from http://www.epa-echo.gov/echo/compliance_report.html

Google Inc. (2012). Google Earth (Version 6.1.0.5001) [Software]. Available from earth.google.com/

Hesperia Unified School District. (2012). Hesperia Unified School District Web page. Retrieved from http://www.hesperia.org/

Local School Directory.com. (2012). Silver Valley Unified School District. Retrieved from http://www.localschooldirectory.com/district-schools/3673890/Silver-Valley-Unified-School-District/CA

Marine Corps Logistics Base, Barstow, California. (1994). Draft Elimination Rationale for Sampling Requirements for Specific Strata Operable Units 5 and 6 Technical Memorandum 0018.

New World Environmental. (2012). Final report detailing areas cleared and any findings as required by item "I" in the SCE PO 4500536272. December 20, 2012.

San Bernardino County Fire Department Office of Emergency Services (SBCFD). (2012). Retrieved from http://www.sbcfire.org/oes

San Bernardino County Planning Department. (1992). Airport Comprehensive Land Use Plan: Barstow-Daggett Airport.

State Water Resources Control Board (SWRCB). (2013). GeoTracker. Retrieved from http://geotracker.waterboards.ca.gov/

USA Fire Departments. (2013). Barstow Fire Protection District. Retrieved from http://usfiredept.com/barstow-fire-protection-district-1260.html

San Bernardino County Airport Land Use Commission. (1991). Comprehensive Land Use Plan: Hesperia Airport.

4.9 Hydrology and Water Quality

This section describes the hydrology and water quality in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). It analyzes the potential impacts on hydrology and water quality associated with construction and operation of the Proposed Project and Alternative Project.

4.9.1 Environmental Setting

This discussion describes the existing conditions for hydrology and water quality in the Coolwater-Lugo area. The Coolwater-Lugo area is located in both incorporated and unincorporated areas of San Bernardino County. Incorporated areas include the City of Hesperia and City of Barstow, and Town of Apple Valley. The Coolwater-Lugo area is roughly bounded by Interstate 40 (north), Rodman Mountains Wilderness (east), Interstate 15 (west), and the San Bernardino National Forest (south). Much of the project area is U.S. Bureau of Land Management ("BLM") public land.

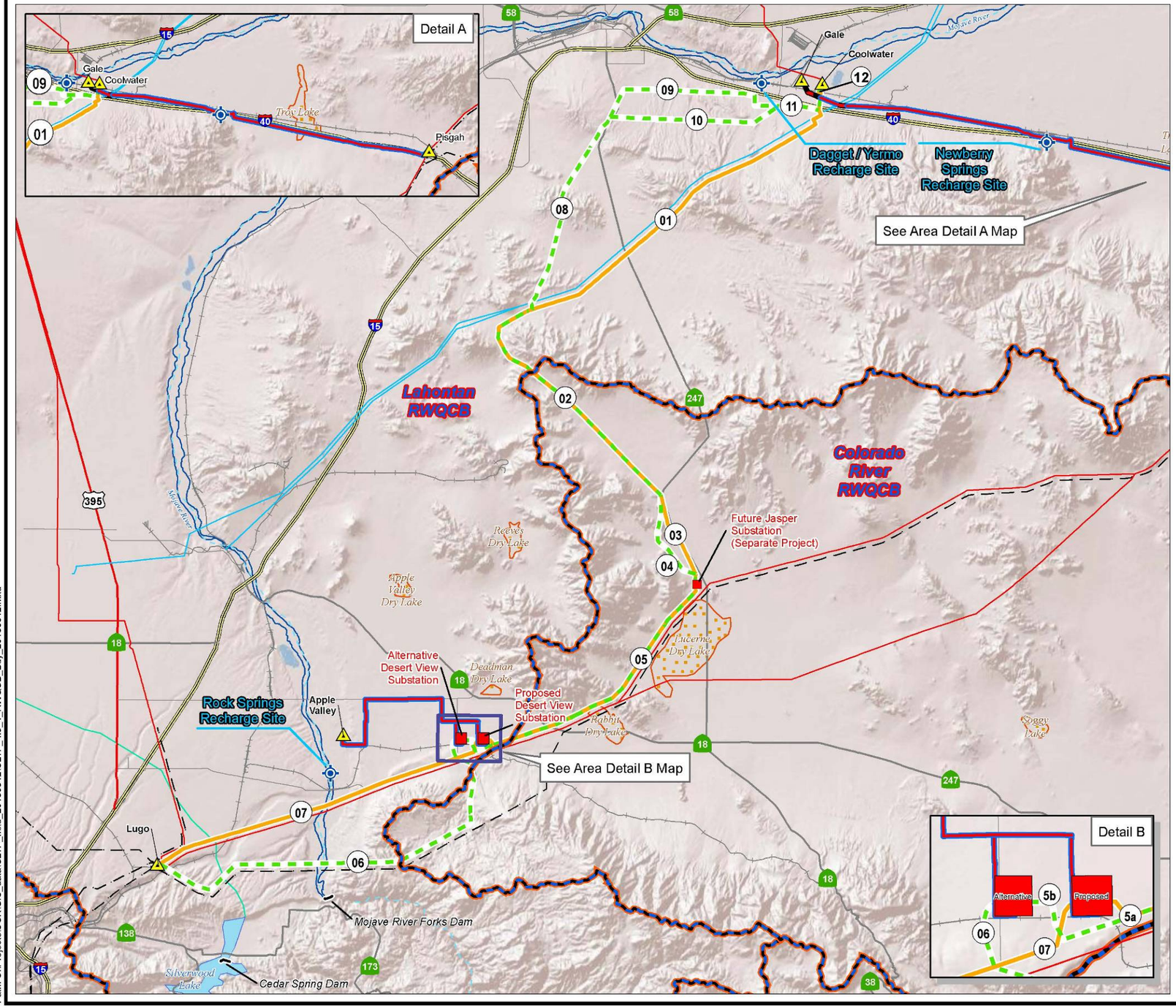
4.9.1.1 Surface Waters

The Coolwater-Lugo area is located within the jurisdictions of both the Lahontan and Colorado River Regional Water Quality Control Boards ("RWQCBs") (Figure 4.9-1, *RWQCB Boundaries, Dry Lake Beds and Recharge Sites*). The Coolwater Generating Station 220 kV Switchyard ("Coolwater Switchyard"), the northern portion of the Proposed and Alternative Transmission Line Route and the Gale to Pisgah Telecommunications Route are located in the Lower Mojave Hydrologic Area (or watershed) and continue into the Middle Mojave Hydrologic Area; both of these hydrologic areas are in the Mojave Hydrologic Unit of the Lahontan RWQCB. The Proposed and Alternative Transmission Line Route continues southerly into the Lucerne Lake Hydrologic Area/Hydrologic Unit of the Colorado River RWQCB. It then continues to the west as it crosses the Mojave River to the Lugo Substation in the Upper Mojave Hydrologic Area in the Mojave Hydrologic Unit of the Lahontan RWQCB. The Apple Valley to Desert View Telecommunications Route is also located in the Mojave Hydrologic Unit of the Lahontan RWQCB.

Annual precipitation in these watersheds is quite low, ranging from 4 to 10 inches (California Department of Water Resources ["DWR"], 2004). Surface water within these watersheds drains into a number of dry washes that drain into either dry lakes or the Mojave River. In addition to the naturally occurring Mojave River, there are two man-made, perennial surface water bodies associated with dams, south of the Coolwater-Lugo area. These include Silverwood Lake that is retained by the Cedar Spring Dam and is part of the State of California Aqueduct and Lake Arrowhead, a recreational lake that is retained by Lake Arrowhead Dam. Also within the Coolwater-Lugo area is the Mojave River Forks Dam, a flood control dam on the Mojave River that does not create a perennial surface water body. The Mojave River Forks Dam and Cedar Spring Dam are shown in Figure 4.9-2, *Flood Hazard Areas.*

This page is intentionally blank.

Coolwater - Lugo Transmission Project
Figure 4.9-1
RWQCB Boundaries, Dry Lake Beds & Recharge Sites



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- Railroad

Water (TBM, 2008)
- Dry Lake
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

- Limit of RWQCB Jurisdiction
- Recharge Site

Source: California Department of Water Resources, 2005

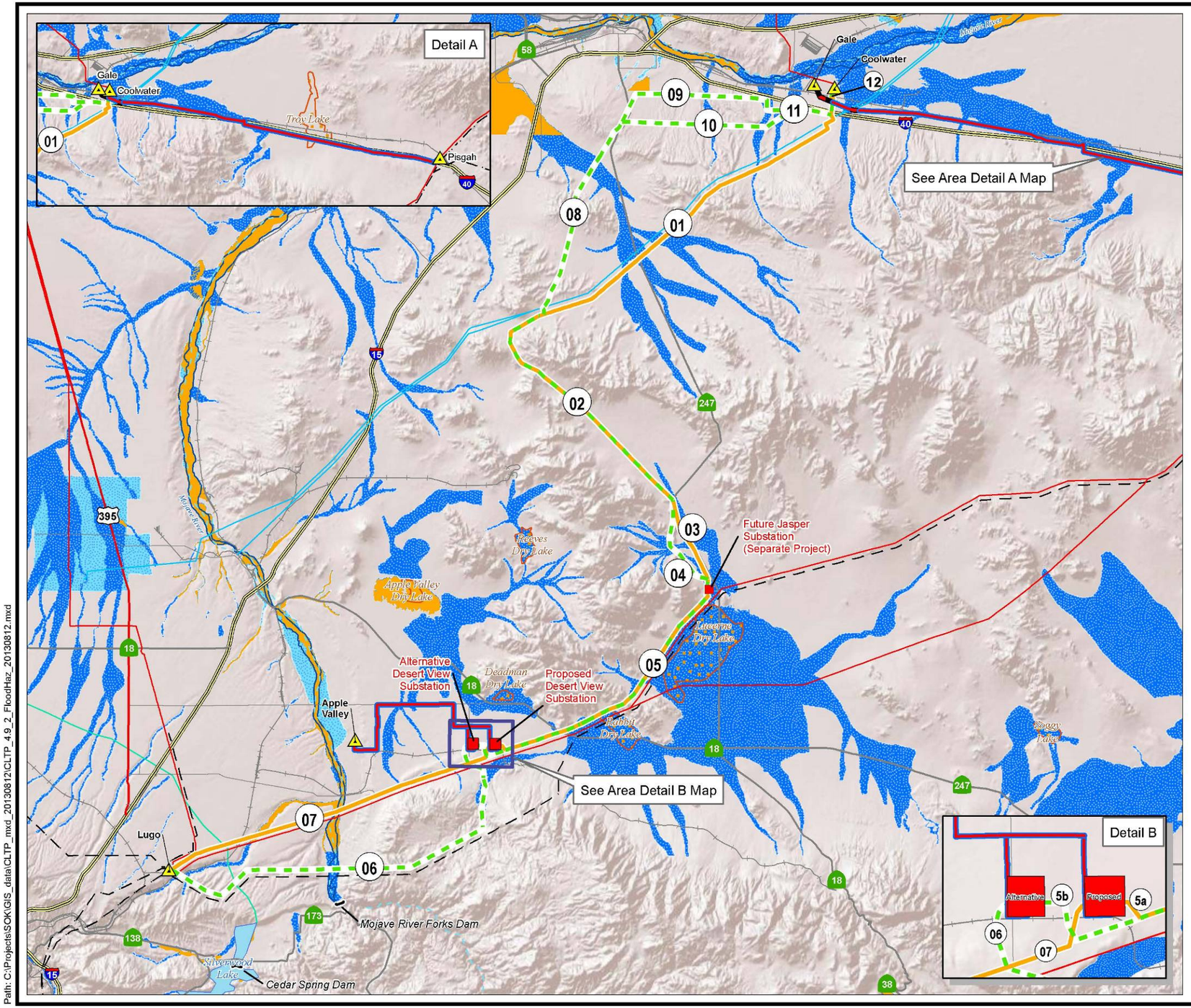
0 5 10 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SCK\GIS_data\CLTP_mxd_20130812\CLTP_4.9_1_RWQCB_Bdy_20130812.mxd



Coolwater - Lugo Transmission Project
Figure 4.9-2
Flood Hazard Areas

Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- Railroad

Water (TBM, 2008)
- Dry Lake
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Flood Hazard Areas
- DWR Flood Awareness Zone
- FEMA 100-year Flood Zone
- FEMA 500-year Flood Zone

Source: California Department of Water Resources (DWR)

0 5 10 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SCK\GIS_data\CLTP_mxd_20130812\CLTP_4.9_2_FloodHaz_20130812.mxd

Desert washes, which are typical in the Mojave Desert region, are often braided (i.e., streams that exhibit numerous channels that split off and rejoin each other to give a braided appearance). These streams flow only during or immediately following seasonal precipitation events. Such streams are unstable and can migrate laterally during substantial runoff occurrences. Water in the Coolwater-Lugo area commonly terminates in dry lakes. Dry lakes are ephemeral water features that are located in a closed basin. Generally, most of the drainage in the area appears to be internal; that is, dry washes transport water to dry lakes where the water either evaporates or contributes to groundwater. There are several dry lakes in, along, or in close proximity to the Coolwater-Lugo area including Rabbit Dry Lake, Lucerne Dry Lake, Deadman Dry Lake, Reeves Dry Lake, Apple Valley Dry Lake and Troy Lake (shown in Figure 4.9-1, *RWQCB Boundaries, Dry Lake Beds and Recharge Sites*).

The majority of the water flow of the Mojave River is underground. The Mojave River waters do come aboveground in some areas, creating a surface water body. Usually, surface water flow can be seen at the Upper Narrows, between the City of Victorville and Town of Apple Valley, then downstream past the City of Barstow at the Lower Narrows as the river begins its way through Afton Canyon. The surface water flows down the canyon and seeps into the sand, disappearing before the City of Baker outside of the Coolwater-Lugo area. The ephemeral waters of the Mojave River originate in the watershed of the San Bernardino Mountains. Water gathers from north of the ridgeline and flows down a series of creeks and washes, either underground or in Deep Creek or Miller Creek, the main aboveground sources of the Mojave River, before the surface water infiltrates and flows within the sand beneath the surface (U.S. Geological Survey [“USGS”] 2006).

4.9.1.2 Section 303(d) List of Impaired Waters

The Clean Water Act (“CWA”) Section 303(d) requires states to identify waters that do not meet, or are not expected to meet by the next listing cycle, applicable water quality standards after the application of certain technology-based controls and schedule such waters for development of Total Maximum Daily Loads [40 Code of Federal Regulations (“CFR”) 130.7(c) and (d)]. The states are required to assemble and evaluate all existing and readily available water quality-related data and information to develop the list [40 CFR 130.7(b)(5)] and to provide documentation for listing or not listing a state’s waters [40 CFR 130.7(b)(6)]. The methodology to be used to develop the Section 303(d) list [40 CFR 130.7(b)(6)(i)] is established by SWRCB.

Two sections of the Mojave River, from the Mojave River Forks Reservoir (Dam) outlet to Upper Narrows and from the Upper Narrows to the Lower Narrows are the only 303 (d) listed water bodies within the Coolwater-Lugo area. The section from the Mojave River Forks Reservoir (Dam) outlet to Upper Narrows is impaired with fluoride. The section from the Upper Narrows to the Lower Narrows is impaired with fluoride, sulfate, and total dissolved solids (SWRCB 2010).

4.9.1.3 Floodplains and Flooding

Flood zones for the 100-year and 500-year flood are mapped in the Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Maps. Based on FEMA flood insurance rate maps (FEMA 2012), the Proposed and Alternative Desert View Substation Sites and Transmission Line Route Segments 1 through 5 and Segments 8 through 12, and both the Apple Valley to Desert View and Gale to Pisgah Telecommunications Routes are in FEMA Zone X and outside of designated 100-year and 500-year flood hazard zones and subject to minimal flooding hazard.

Proposed Transmission Line Segment 7 and Alternative Transmission Line Segment 6 cross over the 100-year and 500 year FEMA flood zones that are associated with the Mojave River (Figure 4.9-2, *Flood Hazard Areas*).

The DWR has begun the Awareness Floodplain Mapping Project to identify pertinent flood hazard areas by 2015 for areas that are not mapped under the FEMA National Flood Insurance Program and to provide the community and residents an additional tool in understanding potential flood hazards currently not mapped as a regulated floodplain. The awareness maps identify the flood hazard areas using approximate assessment procedures. These floodplains will be shown simply as flood-prone areas without specific depths and other flood hazard data. Awareness Floodplain Maps will be added as they become available. At this time the DWR has developed Best Available Maps ("BAMs") which incorporate FEMA data and DWR's assessment of potential 100-, 200-, and 500-year floodplain areas. The BAM are not regulatory maps, they simply incorporate the best available floodplain information from FEMA and other sources as it becomes available.

According to the DWR BAM, both Proposed and Alternative Desert View Substation sites are not located in an area prone to flooding. However, portions of the Transmission Line Routes as well as both of the Telecommunications Routes cross over or are partially within DWR BAM areas identified with a flood potential. The DWR flood potential areas are found along the Mojave River, and also encompass the Apple Valley Dry Lake, Lucerne Valley Dry Lake, Rabbit Dry Lake and several dry washes that drain to the Mojave River, to the south and east of Barstow (Figure 4.9-2, *Flood Hazard Areas*) (DWR 2012).

Flooding can also occur from dam failure. This type of flooding is referred to as dam inundation. Dam failure can be seismically induced. The State of California requires that dam inundation maps, which depict a best estimate of the extent of water flow in the event of dam failure, must be approved and maintained by the Office of Emergency Services. These maps have been compiled by San Bernardino County and incorporated into the County Land Use General Plan with Hazard Overlays (San Bernardino County 2005a). Three dams south of the Coolwater-Lugo area could inundate portions of Hesperia if they failed catastrophically: Mojave Forks Dam, Cedar Springs Dam, and Lake Arrowhead Dam. The Proposed and Alternative Desert View Substation sites are not located in an area with a risk from dam inundation. Proposed Transmission Line Segment 7 and Alternative Transmission Line Segment 6 cross through the dam

inundation areas along the Mojave River. Water released by the Mojave Forks Dam would be confined to the Mojave River bed, the mouth of Antelope Valley Wash channel, and several other smaller tributaries. Water released by the Cedar Springs Dam would flood a substantial portion of eastern Summit Valley, an area for the most part presently undeveloped, except for State Route 173. Water from Lake Arrowhead Dam would most likely be contained within the Mojave Forks Reservoir. The extent of these dam inundation areas follows the Mojave River and extends slightly beyond the FEMA limits for a 100-year flood (City of Hesperia 2010).

Slightly different from water flooding, mudflows are flooding conditions where a river of liquid and flowing mud move on a surface of a normally dry land area. Mudflow risk is dependent on terrain, soil type and rainfall intensity. Mudflow risk is highest for burned areas that have been denuded due to a wildfire or areas immediately down-gradient of burned areas. Without vegetation and ground cover, rainfall can cause soil on steep slopes of burned areas to become saturated, liquefy and then flow down hills as a mudflow (State of California 2010). Portions of Proposed Transmission Line Segment 1, Proposed and Alternative Transmission Line Segment 5, and Alternative Transmission Line Segments 4, 8, 9, and 10 cross steep, mountainous terrain and the risk of mudflows could be high if a fire removed vegetation and ground cover in these areas.

4.9.1.4 Groundwater

The Coolwater-Lugo area is located in the southwestern portion of the South Lahontan Hydrologic Region, Basin Number 6-41 (Middle Mojave River Valley) and 6-42 (Upper Mojave River Valley) and includes the western portion of the Colorado River HR, Basin Number 7-19 (Lucerne Valley). Figure 4.9-1, *RWQCB Boundaries, Dry Lake Beds and Recharge Sites*, shows the boundaries of the RWQCBs.

The two primary water-bearing units within the Middle Mojave River Valley Basin (Groundwater Basin Number 6-41) system consist of regional Pliocene and younger alluvial fan deposits (fan unit) and overlying Pleistocene and younger river channel and floodplain deposits, called the floodplain unit (DWR 1967), or the floodplain aquifer (Lines 1996; Stamos et al. 2001). Other potential, but not regionally important, water-bearing units include older alluvium, old fan deposits, old lake and lakeshore deposits, and dune sand deposits (DWR 1967). Water bearing deposits in this groundwater basin are predominantly unconfined.

This groundwater basin is transected by the Helendale, Mount General, Lenwood and Camp Rock-Harper Lake fault zones. These northwest trending faults form barriers or partial barriers to groundwater flow (Stamos and Predmore 1995; Stamos et al. 2001). Regionally, similar faults cause a stair-step pattern that lowers the water table eastward across each of the faults (Stamos and Predmore 1995; Lines 1996). The Helendale Fault forms an effective barrier in the regional fan unit, but does not appear to affect the young river channel deposits.

The general groundwater flow is toward the active channel of the Mojave River, from where it follows the course of the river through the valley (Stamos and Predmore 1995;

Lines 1996). The Helendale Fault forms a barrier to groundwater flow in the southeast corner of the basin. This barrier causes groundwater to flow northwestward under a surface drainage divide into the Mojave River drainage instead of northeastward into Lucerne Dry Lake in the Lucerne Valley Basin.

The boundary between the Upper Mojave River Valley Groundwater Basin (6-42) and the Lucerne Valley Groundwater Basin (7-19) was changed from the regional surface divide to the southern part of the Helendale Fault, which is a groundwater barrier. This change incorporated part of the Colorado Desert Hydrologic Region into a basin in the South Lahontan Hydrologic Region.

The South Lahontan Groundwater Basin is under the jurisdiction of the California RWQCB, Lahontan Region 6. The Water Quality Control Plan for the Lahontan Region (2005 Basin Plan) identifies beneficial uses of the groundwater of the Lahontan Region (628.20 Upper Mojave Hydrologic Area and 628.30 Middle Mojave Hydrologic Area) as follows: Municipal and Domestic Supply, Agricultural Supply, Industrial Service Supply, Freshwater Replenishment, and Aquaculture (Lahontan RWQCB 2005).

The Lucerne Valley Ground Water Basin is under the jurisdiction of the Colorado River Basin RWQCB. The Water Quality Control Plan for the Colorado River Region (2006 Basin Plan) identifies beneficial uses for groundwater (without clarifiers) in the Lucerne Hydrologic Unit as follows: Municipal and Domestic Supply, Industrial Service Supply, and Agriculture Supply. There may be some flow (less than an average 100 acre-feet per year) from the Lucerne Hydrologic unit into the Upper Mojave River Hydrologic Subunit in the South Lahontan Basin. (Colorado River RWQCB 2006)

In arid alluvial valleys of the western Mojave Desert, areal recharge from precipitation and subsequent movement of water through the unsaturated zone is negligible. However, along intermittent stream channels water may infiltrate to depths below the root zone and ultimately reach the underlying water table. In these areas where the volume of water infiltrated is small and the unsaturated zone is thick or relatively impermeable, the slow movement of water through the unsaturated zone may contribute to the isolation of small headwater streams from underlying aquifers and down-gradient hydrologic systems.

There are a number of internally drained alluvial basins in the western Mojave Desert, each having distinct groundwater-flow systems often separated by faults and bedrock outcrops. Alluvial deposits in some basins are more than 1,000 meters (approximately 3,280 feet) thick and saturated deposits may be separated from land surface by unsaturated alluvium as much as 300 meters (approximately 984 feet) thick near the mountain front.

Natural recharge of the basin is from direct precipitation, ephemeral stream flow, infrequent surface flow of the Mojave River, and underflow of the Mojave River into the basin from the southwest (Eccles 1981; Stamos and Predmore 1995; Lines 1996). Treated wastewater effluent, septic tank effluent, effluent from two fish hatchery operations, and irrigation water are allowed to percolate into the ground and recharge the groundwater system (Eccles 1981; Lines 1996). A large, but sporadic contribution to recharge occurs

when the Mojave River is flowing, with 40 feet of rise in the water table observed during 1969 and 16 to 48 feet of rise observed in 1993 following large precipitation events (Hardt 1969; Robson 1974; Lines 1996).

Since 1992, the USGS, in cooperation with the Mojave Water Agency ("MWA"), has constructed a series of regional water-table maps for intermittent years in a continuing effort to monitor groundwater conditions in the Mojave River groundwater basins. Depth to groundwater beneath the Coolwater-Lugo area is dependent on proximity to either the Mojave River or to dry lakes. In general, the groundwater is closer to the surface in the immediate vicinity of the Mojave River or to dry lakes and deeper at locations farther away from these drainage features.

Depth to groundwater is on the order of 490 feet below ground surface ("bgs") in the vicinity of the Lugo Substation, which is more than 3.0 miles from the Mojave River. The depth to groundwater rises to about 20 to 30 feet bgs at the edge of the Mojave River, near the locations where the Proposed Transmission Line Segment 7 and Alternative Transmission Line Segment 6 cross the Mojave River (MWA 2012, Alto East and West Hydrographs). Following these Proposed or Alternative Transmission Line Routes to the east, the depth to groundwater near the area around the Proposed and Alternative Desert View Substation increases to approximately 240 feet to 310 feet bgs and then the groundwater rises to 20 to 30 feet bgs where Proposed Transmission Line Segment 5 crosses Rabbit Dry Lake. The depth to groundwater then changes to about 200 feet bgs to 120 feet bgs along Proposed Transmission Line Segment 3, Proposed and Alternative Transmission Line Segments 5 and 2, and Alternative Transmission Line Segment 4, as it turns to the north (MWA 2012, Este Hydrograph). Depth to groundwater is on the order of 100 feet bgs to 140 feet bgs as the Alternative Transmission Line Route Segments 9, 10, and 11 near the Mojave River in the vicinity of the Coolwater Switchyard (MWA 2012, Baja Hydrograph). Along the Gale to Pisgah Telecommunication Route the depth to groundwater begins on the order of 90 feet bgs to 140 feet bgs and rising to on the order of 55 feet bgs at Troy Dry Lake. Along the Apple Valley to Desert View Telecommunication Route the depth to groundwater begins on the order of 90 feet bgs at the intersection of Apple Valley and Bear Valley and increases to / on the order of 240 feet to 310 feet bgs around the Proposed and Alternative Desert View Substation.

Nearly all the water supplied to businesses, homes, and farms throughout the Coolwater-Lugo area is pumped from groundwater. Production wells exist throughout the region, owned by a multitude of water users from homeowners with domestic wells to large water districts, such as the MWA. The Mojave River is the primary source of "recharge" to groundwater. Most of the natural water flows entering local aquifers originates in the San Bernardino Mountains and reaches the Mojave River in the form of runoff from rainfall or snowmelt. Although the area receives substantial natural inflows of water, the High Desert region has been in overdraft for decades—that is, more water is pumped from groundwater basins than what goes in. To make up the difference, MWA delivers water from the State Water Project to groundwater recharge sites throughout the region to supplement natural water supplies (MWA 2012).

The groundwater recharge sites within or immediately adjacent to the Coolwater-Lugo area include Rock Springs recharge site southeast of Hesperia, the Yermo/Daggett recharge site near Coolwater Switchyard, and at the Newberry Springs recharge site near Pisgah Substation (MWA 2012) (Figure 4.9-1, *RWQCB Boundaries, Dry Lake Beds and Recharge Sites*).

Although high-quality water supplies are available near streams in desert areas of the Lahontan Region, many desert waters have naturally poor quality (e.g., high concentrations of salts and minerals, such as arsenic and selenium). Threats to beneficial uses from naturally high concentrations of salts, toxic minerals, or radioactive substances can be aggravated by geothermal and agricultural discharges, as well as groundwater overdraft, which concentrates salts and disposal of stormwater under conditions where it is unlikely to receive adequate treatment by soils and vegetation.

Groundwater quality problems in the Lahontan Region are largely related to nonpoint sources, stormwater, acid drainage from inactive mines, and individual wastewater disposal systems (Lahontan RWQCB 2012).

4.9.2 Regulatory Setting

4.9.2.1 Federal Regulatory Setting

U.S. Army Corps of Engineers

Section 401 of the Clean Water Act

Section 401 of the CWA requires that any activity, including river or stream crossings during transmission line construction that may result in a discharge into a state water body must be certified by the applicable state agency to ensure that the proposed activity does not violate state and/or Federal water quality standards.

Section 402 of the Clean Water Act

The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain nonpoint source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System ("NPDES") permit process, which requires projects that disturb 1 or more acres to obtain NPDES coverage under the General Permit for each state (CWA Section 402).

Section 404 of the Clean Water Act

The CWA (33 U.S. Code [U.S.C.] Section 1251 et seq.) was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the U.S.

Section 404 of the CWA authorizes the United States Army Corps of Engineers ("USACE") to regulate the discharge of dredged or fill material to the waters of the U.S. and adjacent wetlands. The USACE issues individual site-specific or general (also

referred to as "Nationwide") permits for such discharges. Nationwide permits ("NWP") are for activities that have minimal impact to the aquatic environment. As of 2012, the list of available NWPs included NWP-12 that covers utility line activities (access roads, utility line foundations and substations) but was limited to project of less than 1/2 acre of waters of the U.S. for each single and complete project (USACE 2012). If an NWP does not apply to a project, a project is required to obtain an individual permit. The term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete project must have independent utility. For linear projects, a "single and complete project" is all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

The CWA includes Sections 404 and 401 (33 U.S.C. 1251-1376). Under Section 404, the USACE and the U.S. Environmental Protection Agency ("EPA") regulate the discharge of dredged or fill material into "waters of the United States." Under Section 404, the phrase "waters of the United States" includes wetland and non-wetland aquatic habitats within the jurisdictional extent of rivers and streams defined by the ordinary high water mark. Such discharges may result from navigational dredging, flood control channelization, levee construction, channel clearing, fill of wetlands for development, or other activities. These projects involve the removal or placement of soil, sediment, and other materials in or near water bodies and require CWA Section 404 permits from the USACE.

4.9.2.2 State Regulatory Setting

Regional Water Quality Control Board/State Water Resources Control Board

Section 401 of the Clean Water Act

Under CWA Section 401, applicants for the CWA Section 404 permit or license for any activity that may result in a discharge into jurisdictional waters of the U.S. must obtain a water quality certification from the state that the proposed activity would comply with the state's water quality standards. The RWQCB implements the Section 401 Certification program and issues 401 Certifications. Where construction activities transverse or enter into different RWQCB jurisdictions, the SWRCB may retain jurisdiction for issuing 401 permits.

Section 402 of the Clean Water Act

The NPDES stormwater permitting program, under Section 402(d) of the CWA, is administered by the SWRCB and RWQCB on behalf of the EPA. Section 402(d) establishes a framework for regulating nonpoint source stormwater discharges (33 U.S.C. 1251). The NPDES program objective is to control and reduce pollutants to water bodies

from surface water discharges, which includes municipal and industrial wastewater as well as stormwater runoff. Under the CWA, discharges of pollutants to receiving water are prohibited unless the discharge is in compliance with an NPDES permit. The NPDES permit specifies discharge prohibitions, effluent limitations, and other provisions such as monitoring deemed necessary to protect water quality based on criteria specified in the National Toxics Rule, the California Toxics Rule, and the Basin Plan.

California Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1967 (California Water Code Section 13000 et seq.) requires the SWRCB and the nine RWQCBs to adopt water quality criteria to protect State waters. These criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. The RWQCBs have the responsibility of granting NPDES permits for stormwater runoff from construction sites. In addition, the Porter-Cologne Act also covers non-federal waters of the State that may not be subject to requirements of the CWA, such as isolated waters. For fill or dredging impacts to only isolated waters of the State, the RWQCBs may issue Waste Discharge Requirements ("WDRs"); otherwise, the 401 Certification typically addresses both waters of the State and waters of the United States.

Construction General Stormwater Permit

The State of California issued a General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, effective July 1, 2010, as amended by 2010-0014-DWQ and by 2012-0006-DWQ, and commonly known as the "CGP." The CGP includes special provisions for Linear Underground/Overhead Projects ("LUP"), which include any cable line or wire for the transmission of electrical energy, any cable line or wire communications and associated ancillary facilities including towers, poles, and substations. Because Coolwater-Lugo is a linear project, the LUP provisions would apply.

Where construction activities transverse or enter into different RWQCB jurisdictions, the Project shall obtain permit coverage for each RWQCB area involved prior to the commencement of construction activities (SWRCB 2012).

General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality

The State of California regulates specified low threat discharges of waste to land with underlying ground water, including well boring wastes, clear water discharges, small dewatering projects, and inert wastes under a general WDR permit, WQO-2003-0003-DWQ. If applicable to the Proposed Project, each RWQCB (either the Lahontan or Colorado River) would issue a Notice of Applicability.

NPDES General Permit For Limited Threat Discharges To Surface Waters (Lahontan RWQCB)

The Lahontan RWQCB regulates discharges of water to surface waters under Order number R6T-2008-0023. The permit covers project water discharges that meet the following criteria: pollutant concentrations do not cause, have a reasonable potential to cause, or contribute to any excursion above any applicable federal water quality criterion set forth by the Clean Water Act Section 303, or regional water quality objectives; pollutant concentrations will not degrade water quality or affect beneficial uses; will not cause acute or chronic toxicity of receiving waters; and discharge to land is not practical.

General Waste Discharge Requirements and General National Pollutant Discharge Elimination System (NPDES) Permit for Low Threat Discharges to Surface Waters within the Colorado River Basin Region

The Colorado River RWQCB regulates discharges of water to surface waters under Order number R7-2009-0300. This permit regulates individuals, public agencies, private business, and other legal entities for the occasional discharge of treated or untreated wastewaters directly into surface waters of the United States that pose an insignificant or minimal threat (i.e., low threat) to water quality. This includes entities discharging treated or untreated groundwater from permanent or temporary dewatering operations to construct or protect pipelines and other structures from groundwater infiltration or flotation. (Note: if the General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality permit is not applicable to the discharge as determined by the appropriate RWQCB, then the project would apply for the Permit for Low Threat Discharges to Surface Waters within the applicable RWQCB. One of these permits could apply to the project but not both.)

California NPDES General Permit from Small Municipal Separate Storm Sewer Systems (2013 Phase II Small MS4 Permit)

The California State Water Resources Control Board issued the Phase II Small MS4 Permit, Order No. 2013-001-DWQ, on February 5, 2013, and it became effective on July 1, 2013. The Small MS4 permit regulates storm water discharges from municipalities that serve populations of less than 100,000 persons. The permit provides coverage for about 250 traditional (municipal government) and about 185 non-traditional (state and federal government) Small MS4s (collectively, the Permittees). In 1999, the EPA established regulations requiring that Small MS4s be regulated pursuant to a NPDES permit. The regulations also specified six minimum control measures including Public Education and Outreach, Public Participation/Involvement, Illicit Discharge Detection and Elimination, Construction Site Run-off Control, Post-Construction Run-off, and Pollution Prevention/Good Housekeeping that were to be included in the permits. As adopted in 2003, the first generation permit contained the six control measures but only in very broad terms. The permit required the Permittees to develop storm water management plans with timeframes for accomplishing the tasks described.

The 2013 Small MS4 Permit critical water quality priorities include:

- Special Protections for discharges of storm water to Areas of Special Biological Significance that were recently adopted by the State Water Board.

- Implementation requirements for adopted Total Maximum Daily Load Implementation ("TMDL") and the associated waste load allocations and load allocations. TMDLs set a limit for the amount and types of pollution allowed to enter receiving waters on the impaired water bodies 303[d] list that storm water may drain into

- Post Construction Requirements to incorporate principles of Low Impact Development including storm water recovery and use for most types of new and redevelopment

California Department of Fish and Wildlife - California Fish and Game Code

Sections 1600-1616 of the California Fish and Game Code protects the natural flow, bed, channel, and bank of any river, stream, or lake designated by the California Department of Fish and Wildlife ("CDFW") (formerly the California Department of Fish and Game) in which there is, at any time, any existing fish or wildlife resources, or benefit for the resources. Section 1602 requires a Lake or Streambed Alteration Agreement between the CDFW and any entity proposing a project that would:

- Divert, obstruct, or substantially change a streambed

- Use material from the streambed

- Result in the disposal, or deposition of debris, waste, or other material containing crumbed, flaked, or ground pavement where it can flow into a stream

Please refer to Section 4.4, *Biological Resources*, for a further discussion of specific CDFW permit requirements.

4.9.2.3 Local Regulatory Setting

The California Public Utilities Commission ("CPUC") has sole exclusive state jurisdiction over the siting and design of Coolwater-Lugo because the CPUC regulates and authorizes the construction of investor-owned public utility facilities. Such projects are exempt from local land use and zoning regulations and permitting in accordance with General Order No. 131-D, which applies to all components of a project, including, but not limited to, transmission lines, substations, staging yards, and marshaling yards. However, Section XIV.B requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain a nondiscretionary local permit." As part of its environmental review process, Southern California Edison ("SCE") considers local and State land use plans, and policies, and local land use priorities and concerns.

San Bernardino County Development Code

The San Bernardino Development Code (San Bernardino County 2012) implements the San Bernardino General Plan by classifying and regulating the uses of land and structures within unincorporated San Bernardino County; preserving and protecting the county's

important agricultural, cultural, natural, open space and scenic resources; and protecting and promoting the public health, safety, comfort, convenience, prosperity, and general welfare of residents and businesses in the county.

San Bernardino County Ordinance No. 4011 (Title 8: Development Code, Division 2 Land Use Zoning Districts and Allowed Land Uses, Chapter 82.14 Flood Plain Safety Overlay) requires that no structure be constructed, located, substantially improved, or graded in areas designated as floodways (defined as a channel of a river and adjacent 100-year flood zone areas) except upon approval of a plan that provides that the proposed development would not result in any increase in flood levels during the occurrence of the 100-year flood discharge (American Legal Publishing Corporation 2010).

If needed, prior to IBO substation construction, SCE would develop an appropriate landscaping plan consistent with San Bernardino County standards, including Assembly Bill 1881, The Model Water Efficient Landscape Ordinance.

If required, a ministerial encroachment permit from the San Bernardino County Flood Control District would be obtained where work is proposed within the public ROW easement. This includes aerial utilities. Encroachment permit applications associated with new developments would address County requirements, as applicable, from the Proposed Project (San Bernardino County Department of Public Works 2007).

If required, ministerial grading permits from the San Bernardino County would be obtained for earth work in unincorporated San Bernardino County for either excavations greater than 2 feet in depth or fills greater than 3-foot thick or that exceed 50 cubic yards. Ministerial grading permits may also be required if grading obstructs a drainage course or is intended to support a structure, road, or if placed on or creates steep slopes.

All grading in excess of 5,000 cubic yards shall be in accordance with a grading plan prepared by a civil engineer, and designated as “engineered grading.” The grading permit application requires the inclusion of the permit number for the 2009 CGP permit that has been obtained from the RWQCB (San Bernardino County 2005b).

City of Hesperia

If required, ministerial grading permits from the City of Hesperia would be obtained. The City of Hesperia does not list a minimum quantity of earthwork below which a grading permit would not be required. A portion of Proposed Transmission Line Segments 6 and 7 are the only part of the Proposed Project that are in the City of Hesperia and are not anticipated to require a grading permit. Permit inspections include implementation of a Storm Water Pollution Prevention Plan (“SWPPP”) which would help reduce impacts to water quality (City of Hesperia 2005).

City of Barstow

The portion of Coolwater-Lugo in the City of Barstow limits lies entirely within the Marine Corps Logistic Base Barstow. City requirements do not apply on the base property.

Town of Apple Valley

If required, ministerial grading permits from The Town of Apple Valley would be obtained. The Town of Apple Valley does not list a minimum quantity of earthwork below which a grading permit would not be required. A portion of the Proposed Apple Valley to Desert View Telecommunication Route is the only part of the Proposed Project within the Town of Apple Valley and is not anticipated to require a grading permit.

Although the San Bernardino County Flood Control District has the primary responsibility for managing regional drainage in and around the community, the Town remains directly responsible for the management of local drainage. The San Bernardino County Flood Control District has established methodology to be used to analyze and design flood control structures (Town of Apple Valley 2010).

4.9.3 Significance Criteria

4.9.3.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to hydrology and water quality come from the California Environmental Quality Act ("CEQA") Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or a substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site
- Create or contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff
- Otherwise substantially degrade water quality
- Place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map

- Place within a 100-year flood hazard area structures that would impede or redirect flood flows
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam
- Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow

4.9.3.2 NEPA Analysis

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 CFR 1508.27).

4.9.4 Impact Analysis

This assessment is based on the potential impact of implementing the Proposed Project on aspects of water quality, water supplies, and water-related natural hazards (e.g., flooding). Impacts were evaluated in an area that includes surface water features in the immediate vicinity of the Proposed Project components, and more regional areas including the groundwater basins in which the Proposed Project would occur. Impacts from implementing the Alternative Project are discussed in Section 4.9.6, *Alternative Project*.

As discussed in Chapter 3, *Project Description*, either the Proposed Project or the Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. Differences in potential impacts under the IBO and FBO scenarios are described where applicable. Otherwise, there are no significant differences in impacts between IBO and FBO of the Desert View Substation. Therefore, except as noted, the following impact assessment applies to both scenarios, and no additional impacts on hydrology and water quality would occur.

4.9.4.1 CEQA Impact Assessment

Would the project violate any water quality standards or waste discharge requirements?

Construction Impacts

Construction of the Proposed Project would disturb a surface area greater than 1 acre. Therefore, SCE would be required to obtain coverage under the Statewide Construction General Permit (Order No. 2012-0006-DWQ) to discharge stormwater effluent from the construction sites. A SWPPP or SWPPPs would be prepared for the permit application and would be based on final engineering design and would include all project components.

Implementation of the SWPPP(s) and associated best management practices ("BMPs") would minimize impacts on water quality from erosion and accidental spills, and other potential water quality impacts during construction. The SWPPP(s) would include a scheduling BMP that recommends sequencing of construction activities and implementation of erosion/sedimentation control BMPs while taking local conditions into consideration. Sequencing of construction activities to reduce potential impacts to stormwater quality would be considered, especially during the rainy season and for activities planned in the 100-year flood zone. For non-active areas, the SWPPP(s) would address appropriate stabilization requirements to be implemented after the cessation of soil disturbing activities or active use of the site. Preparation of the staging yards could include the application of gravel or crushed rock, depending on existing ground conditions at the site or landowner requirements.

The SWPPP(s) would also include non-stormwater management and material management BMPs. Implementation of non-stormwater management and material management BMPs minimize impacts on water quality from storing materials or equipment, including laydown areas. Non-stormwater management and material management BMPs are source-control BMPs that prevent impacts by limiting or reducing potential pollutants at their source and eliminating off-site discharge.

Any accidental spill during construction would be immediately addressed as outlined in the SWPPP(s) BMPs. Spill Prevention, Control and Countermeasure ("SPCC") Plan would be implemented when required. Further discussion of impacts associated with accidental spills and storage of hazardous materials during construction can be found in Section 4.8, *Hazards and Hazardous Materials*. Any sanitary waste produced during construction (e.g., from portable toilets) would be disposed of according to applicable laws, rules, and regulations.

In addition, implementation of the Worker Environmental Awareness Program ("WEAP"), as described in Section 3.9, *Worker Environmental Awareness Training*, would provide site personnel with instruction on the individual responsibilities for water quality protection under the CWA, the SWPPP(s) and other permit requirements, and site-specific BMPs.

As a result, construction of the Proposed Project would not violate any water quality standards or WDRs. Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

During operation of the Proposed Project, effluent is likely to be limited to discharges of stormwater from the substation sites or transmission line access routes.

The Proposed Desert View Substation would be designed to control the discharge of stormwater runoff from the site. Site design BMPs would be installed to reduce and control post-development runoff rates; source-control BMPs would be incorporated into the site plans to reduce the potential for stormwater runoff and pollutants from coming

into contact with one another; and, if needed, treatment control BMPs could be designed and constructed to treat the adverse impacts of stormwater runoff pollution. The substation design could include a retention or detention basin for on-site stormwater filtration prior to off-site discharge. Final grading within the substation would drain at a minimum of 1 percent to channels outside of the substation. Drainage channels would route water from the south to the north side of the substation and stormwater would be released through dissipaters. Although the drainage plans have not been prepared, the combination of pervious gravel surfaces, small proportion of impervious surfaces, retention or detention basins and dissipaters would not significantly increase the overall drainage pattern or quantity of sediment from the preconstruction conditions for the Proposed Desert View Substation site.

During IBO, the Proposed Desert View Substation would be equipped with a self-contained restroom unit within the substation perimeter wall for use during operation and would be maintained by an outside service company. Any sanitary waste produced during operation (i.e., from the self-contained restroom) would be treated and disposed of according to applicable laws, rules, and regulations by an outside service company. At FBO a new, permanent restroom would be installed inside the Test & Maintenance Building and/or the Control Building. Sewer may be provided by future sewer line construction or a new septic system would be installed. Since the substation would be unstaffed and remotely operated, visits to the site would likely occur infrequently, and effluent discharge from the restroom would be minimal.

Any accidental spill during operation of the substation would be immediately addressed as outlined in the SPCC Plan. Impacts to stormwater from storage of hazardous materials would be minimized and addressed by implementation of the SPCC Plan. A further discussion of impacts associated with accidental spills and storage of hazardous materials during operation can be found in Section 4.8, *Hazards and Hazardous Materials*.

Effluent from the operations including modifications to other substations (Coolwater Switchyard and Lugo Substation), staging yards, and transmission line routes would be limited to discharge of stormwater. The modifications to the other substation sites would not disturb large areas and would not change the existing stormwater drainage or potential effluent at these locations.

Any land that may be disturbed at the staging yards would be stabilized, or restored to preconstruction conditions or to the landowner's requirements following the completion of construction activities. All other sites temporarily disturbed during construction that could impact hydrology would be stabilized or restored. Additional discussion of restoration activities are discussed in Section 4.4, *Biological Resources*.

Impacts to stormwater effluent from the operation of the Proposed Transmission Line would be minimized by compacting the access roads and other disturbed areas to reduce erosion and adverse effects from stormwater runoff. In addition, proposed drainage improvements for the transmission line depending on existing topography slopes would also minimize erosion and adverse effects to stormwater runoff. Detailed information

regarding locations requiring drainage improvements would be provided after final engineering.

The operation of the Proposed Project, (including the components at both IBO and FBO) would result in minimal, if any, effluent discharge except stormwater. Permanent BMPs for the Proposed Desert View Substation would be implemented and the site would be designed to ensure that effluent and stormwater is managed appropriately.

Therefore, less than significant impacts are anticipated during the operation of the Proposed Project.

Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local ground water table level?

Construction Impacts

During installation of foundations, including the foundations for the equipment at the Proposed Desert View Substation Site and the Proposed Transmission Line Routes, groundwater would not likely be encountered, except perhaps at the Proposed Transmission Line Route crossings of the Mojave River, Rabbit Dry Lake, or Lucerne Dry Lake. The depth to groundwater is reported to be on the order of 20 to 30 feet bgs at these locations and so groundwater may be encountered if the foundations for lattice steel towers ("LSTs") or tubular steel poles ("TSPs") at these locations are installed to greater depths. The foundations of LSTs and TSPs could be up to 50 feet deep; however, actual footing diameters and depths for each of the structure foundations would depend on the soil conditions and topography at each site and would be determined after final engineering. If localized or perched groundwater is encountered during excavation or drilling operations of pole foundations, either water, fluid stabilizers, drilling mud and/or casings would be utilized to control ground caving and to stabilize the sidewalls from sloughing. If fluid stabilizers are utilized, mud slurry would be added in conjunction with the drilling. Mud slurry brought to the surface would be reused or discarded at an off-site disposal facility in accordance with applicable laws. These activities would be temporary, short term, and would not affect groundwater levels in the region. If localized or perched groundwater was encountered and removed from the borehole or foundation area, it would be collected, then pumped into containers or tankers and transported for disposal off–site, or handled under either a WDR or an NPDES permit from the appropriate RWQCB in accordance with applicable laws. Any drawdown of groundwater during the dewatering for the transmission line structure foundation would be localized and very short in duration.

For the Proposed Desert View Substation, if a new groundwater well is installed during construction to support grading activities and dust control, the siting and installation would be in accordance with San Bernardino County guidelines. Any drawdown of groundwater during the construction of the substation would be localized and intermittent.

SCE anticipates that the Coolwater-Lugo water needs, including watering for dust suppression, would be met by the potential water purveyors in the area. Local water purveyors are listed below (see also Section 4.17, *Utilities and Service Systems*). This is not meant to be a wholly inclusive list and other purveyors not listed may be utilized.

- Hesperia Water District, 9700 Seventh Avenue, Hesperia – provides water and wastewater utilities to residents of the City of Hesperia.
- Mariana Ranchos County Water District, 9600 Manzanita Street, Apple Valley
- Apple Valley Ranchos Water Company, 21760 Ottawa Road, Apple Valley – provides water and wastewater services to the Town of Apple Valley and portions of Victorville.
- Daggett Community Services District, 33703 Second Street, Daggett
- County Service Area 70 J, 12402 Industrial Boulevard, Victorville
- Golden State Water Company Apple Valley South System, 13608 Hitt Road, Apple Valley – provides water and wastewater services to the City of Barstow, as well as portions of the Town of Apple Valley and unincorporated San Bernardino County.
- Golden State Water Company Desert View System, 13608 Hitt Road, Apple Valley
- Apple Valley Heights County Water District, 9429 Cerra Vista, Apple Valley

Construction of the Proposed Project would not deplete groundwater supplies or substantially interfere with groundwater recharge such that there would be a net deficit in aquifer volume or lowering of the local groundwater table level. Implementation of BMPs as required by the SWPPP(s) would, as part of protecting stormwater quality, also promote groundwater recharge. Specifically, BMPs such as silt fences, or wattles that rely on localized stormwater detention as a way to slow stormwater flow would promote groundwater recharge. Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Operation of the Proposed Desert View Substation may use groundwater (through an on-site groundwater well or a local water agency) to maintain landscaping. If needed, prior to IBO substation construction, SCE would develop an appropriate landscaping plan consistent with San Bernardino County standards, including Assembly Bill 1881, The Model Water Efficient Landscape Ordinance. A landscaping plan would be submitted for review by San Bernardino County. If needed, water service would likely be established after approval of the landscaping plan and completion of the substation. While water would be needed to establish landscaping, it is not anticipated to be needed once landscaping is established. Therefore, long-term usage is expected to be minimal and would not deplete groundwater supplies. It is anticipated drought tolerant/native landscaping would be used. The substation would be unmanned and water usage for sanitary requirements in the permanent restroom that would be installed for FBO would be minimal. Long-term groundwater usage, if a groundwater well is installed, is expected

to be minimal. SCE would comply with applicable ordinances and policies regarding the use of groundwater.

Ground surface improvements to the Proposed Desert View Substation include impervious surfaces such as the substation equipment foundations, cable trenches, bus enclosures, the block wall foundation and the external and internal driveways. IBO ground surface improvements also include pervious gravel surfacing that would encompass a majority of the substation site. Grading work at the site would include a SPCC retention or detention basin for on-site stormwater filtration prior to drainage. Retention or detention basins would promote recharge of on-site stormwater to the groundwater. Thus, the increase in impervious surfaces would not substantially alter the groundwater recharge capabilities of the Proposed Desert View Substation parcel.

Construction of the access roads for the Proposed Transmission Line Routes or Telecommunications Routes are not anticipated to include impervious surfaces but would recompact the soil beneath the roads resulting in some reduction in the groundwater recharge capability of those areas. However, access roads would be designed such that unabsorbed runoff would be directed to mimic non-disturbed drainage and infiltration patterns.

Therefore, less than significant impacts to the depletion and/or recharge of groundwater supplies are anticipated during operation of the Proposed Project.

Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

Construction Impacts

As discussed in the first CEQA criteria (construction impacts analysis of potential violation of water quality standards), SCE would be required to obtain coverage under the Statewide CGP from the SWRCB. Specific BMPs that reduce the potential for erosion and sediment transport such as silt fences, wattles, or gravel bags could be included in the SWPPP and utilized at active construction sites prior to storm events. These BMPs would be placed as-needed to prevent sediment from leaving the project work areas and entering off-site storm drain flow paths. BMPs would be used to minimize construction traffic tracking dirt onto adjacent roadways. Implementation of the SWPPP and associated BMPs would ensure that potential impacts from construction are less than significant.

Construction of the access roads for the Proposed Project may cross ephemeral drainages or man-made drainage ditches. SCE may propose temporary drainage structures such as wet crossings or pipe culverts to maintain the natural flow of surface stormwater runoff in the area for access during the rainy season and prevent or reduce erosion. If SCE determines that temporary or permanent drainage structures are necessary; an impact

analysis of jurisdictional waters[1] would be conducted. The appropriate agencies such as RWQCB, USACE, and CDFW would be consulted to determine permitting requirements and ensure proposed drainage improvements protect the integrity of the channel as required. If needed, SCE would seek a Section 401 Certification from the RWQCB, a Section 404 permit from the USACE, and a Section 1602 Streambed Alteration Agreement from the CDFW. Any drainage improvements are expected to cause only minimal alteration of surface water and would not impede or change the overall drainage pattern of the site which would result in substantial erosion or siltation.

Therefore, less than significant impacts are anticipated during the construction of the Proposed Project.

Operation Impacts

Currently, stormwater flows over the vacant land that occupies the Proposed Desert View Substation site. Drainage plans would be prepared as part of the ministerial grading permit application and submitted to San Bernardino County prior to construction. Grading work at the substation site could include an SPCC retention or detention basin for on-site stormwater filtration prior to drainage. Grading within the substation would drain at a minimum of 1 percent to channels outside of the substation. Areas outside of roads or structures at the Proposed Desert View Substation would also be surfaced with gravel as a source-control BMP, which would reduce erosion from stormwater events and sediment transport in surface stormwater flows. Current IBO and FBO design is to cover the majority of the Proposed Desert View Substation with gravel. Drainage channels would route water from the south to the north side of the substation and water would be released through dissipaters. Final engineering would include design features such as pervious gravel surfaces, a small proportion of impervious surfaces, retention or detention basins, and dissipaters. Implementation of these design features for the substation drainage would not significantly alter the drainage pattern that could result in substantial erosion or siltation on- or off-site. Drainage patterns would remain similar to pre-construction conditions.

Substation grading would not alter the natural flow of runoff in the general area surrounding the enclosed substation nor would it alter the course of a stream or river as the Proposed Desert View Substation Site is not within the banks of a named stream or river.

The construction activities along the Proposed Transmission Line Route would span drainages, but SCE would avoid placing structures within drainages to the greatest extent practicable. Final locations for transmission line structures would be selected following completion of final engineering using SCE's design and construction practices, standards and specifications, identification of field conditions, availability of material, equipment and compliance with applicable environmental and/or permitting requirements. The

[1] SCE contractor, BioResource Consultants has completed an initial jurisdictional delineation details of which are included the *Wetland and Other Waters Delineation Report* for Coolwater-Lugo, found in Appendix D.

transmission line structure with the largest foundation footprint is the double-circuit TSP, with a single concrete foundation of up to 13 feet in diameter and extending up to 4 feet above grade. Even if a TSP were located in a flood area, the footprint cross-sections of the foundation would not be a substantial portion of a typical braided stream desert wash found in the Mojave Desert region, and would not substantially alter the drainage pattern for the area or a stream or watercourse, or increase runoff in a manner that would result in erosion or siltation on or off site.

Typical construction activities associated with new roads generally include similar activities as described for the rehabilitation of existing unpaved roads, but may also include the following additional construction requirements that depend upon the existing land terrain. Detailed information regarding locations requiring drainage improvements would be provided after final engineering. Preliminary drainage improvements for the Proposed Project are described in Section 3.2.3.1, *Access and Spur Roads*.

In addition, following the completion of construction, areas that were temporarily disturbed by Proposed Project construction activities would be returned to as close to pre-construction conditions as feasible, or to previously agreed-upon conditions. Preliminary information for the Proposed Project is described in Section 3.5, *Post Construction Activities*.

As a result of the design features and BMPs discussed above, operation of the Proposed Project would not alter the existing drainage pattern of the area in a manner that would result in substantial erosion or siltation on or off site. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or a substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Construction Impacts

As discussed in the first CEQA criteria (construction impacts analysis of potential violation of water quality standards) SCE would be required to obtain coverage under the Statewide CGP.

Specific BMPs that reduce the potential for sediment transport such as sand bag barriers, straw bale barriers, silt fences, wattles, and gravel bags may be included in the SWPPP and used at active construction sites or prior to storm events. These BMPs would be utilized as needed to prevent sediment from leaving a construction site and entering off-site storm drain flow paths, and also to reduce the rate and amount of stormwater runoff. The SWPPP would be based on final engineering design and would include applicable project components. Implementation of the SWPPP and associated BMPs would ensure that potential impacts from construction of the Proposed Project are less than significant.

As discussed in the third CEQA criteria (construction impacts analysis of alteration of a drainage course resulting in substantial erosion), construction of the access roads for the Proposed Transmission Line Route or Telecommunications Routes may cross ephemeral drainages or man-made drainage ditches. For example, construction activities associated with the Proposed Transmission Line Segment 7 will require the removal of the two existing transmission lines and associated structures located in the Mojave River area. If access road construction crosses ephemeral drainages or ditches, SCE may propose to install temporary or permanent drainage structures. If these drainage structures are necessary for access road construction, an evaluation would be conducted to determine if alteration of jurisdictional watercourses are necessary for access road construction, and appropriate agencies would be consulted to determine permitting requirements. If needed, SCE would seek appropriate agency approval(s).

Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

As discussed in the first CEQA criteria (operation impacts analysis of potential violation of water quality standards), drainage plans would be prepared as part of the ministerial grading permit application and submitted to San Bernardino County prior to construction. Current IBO and FBO design is to cover the majority of the Proposed Desert View Substation with gravel which would not alter the drainage pattern; however the minor proportion of impervious surface at FBO would increase the rate of surface stormwater flow. Grading work at the Proposed Desert View Substation site could include a retention or detention basin for on-site stormwater filtration/infiltration prior to drainage. Drainage channels would route water from the south to the north side of the substation and water would be released through dissipaters. The dissipaters would reduce the rate of stormwater runoff. Although the drainage plans have not been prepared, the combination of design features including pervious gravel surfaces, small proportion of impervious surfaces, retention or detention basins and dissipaters would not significantly increase the overall rate or quantity of stormwater runoff from the Proposed Desert View Substation site. Drainage patterns and quantities would remain similar to pre-construction conditions.

The substation grading would not alter the natural flow of runoff in the general area surrounding the enclosed substation, nor would it alter the course of a stream or river as the Proposed Desert View Substation site is not with the banks of a named stream or river. As a result, operation of the substation would not substantially alter the existing drainage pattern of the site or area or produce a substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on or off site.

Construction of the Proposed Transmission Line Routes or Proposed Telecommunications Routes would span drainages; SCE would avoid placing structures within drainages to the greatest extent practicable. Final locations for transmission line structures would be selected following completion of final engineering using SCE's design and construction practices, standards and specifications, identification of field

conditions, availability of material, equipment and compliance with applicable environmental and/or permitting requirements. Should a Proposed Transmission Line Route structure be located in a flood area, the footprint cross-sections of the foundation would not be a substantial portion of a typical braided stream desert wash found in the Mojave Desert region. Thus, a Proposed Transmission Line Route structure would not substantially alter the drainage pattern for the area or a stream or watercourse, or increase runoff in a manner that would result in flooding on or off site. Following construction completion, the underground portions of the Proposed Telecommunication Routes would be returned to pre-construction drainage patterns.

As discussed in the third CEQA criteria (construction impacts analysis of potential substantial alteration of drainage patterns, typical construction of new roads for the Proposed Transmission Line Route or Telecommunications Routes generally would include construction requirements that depend on the existing land terrain. Additional information regarding drainage improvements for the Proposed Project is described in Section 3.2.3.1, *Access and Spur Roads*. Detailed information regarding locations requiring drainage improvements would be provided after final engineering.

As discussed in the third CEQA criteria (construction impacts analysis of potential substantial alteration of drainage patterns, following the completion of construction, areas that were temporarily disturbed by Proposed Project construction activities would be stabilized or restored in accordance with the SWPPP(s) and other permit requirements.

Project design and BMPs would ensure that operation of the Proposed Project would not alter the existing drainage pattern of the area in a manner that would result in substantial flooding on or off site. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project create or contribute to runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Construction Impacts

As discussed in the first CEQA criteria (construction impacts analysis of potential violation of water quality standards), with implementation of the SWPPP and associated BMPs as required by the CGP, the Proposed Project would not create or contribute a substantial quantity of new or polluted runoff water.

As discussed in the first CEQA criteria (construction impacts analysis of potential violation of water quality standards), any accidental spill during construction would be immediately addressed as outlined in the SWPPP BMPs. A further discussion of impacts associated with accidental spills and storage of hazardous materials during construction can be found in Section 4.8, *Hazards and Hazardous Materials*. Any sanitary waste produced during construction (e.g., from portable toilets) would be disposed of according to applicable laws, rules, and regulations.

In addition, implementation of the WEAP, as described in Section 3.9, *Worker Environmental Awareness Training*, would provide site personnel with instruction on the individual responsibilities under the CWA, the project SWPPP, and site-specific BMPs.

As discussed in the third CEQA criteria (construction impacts analysis of potential substantial alteration of drainage patterns), construction of the access roads for the Proposed Transmission Line Route segments may cross ephemeral drainages or man-made drainage ditches. If this is the case, SCE may propose to install temporary or permanent drainage structures. If SCE determines the temporary or permanent impacts to jurisdictional waters are necessary, an impact analysis would be conducted. The appropriate agencies would be consulted and if needed, SCE would seek appropriate certifications and/or permits.

Incorporation of the BMPs outlined in the SWPPP would ensure that potential impacts from construction of the Proposed Project would not exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

As discussed in the first CEQA criteria (operation impacts analysis of potential violation of water quality standards), drainage plans would be prepared as part of the ministerial grading permit application and submitted to San Bernardino County prior to construction of the Proposed Desert View Substation. Drainage patterns would remain similar to pre-construction conditions. Substation grading would not alter the natural flow of runoff in the general area surrounding the enclosed substation.

The operation of the substation is likely to include the use and storage of transformer oil on site that would likely require SCE to prepare and implement an SPCC plan for the site. SPCC measures include the installation of secondary containment, curbs, berms, and basins designed to contain spills, should they occur. Additional discussion of impacts associated with the storage and use of hazardous materials during operation of the Proposed Project and standards for the SPCC plan can be found in Section 4.8, *Hazards and Hazardous Materials*. The SPCC measures would be part of SCE's final engineering design for the Proposed Project and would minimize the potential for hazardous materials to migrate off site.

Therefore, operation of the substation would not substantially alter the existing drainage pattern of the site or area or produce a substantial increase in the rate or amount of surface runoff in a manner which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

As discussed in the third CEQA criteria (operation impacts analysis of potential substantial alteration of a drainage course), the construction of the Proposed Transmission Line Route would span drainages, and although SCE would avoid placing structures within drainages to the greatest extent practicable, final locations would

consider SCE's design and construction practices as well as applicable environmental and/or permitting requirements. Since a transmission line structure foundation cross-section would not be a substantial portion of a typical desert wash the drainage pattern for the area or a stream or watercourse would not be substantially altered that would result in a substantial increase in the runoff exceeding the capacity of existing or planned stormwater drainage systems.

As discussed in the third CEQA criteria (operation impacts analysis of potential substantial alteration of a drainage course), typical construction activities associated with new roads for the Proposed Transmission Line Route or Proposed Telecommunication Routes are dependent upon the existing land terrain. Additional activities such as clearing and grubbing, and constructing drainage improvements may be required, depending on whether the terrain is flat, rolling or mountainous. Detailed information regarding locations requiring drainage improvements would be provided after final engineering. In addition, following the completion of construction, areas that were temporarily disturbed by Proposed Project construction activities would be returned to as close to pre-construction conditions as feasible, or to previously agreed-upon conditions. Operation of the Proposed Project would not alter the existing drainage pattern of the area in a manner that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project otherwise substantially degrade water quality?

Construction Impacts

As discussed in the first CEQA criteria (construction impacts analysis of potential violation of water quality standards), following implementation of BMPs and design features, there are no construction activities that have the potential to substantially degrade water quality. Prior to construction, SCE would secure appropriate permits for construction-related activities, including the Statewide CGP, and if required, Sections 401 and 404 permits. Implementation of the SWPPP, permit conditions, and WEAP would further minimize potential risk to water quality. Uses of hazardous materials at the site and spill hazards are discussed in Section 4.8, *Hazards and Hazardous Materials*, but with implementation of BMPs, the Proposed Project is not expected to pose a substantial threat or hazard to water quality degradation. Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

As discussed in the first CEQA criteria (operation impacts analysis of potential violation of water quality standards), following implementation of BMPs and design features, operation of the Proposed Project would not substantially degrade water quality.

Implementation of the SPCC Plan would address the proper management of hazardous materials in order to avoid uncontrolled releases that may impact water quality. Uses of hazardous materials at the site and spill hazards reduction procedures during operation

are discussed in Section 4.8, *Hazards and Hazardous Materials*, and would be further discussed in the SPCC Plan, as required. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

Construction Impacts

The scope of the Proposed Project does not include housing. The construction activities associated with the Proposed Project would not place housing within a 100-year floodplain, as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. Therefore, no impacts are anticipated during construction of the Proposed Project.

Operation Impacts

The scope of the Proposed Project does not include housing. The operational activities associated with the Proposed Project would not place housing within a 100-year floodplain, as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. Therefore, no impacts are anticipated during operation of the Proposed Project.

Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

Construction Impacts

The Proposed Desert View Substation and a majority of the Proposed Transmission Line Route and Telecommunication Routes are located outside of the 100-year flood hazard and DWR flood awareness areas. However, some segments of the Proposed Transmission Line Route and Telecommunication Routes cross through 100-year flood hazard area or DWR flood awareness areas (Figure 4.9-2, *Flood Hazard Areas*). Construction activities associated with the Proposed Transmission Line Segment 7 would also require the removal of the two existing transmission lines and associated structures located in the Mojave River area. In the event that structures are placed within a 100-year flood hazard area, they would be adjusted or designed to applicable standards so as not to impede or redirect potential flood flows.

As discussed in the third CEQA criteria (construction impacts analysis for substantial alteration of the existing drainage pattern criteria), construction of the access roads for the transmission line or telecommunication line may cross ephemeral drainages or man-made drainage ditches. If this is the case, SCE may propose to install temporary or permanent drainage structures. If SCE determines that temporary or permanent impacts to jurisdictional waters are necessary, an impact analysis would be conducted. The appropriate agencies such as RWQCB, USACE, and CDFW would be consulted. If needed, SCE would obtain the applicable agency approvals.

Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

The Proposed Desert View Substation and a majority of the Proposed Transmission Line Route and Telecommunication Line Routes are located outside of the 100-year flood hazard and DWR flood awareness areas. However some segments of the Proposed Transmission Line Route and Telecommunication Routes cross through 100-year flood hazard or DWR flood awareness areas. The construction of the transmission lines or telecommunication lines would minimize impacts to drainages, and SCE would avoid placing structures within drainages to the greatest extent practicable. Final locations for transmission line structures would be selected following completion of final engineering using SCE's design and construction practices, standards and specifications, identification of field conditions, availability of material, equipment and compliance with applicable environmental and/or permitting requirements. Should a transmission line structure be located in a flood area, the footprint cross-sections of the foundation would not be a substantial portion of a typical braided stream desert wash found in the Mojave Desert region. Furthermore, any structures placed within 100-year floodplain boundaries would be designed per applicable floodplain development guidelines. Thus, a transmission line structure would not substantially alter the drainage pattern for the area or a stream or watercourse, nor impede or redirect flood flows. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Construction Impacts

Dam inundation areas within the Proposed Project area follow the Mojave River and extend slightly beyond the FEMA limits for a 100-year flood. The Proposed Desert View Substation is not located in an area with a risk from dam inundation. Proposed Transmission Line Segment 7 crosses through the dam inundation areas found along the Mojave River.

As discussed in the preceding CEQA criteria (construction impacts analysis for placement of structures within a 100-year flood hazard area criteria), construction of the access roads for Segment 7 may cross ephemeral drainages or man-made drainage ditches. Since the limits for the dam inundation area include and are immediately adjacent to the 100-year flood hazard area, the actions that SCE would implement for work within the 100-year flood hazard area would apply to construction within the dam inundation area. As discussed in the preceding CEQA criteria (construction impacts analysis for placement of structures within a 100-year flood hazard area criteria), this may include adjustment of structure location, installing temporary or permanent drainage structures, impact analysis of jurisdictional waters, or obtaining appropriate permits. Construction activities associated with the Proposed Transmission Line Segment 7 would

also require the removal of the two existing transmission lines and associated structures located in the Mojave River area. Construction activities that may be required in a dam inundation area would be performed in accordance with the SWPPP.

Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

As discussed in the preceding CEQA criteria (operational impacts analysis for placement of structures within a 100-year flood hazard area criteria), the Proposed Transmission Line Route would cross drainages including the Mojave River. Final locations for transmission line structures would be selected after final engineering using SCE's design and construction practices, standards and specifications, identification of field conditions, availability of material, equipment and compliance with applicable environmental and/or permitting requirements. The transmission line structure with the largest foundation footprint is the double-circuit TSP that has a single concrete foundation of up to 13 feet in diameter and extends up to 4 feet above grade. Even if a TSP were located in the dam inundation flood area in the Mojave River, the foundation cross-section would be an insignificant portion of the entire width of the Mojave River. This portion of Proposed Transmission Line Segment 7 would replace two existing 220 kV lines that currently cross the Mojave River with a single 500 kV line (energized at 220 kV), and thus the potential impacts relating to flooding are expected to be equal to or less than the current conditions.

The transmission line structures would not substantially alter the drainage pattern or characteristics for the Mojave River in a way that would expose people or structures to a significant risk of loss, injury or death involving flooding from dam failure. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?

Construction Impacts

The nearest lake to the Proposed Project is Silverwood Lake, which is approximately 7 miles upstream of Proposed Transmission Line Segment 7. Any flood water from a seiche event that left Silverwood Lake would be expected to flow in the Mojave River similar to water generated from a dam inundation event. The Proposed Desert View Substation is not located in an area with a risk from dam inundation. Segment 7 crosses through the dam inundation areas along the Mojave River. However, a seiche event from Silverwood Lake would not be expected to impact the construction of Segment 7. Flood control measures available along the Mojave River, including the Mojave Forks Dam, would be expected to be able to contain the potential seiche overflow water from Silverwood Lake.

The Proposed Project is more than 70 miles from the Pacific Ocean and is not located in an area that has been delineated as being within the projected run up height of tsunamis (State of California 2009).

The Proposed Desert View Substation and the Proposed Telecommunication Routes are not located in an area either in or immediately down gradient of areas with steep slopes and would not be susceptible to impacts from mudflows. Portions of the Proposed Project Transmission Line Route Segments 1, 2, 5, and 7 cross steep mountainous terrain and would have a risk from mudflows if a fire removed vegetation and ground cover in these areas. Construction of the access roads for the transmission line may cross ephemeral drainages or man-made drainage ditches in areas of steep terrain. If this is the case, SCE may propose to install temporary or permanent drainage structures such as wet crossings or pipe culverts to maintain the natural flow of surface stormwater runoff in the area that would also direct the force of a mudflow. Construction could also include benched grading, drainage improvements, and slope stability improvements. These types of improvements would reduce the risk of slope failure and mudflow extending into the construction areas. Detailed information regarding locations requiring cut and fill, benched grading and/or drainage improvements would be determined as part of final engineering. These additional improvements would be installed during construction and would protect people and structures from a significant risk of loss, injury or death involving inundation by mudflow.

Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

As discussed in the preceding CEQA criteria (operational impacts analysis for placement of structures within a 100-year flood hazard area criteria), Segment 7 would cross the Mojave River drainage. Final locations for transmission line structures would be selected following completion of final engineering using SCE's design and construction practices, standards and specifications, identification of field conditions, availability of material, equipment and compliance with applicable environmental and/or permitting requirements. Even if a transmission line structure were located in the dam or/seiche inundation flood area in the Mojave River, the cross-section of the foundation would be an insignificant portion of the entire width of the Mojave River. Thus, Segment 7 would not substantially alter the drainage pattern or characteristics for the Mojave River, and would not expose people or structures to a significant risk of loss, injury or death involving flooding from seiche failure.

The Proposed Project is more than 70 miles from the Pacific Ocean and is not located in an area that has been delineated as being within the projected run up height of tsunamis (State of California 2009).

The Proposed Desert View Substation and the Proposed Telecommunication Routes are not located in an area either in or immediately down gradient of areas with steep slopes and so would not have a significant risk from mudflows. Portions of the Proposed Project

Transmission Line Route Segments 1, 2, 5, and 7 cross steep mountainous terrain and would have a risk from mudflows if a fire removed vegetation and ground cover in these areas. Construction that could include benched grading, drainage improvements and slope stability improvements would reduce and stabilize the slopes in the immediate work areas and reduce the risk of mudflow extending to the locations of transmission line route structures. Final locations for transmission line structures would be selected following completion of final engineering using SCE's design and construction practices, standards and specifications, identification of field conditions, availability of material and equipment, and compliance with applicable environmental and/or permitting requirements. These measures would protect structures from a significant risk of loss involving inundation by mudflow.

Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

4.9.4.2 NEPA Impact Assessment

Based on the analysis performed, it is anticipated that the Project would not result in significant effects under NEPA.

4.9.5 Applicant Proposed Measures

No potentially significant impacts on hydrology and water quality are expected from the Proposed Project; therefore no applicant proposed measures related to hydrology and water quality are identified.

4.9.6 Alternative Project

As described in Section 3.14, *Project Alternatives,* either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Route, but not both. Separate impact analyses are provided for these two scenarios.

4.9.6.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation, Alternative Transmission Line Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6, and Alternative Apple Valley to Desert View and Gale to Pisgah Telecommunications Routes.

There are no substantial differences in hydrological settings between the Proposed and Alternative Desert View Substation locations. Both locations are relatively flat areas and not subject to flooding from a 100-year event or within a DWR flood awareness area. Potential impacts from the construction and operation of the Alternative Desert View Substation would be the same as those discussed in preceding construction and operation impacts analysis for all CEQA significance criteria for the Proposed Desert View Substation.

Similarly, the alternative routes for the Transmission Line Routes do not have substantial differences in hydrological settings. Both the Proposed and Alternative routes for the transmission lines cross the Mojave River and cross or are within DWR flood awareness areas and dam inundation areas along the Mojave River. Construction activities in the vicinity of the Mojave River for Alternative Transmission Line Segment 6 would not require removal of existing structures in the Mojave River area, as would be required for Proposed Transmission Line Segment 7. In addition, both the proposed and alternative routes for the transmission lines cross steep mountainous terrain and would have a similar risk from mudflows if a fire removed vegetation and ground cover in these areas. Potential impacts from the construction or operation of the Alternative Transmission Line Route would be the same as those discussed in preceding construction and operation impacts analysis for all CEQA significance criteria for the Proposed Transmission Line Route.

4.9.6.2 Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, Alternative Transmission Line Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and Alternative Apple Valley to Desert View and Gale to Pisgah Telecommunication Routes.

There would be no substantial difference in impacts to hydrology and water quality between the use of Segment 9 or Segment 10. Impacts associated with the Alternative Project with Segment 10 would be similar to those of the Proposed Project and the Alternative Project with Segment 9. Therefore less than significant impacts are anticipated for the construction or operation of the Alternative Project with Segment 10.

4.9.7 References

American Legal Publishing Corporation. (2010). Section 82.03.070 FW Land Use Zoning District Additional Standards.

California Department of Water Resources (DWR). (1967). Mojave River Ground-Water Basins Investigation: California Department of Water Resources Bulletin 84.

California DWR. (2004). California's Groundwater Bulletin 118 Update. Last updated February 27, 2004.

California DWR. (2012). Interactive Map Depicting Flood Awareness Areas, 2012. Retrieved from http://gis.bam.water.ca.gov/bam

California Storm Water Quality Association. (2009). Construction BMP Handbook.

City of Hesperia. (2005). Instructions for the Grading Permit.

City of Hesperia. (2010). Background Technical Reports for the City of Hesperia General Plan, 2010.

Colorado River Regional Water Quality Control Board (RWQCB). (2006). Colorado River Region, Regional Water Quality Control Board, Water Quality Control Plan for the Colorado River Basin Region. Adopted June 2006.

Eccles, L.A. (1981). Ground-Water Quality along the Mojave River near Barstow, California, 1974-79. U.S. Geological Survey Water-Resources Investigations Report 80-109.

Federal Emergency Management Agency (FEMA). (2012). Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps, 06071C6515H, 06071C7225H. Retrieved from https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1

Hardt, W.F. (1969). Mojave River Basin Ground-Water Recharge, With Particular Reference to the California Floods of January and February 1969. U. S. Geological Survey Open-File Report.

Lahontan Regional Water Quality Control Board. 2005. Lahontan Region, Regional Water Quality Control Board, Water Quality Control Plan for the Lahontan Region, North and South Basins, Retrieved from http://www.swrcb.ca.gov/lahontan/

Lahontan Regional Water Quality Control Board (RWQCB). (2012). General information. Retrieved from http://www.swrcb.ca.gov/lahontan/about_us/overview.shtml

Lines, G.C. (1996). Ground-Water and Surface-Water Relations along the Mojave River, Southern California: U.S. Geological Survey Water-Resources Investigations Report 95-4189.

Mojave Water Agency (MWA). (2012). Mojave Water Agency, Alto East, Alto West, Baja and Este Hydrographs February 2012; map of Water Delivery Facilities, not dated; and online information. Retrieved from http://www.mojavewater.org/

Robson, S.G. (1974). Feasibility of Digital Water-Quality Modeling at Barstow, California. U.S. Geological Survey Water-Resources Investigations Report 46-73.

San Bernardino County. (2005a). Land Use Plan, General Plan, Hazard Overlay Maps. Retrieved from http://www.sbcounty.gov/landuseservices/General%20Plan%20Update/Mapping/Default.asp

San Bernardino County. (2005b). Grading Permit Information, June, 2005. Retrieved from http://cms.sbcounty.gov/lus/BuildingSafety/Permits.aspx

San Bernardino County. (2012). 2007 Development Code, amended April 26, 2012.

San Bernardino County Department of Public Works. (2007). Flood Control Operations: Encroachment Permit Information. Retrieved from http://sbcounty.gov/dpw/floodcontrol/fc_operations.asp

Stamos, C.L., P. Martin, T. Nishikawa, and B. F. Cox. (2001). Simulation of Ground-Water Flow in the Mojave River Basin, California: U.S. Geological Survey Water-Resources Investigations Report 01-4002.

Stamos, C.L., and S.K. Predmore. (1995). Data and Water-Table Map of the Mojave River Ground-Water Basin, San Bernardino County, California, November 1992: U.S. Geological Survey Water-Resources Investigations Report 95-4148.

State of California. (2009). Tsunami Inundation Map for Emergency Planning. Retrieved from http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/Pages/Statewide_Maps.aspx

State of California. (2010). Fact Sheet on California's Rainy Season.

State Water Resources Control Board (SWRCB). (2010). List of 303(d) Impaired Waterways. Retrieved from http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtm

SWRCB. (2012). 2009-0009-DWQ as amended by 2010-0014-DWQ and 2012-0006-DWQ. Retrieved from http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

SWRCB. *See* State Water Resources Control Board.

Town of Apple Valley. (2010). Town of Apple Valley General Plan. Prepared by Terra Nova, Environmental Hazards, Flooding and Hydrology Element, 2008.

U.S. Army Corps of Engineers (USACE). (2012). Nationwide Permit information. Retrieved from http://www.usace.army.mil/Portals/2/docs/civilworks/nwp/2012/NWP2012_sumtable_15feb2012.pdf

U.S. Geological Survey (USGS). (2006). Mojave Water Resources, Water-Level and Land-Subsidence Studies in the Mojave River and Morongo Groundwater Basins.

4.10 Land Use and Planning

This section describes the existing land use and planning in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). It analyzes potential conflicts with existing applicable land use plan and policies associated with construction and operation of the Proposed Project and Alternative Project.

4.10.1 Environmental Setting

This discussion describes the existing and designated land uses and zoning in the Coolwater-Lugo area. Coolwater-Lugo would be located in the Town of Apple Valley; in the cities of Barstow and Hesperia; in unincorporated San Bernardino County, including the unincorporated communities of Lucerne Valley, Daggett, and Newberry Springs; on U.S. Bureau of Land Management ("BLM") lands; and, on California State Lands Commission owned lands.

The Proposed and Alternative Desert View Substation sites are each located in unincorporated San Bernardino County, near the junction of Proposed and Alternative Transmission Line Segment 5, Alternative Segment 6, and Proposed Segment 7. The Proposed Substation is located on the north side of Desert View Road, between Lagartijo Drive and Laguna Seca Drive, and would be approximately 86 acres. The Alternative Substation is located approximately 0.5 mile west of the Proposed Substation, on the north side of Desert View Road, between Japatul Road and Bellview Avenue, and would be approximately 82 acres.

Most of the Coolwater-Lugo transmission lines would be in or directly adjacent to existing utility corridors (Segments 1, 5, 6, 7, 9, 11, and 12). Proposed Transmission Line Segment 1 would start at the south end of Proposed and Alternative Transmission Line Segment 12 and extend southwest parallel to the Los Angeles Department of Water and Power ("LADWP") utility corridor. Proposed and Alternative Transmission Line Segment 2 would extend southeasterly from Segment 1 toward State Route 247 ("SR-247"). It would be located in unincorporated San Bernardino County, on BLM lands, on regional or private lands, and on State of California lands. Proposed Transmission Line Segment 3 would run southerly along SR-247. Alternative Transmission Line Segment 4 would run parallel to Segment 3 approximately 0.5 mile west of SR-247 at the base of White Horse Mountain. It is an alternative to Segment 3. From Lucerne Valley, Proposed and Alternative Segment 5, Alternative Segment 6, and Proposed Segment 7 would run along existing utility corridors that currently have 220 kV and/or 500 kV transmission lines and terminate at the Lugo Substation in Hesperia. Alternative Transmission Line Segment 6 is an alternative to Proposed Transmission Line Segment 7. Alternative Transmission Line Segments 9, 10, and 11 would extend from the Coolwater Switchyard in a westerly direction until they intersect with SR-247. Alternative Transmission Line Segment 8 would travel in a southwesterly direction west of SR-247 through the BLM's Stoddard Valley Off-Highway Vehicle Area. Alternative Segment 9 is an alternative to Alternative Segment 10. Segments 9 and 11 would be located adjacent to an existing 115 kV transmission line. Alternative Transmission Line Segment 9 would traverse a portion of the Marine Corps Logistic Base ("MCLB") Barstow. Proposed and Alternative Transmission Line Segment 12 would extend south from Coolwater Switchyard along an existing transmission line to the LADWP utility corridor.

Existing general plan land use designations in the Coolwater-Lugo area are shown in Figure 4.10-1, *General Plan* and in Table 4.10-1, *General Plan Land Use and Zoning Designations*. Existing zoning in the Coolwater-Lugo area is shown in Figure 4.10-2, *Zoning* and in Table 4.10-1, *General Plan Land Use and Zoning Designations.* Please note, the data for these figures are from the County of San Bernardino and SANBAG, and the figures generally show the designations for all jurisdictions. For specific designations within each jurisdiction, please refer to Table 4.10-1.

Table 4.10-1 General Plan Land Use and Zoning Designations

Project Component	Jurisdiction	GP Land Use Designation	Zoning
Desert View Substation	San Bernardino County	Residential	Residential, RL-10-SCp; Rural Living-10; Sign Control Overlay
Transmission Lines			
Segment 1	San Bernardino County	Open Space	Open-NonDev; RC-Resource Conservation
Segment 2	San Bernardino County	Open Space	Open-NonDev; RC-Resource Conservation
Segment 3	San Bernardino County	Rural Living Residential, Agriculture, Open Space	Residential, RL-2.5 Rural Living-2.5; Agriculture AG-40
Segment 4	San Bernardino County	Rural Living Residential, Agriculture, Open Space	Residential, RL Rural Living; Residential, RL-2.5; Agriculture AG-40; Agriculture, AG-SCp; Agriculture-Sign Control Overlay Open-NonDev; RC-Resource Conservation;
Segment 5	San Bernardino County	Rural Living Residential, Agriculture, Open Space	Residential, RL-10-SCp; Rural Living-10, Sign Control Overlay; Residential, RL-2.5 Rural Living-2.5 Utilities, FW-Floodway Open-NonDev; RC-SCp-Resource Conservation Sign Control Overlay; Residential RS-1-Scp Single Residential

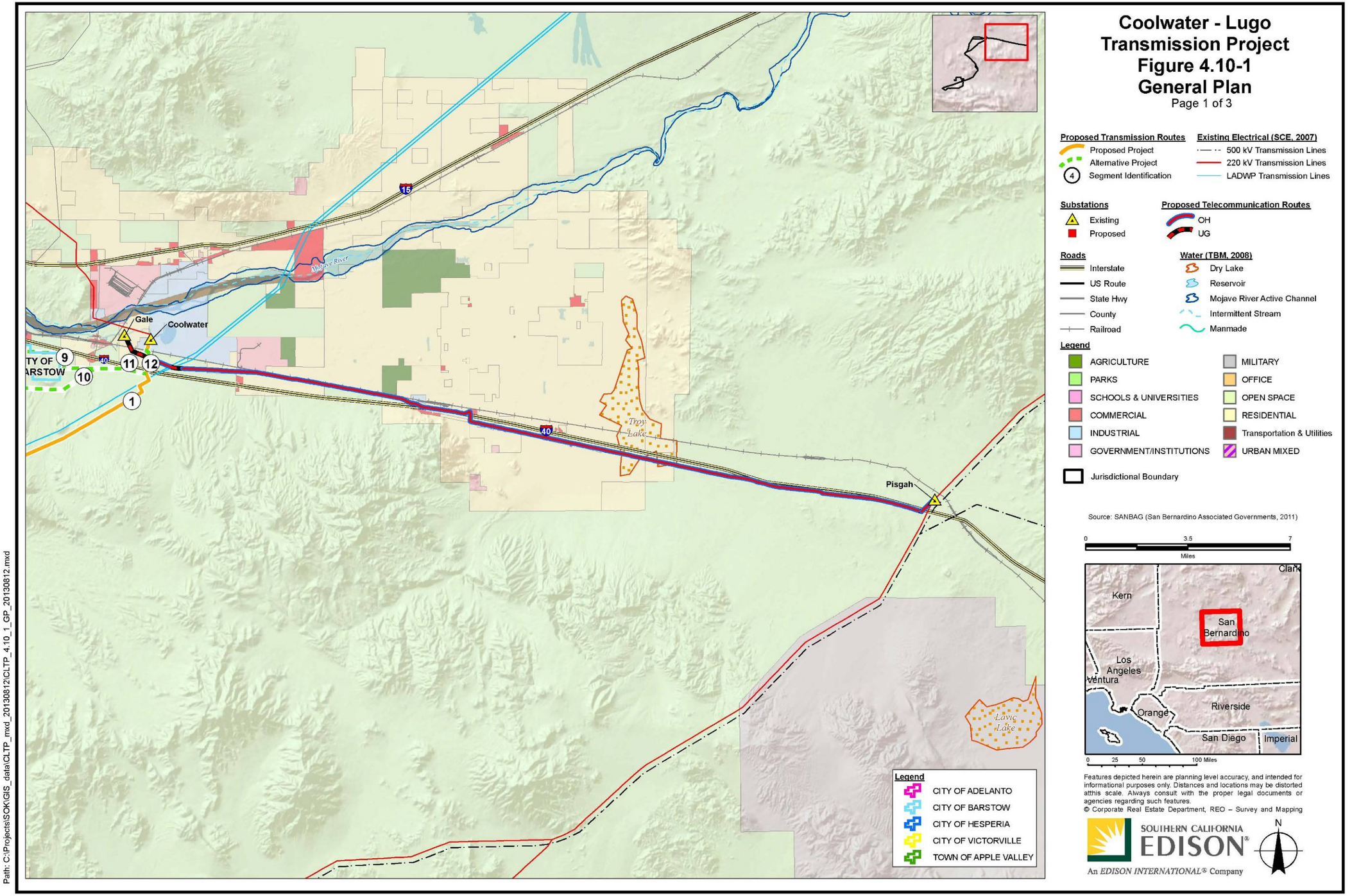
Table 4.10-1 General Plan Land Use and Zoning Designations

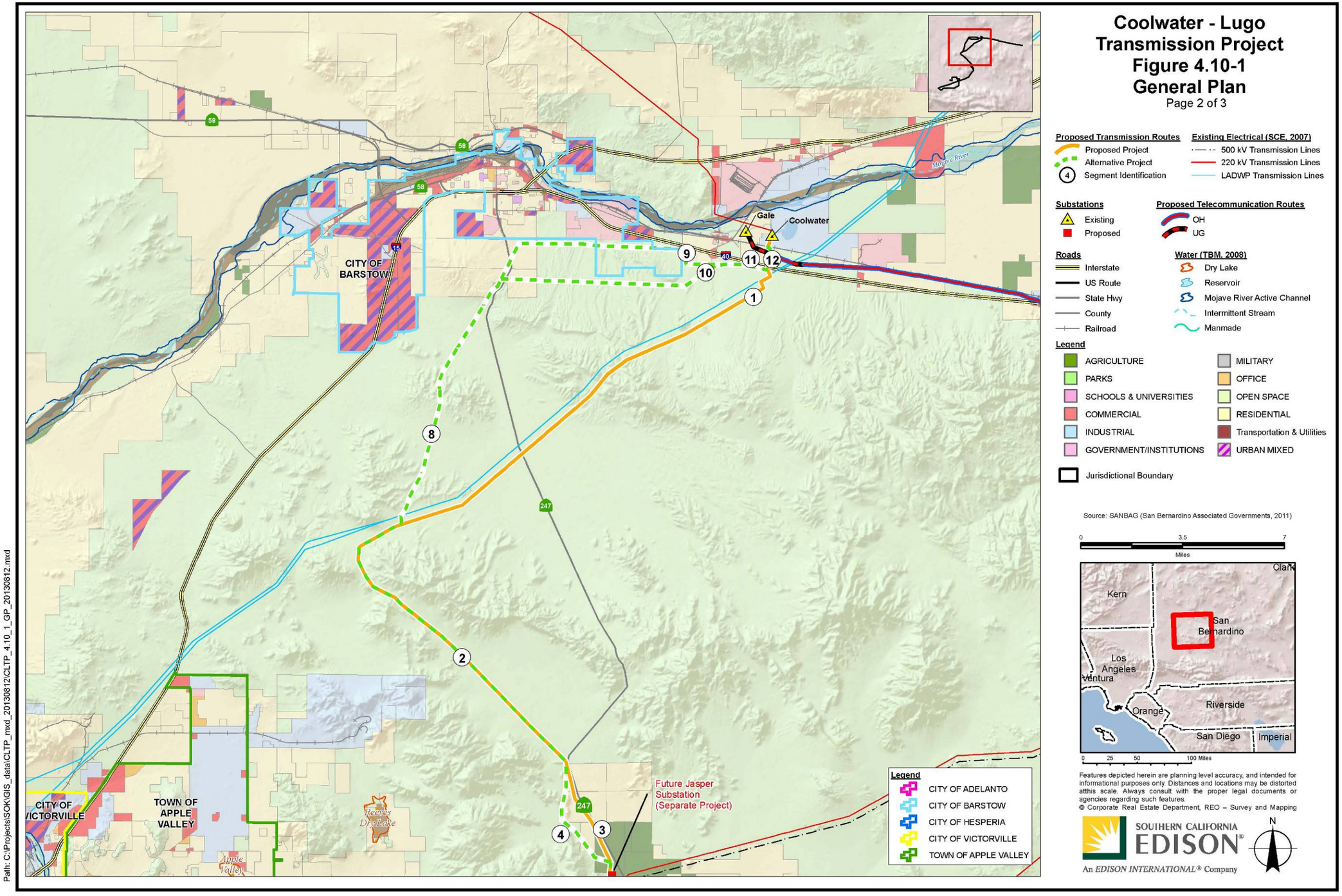
Project Component	Jurisdiction	GP Land Use Designation	Zoning
Segment 6	San Bernardino County City of Hesperia	Rural Living Residential, Residential, Open Space, Transportation/Railroad Corridor, Urban Mixed, Utilities	Residential, RL-20 Rural Living-20 Open-NonDev; RC-Resource Conservation; SP-89-01 Rancho Los Flores Specific Plan
Segment 7	San Bernardino County City of Hesperia	Rural Living Residential, Residential, Agriculture, Transportation/Railroad Corridor, Utilities	Residential, RL Rural Living; Residential, R-SCp; Rural Living Sign Control Overlay Residential, RL-1-SCp); Rural Living-1, Sign Control Overlay; Agriculture, AG-SCp, Sign Control Overlay UC-Utility Corridor passing through Residential R1-18000 (2.1-2.4 du/ac), Rural Residential RR-1 (0.41-1.0 du/ac) and Agriculture A1-2 ½ (0.21-0.4 du/ac)
Segment 8	San Bernardino County	Open Space, Rural Living Residential	Open-NonDev, R-C Resource Conservation; Residential, RL Rural Living; Residential, RL-40 Rural Residential-40
Segment 9	City of Barstow (MCLB), San Bernardino County	Military, Open Space, Rural Living Residential	Military Zone District (MZ); Residential, RL Rural Living; Open-NonDev, R-C Resource Conservation; Residential, RL-40 Rural Residential-40
Segment 10	San Bernardino County	Open Space, Rural Living Residential	Residential, RL Rural Living; Open-NonDev, R-C Resource Conservation
Segment 11	San Bernardino County	Open Space	Open-NonDev, R-C Resource Conservation

Table 4.10-1 General Plan Land Use and Zoning Designations

Project Component	Jurisdiction	GP Land Use Designation	Zoning
Segment 12	San Bernardino County	Open Space, Rural Living Residential, General Industrial	Residential, Rural Living
Telecommunication Route (Apple Valley to Desert View)	Town of Apple Valley	Rural Living Residential, Residential, Agriculture, K-12 Schools, General Commercial, Urban Mixed	General Commercial (C-G); Service Commercial (C-S); Mixed-Use (M-U); Public Facilities (P-F); Multi-Family Residential (R-M, 2-20 du/net ac); Single-Family Residential (R-SF, 1 du/0.4 to 0.9 net ac); Residential, RL Rural Living; Equestrian Residential (R-EQ, 1 du/0.4 to 0.9 net ac); Residential Agriculture (R-A, 1 du/2.5 gross ac); Specific Plan (SP)
Telecommunication Route (Gale to Pisgah)	San Bernardino County	Open Space, Rural Living Residential, Residential, Agriculture, General Commercial, Institutions/ Government, Light Industrial, Other Retail/Service	

Note: Temporary material staging yards would be included as part of the Project for construction purposes. Necessary ministerial permits would be obtained for the staging yards.


Coolwater - Lugo
Transmission Project
Figure 4.10-1
General Plan
Page 1 of 3
Proposed Transmission Routes
Proposed Project
Alternative Project
4 Segment Identification
Existing Electrical (SCE, 2007)
500 kV Transmission Lines
220 kV Transmission Lines
LADWP Transmission Lines
Substations
Existing
Proposed
Proposed Telecommunication Routes
OH
UG
Roads
Interstate
US Route
State Hwy
County
Railroad
Water (TBM, 2008)
Dry Lake
Reservoir
Mojave River Active Channel
Intermittent Stream
Manmade
Legend
AGRICULTURE
PARKS
SCHOOLS & UNIVERSITIES
COMMERCIAL
INDUSTRIAL
GOVERNMENT/INSTITUTIONS
MILITARY
OFFICE
OPEN SPACE
RESIDENTIAL
Transportation & Utilities
URBAN MIXED
Jurisdictional Boundary
Source: SANBAG (San Bernardino Associated Governments, 2011)
0 3.5 7
Miles
Clark
Kern
San Bernardino
Los Angeles
Ventura
Orange
Riverside
San Diego
Imperial
0 25 50 100 Miles
Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.
© Corporate Real Estate Department, REO – Survey and Mapping
SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company
N
Gale
Coolwater
Pisgah
Mojave River
Troy Lake
Lavic Lake
15
40
1
9
10
11
12
Legend
CITY OF ADELANTO
CITY OF BARSTOW
CITY OF HESPERIA
CITY OF VICTORVILLE
TOWN OF APPLE VALLEY
Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.10_1_GP_20130812.mxd



Coolwater - Lugo Transmission Project
Figure 4.10-1
General Plan
Page 2 of 3

Proposed Transmission Routes
- Proposed Project
- Alternative Project
- 4 Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- County
- Railroad

Water (TBM, 2008)
- Dry Lake
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Legend
- AGRICULTURE
- PARKS
- SCHOOLS & UNIVERSITIES
- COMMERCIAL
- INDUSTRIAL
- GOVERNMENT/INSTITUTIONS
- MILITARY
- OFFICE
- OPEN SPACE
- RESIDENTIAL
- Transportation & Utilities
- URBAN MIXED
- Jurisdictional Boundary

Source: SANBAG (San Bernardino Associated Governments, 2011)

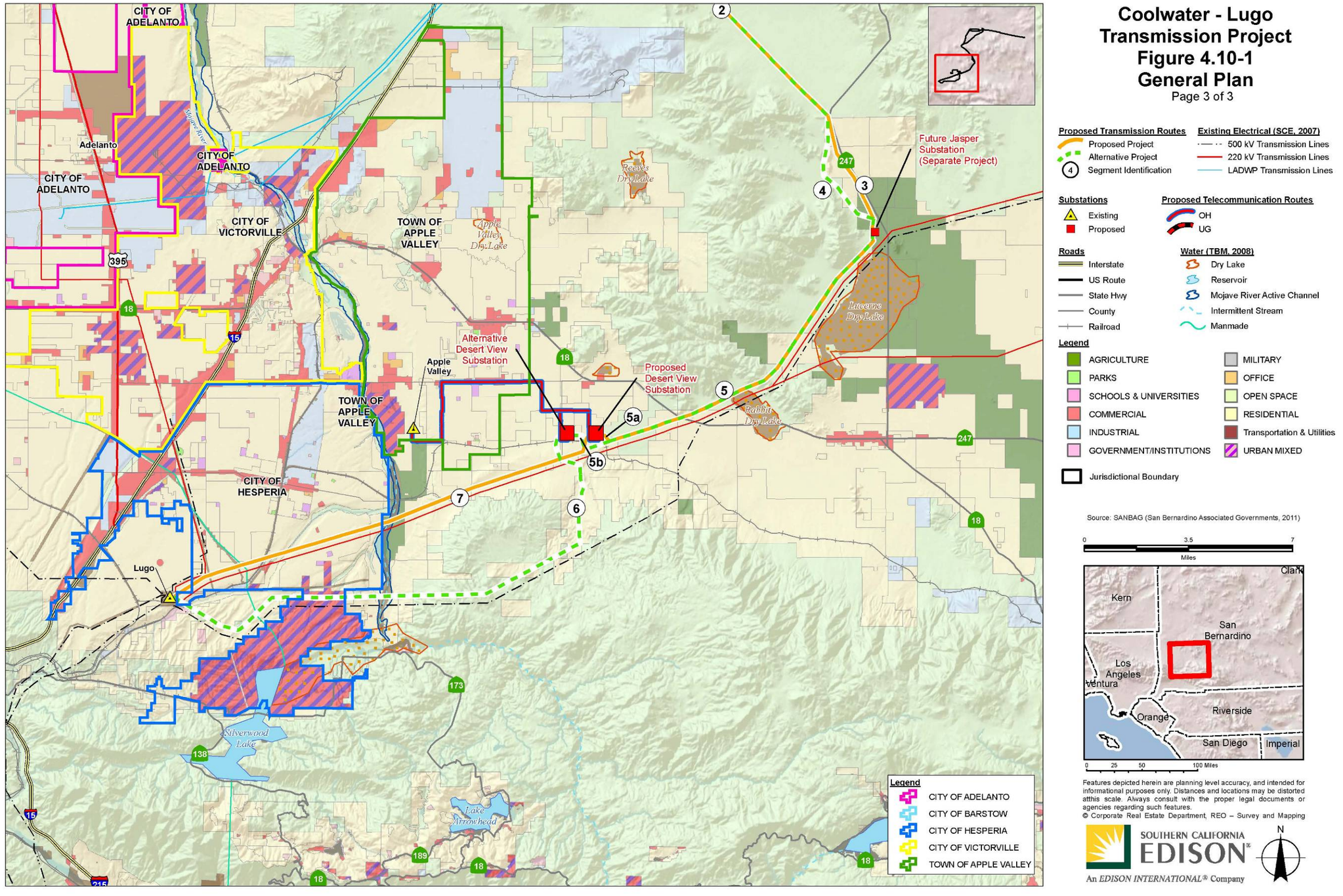
0 3.5 7 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.
© Corporate Real Estate Department, REO – Survey and Mapping

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.10_1_GP_20130812.mxd



Coolwater - Lugo Transmission Project
Figure 4.10-1
General Plan
Page 3 of 3

Proposed Transmission Routes
- Proposed Project
- Alternative Project
- Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- County
- Railroad

Water (TBM, 2008)
- Dry Lake
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Legend
- AGRICULTURE
- PARKS
- SCHOOLS & UNIVERSITIES
- COMMERCIAL
- INDUSTRIAL
- GOVERNMENT/INSTITUTIONS
- MILITARY
- OFFICE
- OPEN SPACE
- RESIDENTIAL
- Transportation & Utilities
- URBAN MIXED
- Jurisdictional Boundary

Source: SANBAG (San Bernardino Associated Governments, 2011)

0 3.5 7 Miles

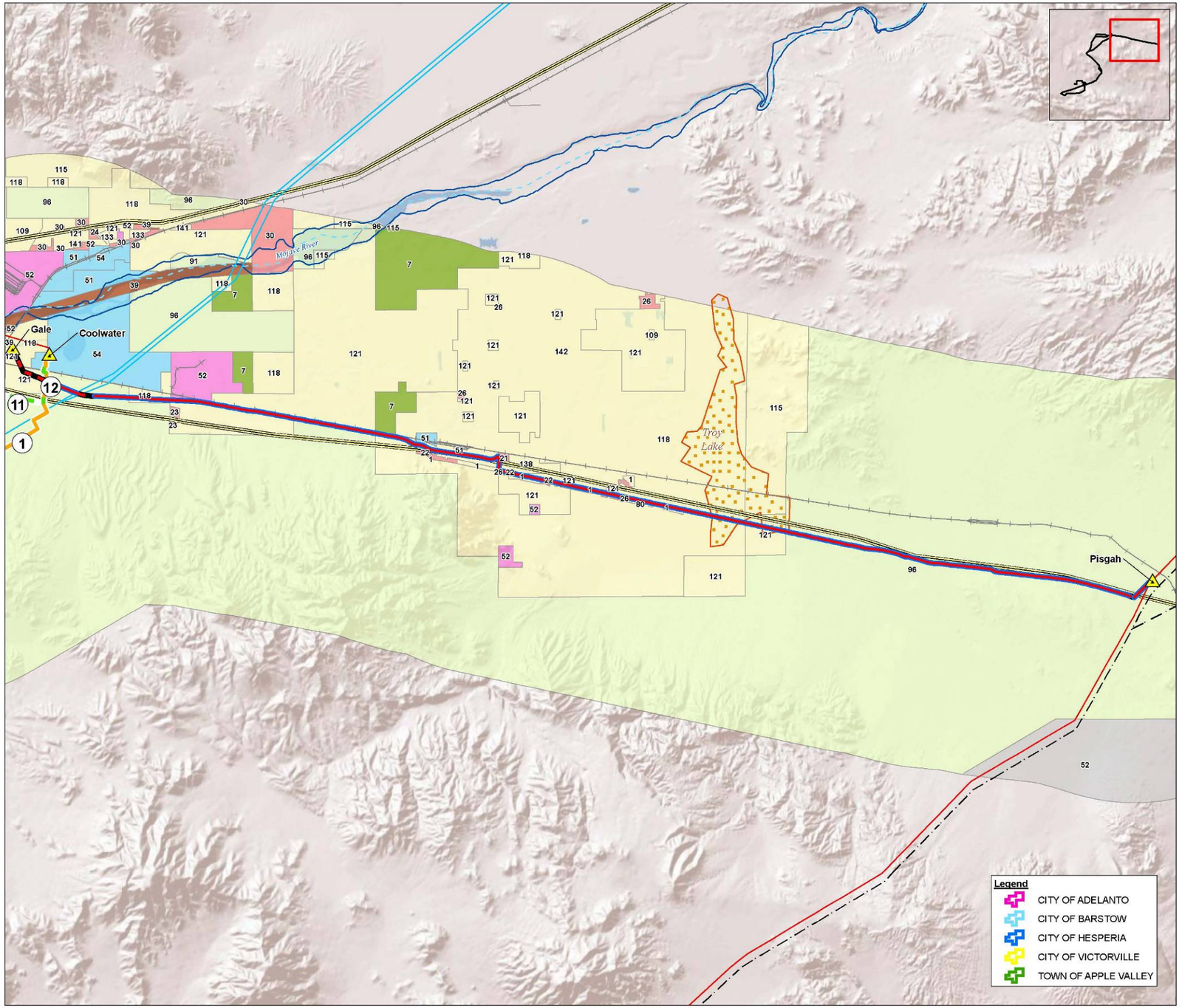
Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.10_1_GP_20130812.mxd

Coolwater - Lugo Transmission Project
Figure 4.10-2
Zoning
Page 1 of 4



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- 4 Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- County
- Railroad

Water (TBM, 2008)
- Dry Lake
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Jurisdictional Boundary

See page 4 for zoning legend

Source: SANBAG (San Bernardino Associated Governments, 2011)

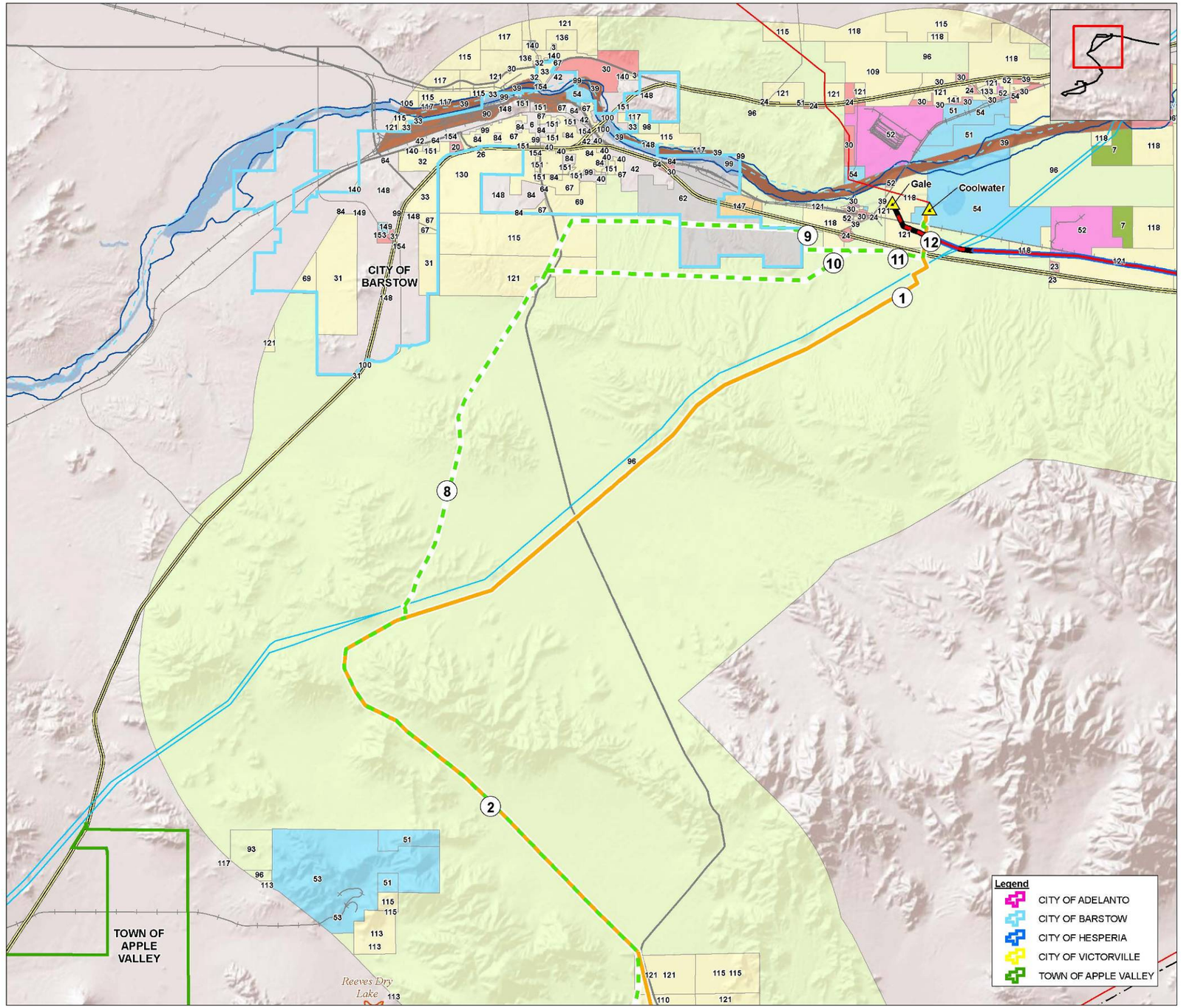
0 3 6 Miles

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.10_2_Zoning_20130812.mxd

Coolwater - Lugo Transmission Project
Figure 4.10-2
Zoning
Page 2 of 4



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- County
- Railroad

Water (TBM, 2008)
- Dry Lake
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Jurisdictional Boundary

See page 4 for zoning legend

Legend
- CITY OF ADELANTO
- CITY OF BARSTOW
- CITY OF HESPERIA
- CITY OF VICTORVILLE
- TOWN OF APPLE VALLEY

Source: SANBAG (San Bernardino Associated Governments, 2011)

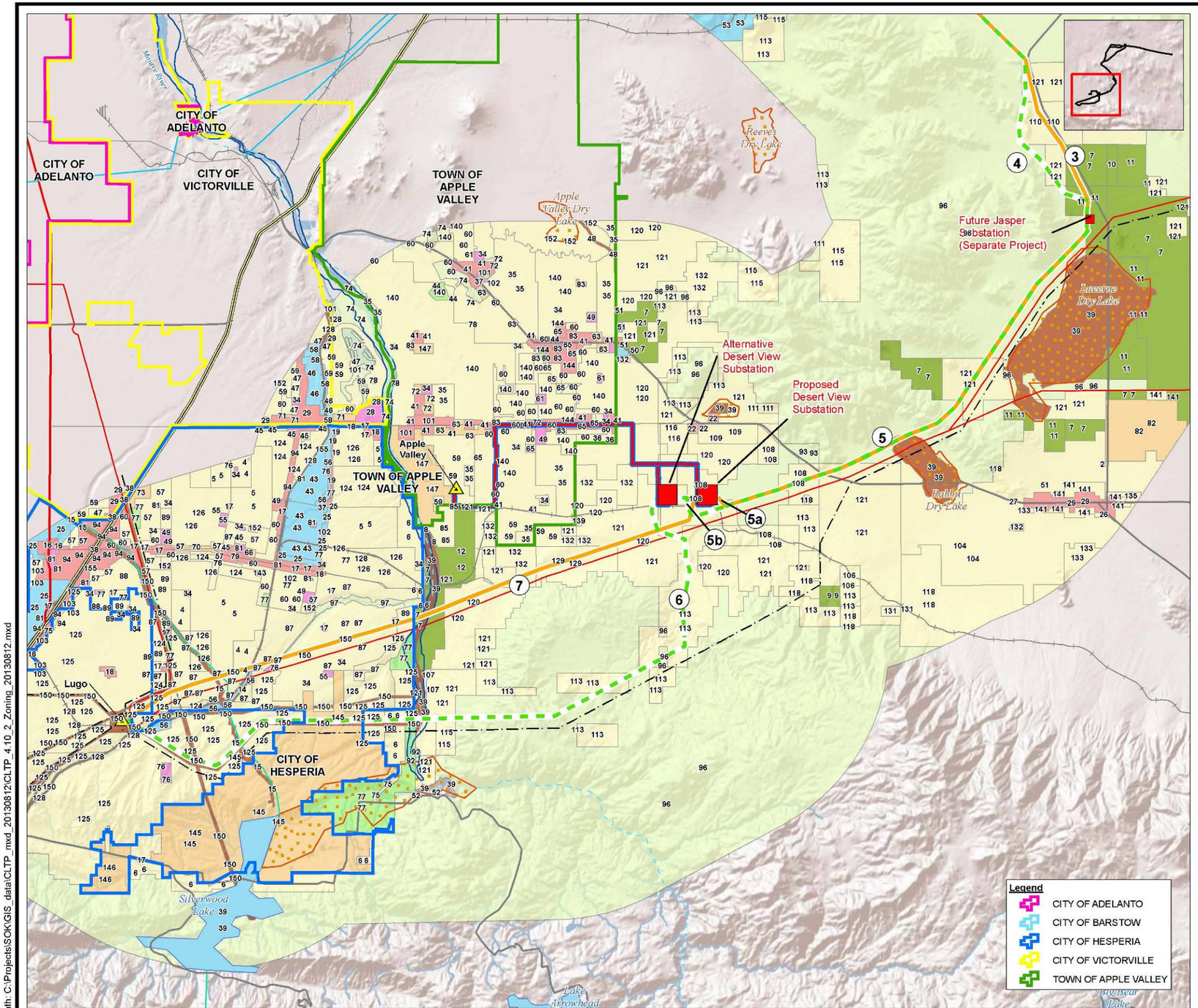
0 3 6 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.10_2_Zoning_20130812.mxd



Coolwater - Lugo Transmission Project
Figure 4.10-2
Zoning
Page 3 of 4

Proposed Transmission Routes
- Proposed Project
- Alternative Project
- 4 Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- County
- Railroad

Water (TBM, 2008)
- Dry Lake
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Jurisdictional Boundary

See page 4 for zoning legend

Source: SANBAG (San Bernardino Associated Governments, 2011)

0 3 6 Miles

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.10_2_Zoning_20130812.mxd

Legend

1, RESIDENTIAL, 5m-RM; MULTIPLE RESIDENTIAL-5000 SQ. FT. PER DWELLING UNIT
2, RESIDENTIAL, 6m-RM; MULTIPLE RESIDENTIAL-6000 SQ. FT. PER DWELLING UNIT
3, RESIDENTIAL, 7M-RM; MULTIPLE FAMILY RESIDENTIAL
4, RESIDENTIAL, A1 - 2 1/2 (0.21 - 0.4 DU/AC)
5, RESIDENTIAL, A1 (0.41 - 1.0 DU/AC)
6, RESIDENTIAL, A2 (0.0 -0.2 du/acre)
7, AGRICULTURE, AG
8, AGRICULTURE, AG-10-SCp; AGRICULTURE-10 ACRE MINIMUM LOT SIZE-SIGN CONTROL OVERLAY
9, AGRICULTURE, AG-20-AP; AGRICULTURE-20 ACRE MINIMUM LOT SIZE-AGRICULTURAL PRESERVE OVERLA
10, AGRICULTURE, AG-20; AGRICULTURE-20 ACRE MINIMUM LOT SIZE
11, AGRICULTURE, AG-40; AGRICULTURE-40 ACRE MINIMUM LOT SIZE
12, AGRICULTURE, AG-SCp; AGRICULTURE-SIGN CONTROL OVERLAY
14, TRANSPORTATION, AIRPORT USE
15, UTILITIES, AQ - AQUEDUCT
16, MISC. COMMERCIAL, ASC - AUTO SALES COMMERCIAL
17, MISC. COMMERCIAL, C1 - NEIGHBORHOOD COMMERCIAL
18, GEN. COMMERCIAL, C2 - GENERAL COMMERCIAL
19, OTHER RETAIL/SERVICE, C3 - SERVICE COMMERCIAL
21, GEN. COMMERCIAL, CG-SCp; GENERAL COMMERCIAL-SIGN CONTROL OVERLAY
23, REGIONAL COMMERCIAL, CH
24, GEN. COMMERCIAL, CH;HIGHWAY COMMERCIAL
25, LIGHT INDUSTRIAL, CIBP - COM/IND BUSINESS PARK
26, OTHER RETAIL/SERVICE, CN; NEIGHBORHOOD COMMERCIAL
27, OFFICE, CO; OFFICE COMMERCIAL
28, COLLEGE
31, RESIDENTIAL, DESERT LIVING
32, RESIDENTIAL, DESERT LIVING/RANCHETTE (1.0 DU/AC MAX)
33, RESIDENTIAL, DESERT LIVING/SPECIFIC PLAN(2.0 DU/AC MAX)
34, K-12 SCHOOLS, ELEMENTARY SCHOOL
35, RESIDENTIAL, ESTATE RESIDENTIAL (R-E)
36, RESIDENTIAL, ESTATE RESIDENTIAL 3/4 (R-E 3/4)
37, INSTITUTIONS/GOVERNMENT, FIRE STATION
38, TRANSPORTATION, FREEWAY
39, UTILITIES, FW;FLOODWAY
41, GEN. COMMERCIAL, GENERAL COMMERCIAL (C-G)
42, MILITARY, IN; INSTITUTIONAL
43, GEN. INDUSTRIAL, GI - GENERAL INDUSTRIAL
44, GOLF COURSE, GOLF COURSE
45, RESIDENTIAL, HDR - HIGH DENSITY RESIDENTIAL
46, HEAVY INDUSTRIAL, HEAVY INDUSTRIAL
48, TRANSPORTATION, HIGH DESERT CORRIDOR
49, K-12 SCHOOLS, HIGH SCHOOL
50, LIGHT INDUSTRIAL, IC-SCp; COMMUNITY INDUSTRIAL-SIGN CONTROL OVERLAY
51, LIGHT INDUSTRIAL, IC; COMMUNITY INDUSTRIAL
52, INSTITUTIONS/GOVERNMENT, IN
53, MISC. INDUSTRIAL, IR-SCp; REGIONAL INDUSTRIAL-SIGN CONTROL OVERLAY
54, GEN. INDUSTRIAL, IR; REGIONAL INDUSTRIAL
55, K-12 SCHOOLS, JUNIOR HIGH SCHOOL
56, LIGHT INDUSTRIAL, L1 - LIMITED MANUFACTURING
57, RESIDENTIAL, LDR - LOW DENSITY RESIDENTIAL
58, LIGHT INDUSTRIAL, LIGHT INDUSTRIAL
59, RESIDENTIAL, LOW DENSITY RESIDENTIAL (R-LD)
60, RESIDENTIAL, MEDIUM DENSITY RESIDENTIAL (R-M)
61, K-12 SCHOOLS, MIDDLE SCHOOL
62, MILITARY, MILITARY ZONE
63, URBAN MIXED, MIXED USE (M-U)
65, RESIDENTIAL, MOBILE HOME PARK (MHP)
66, URBAN MIXED, MU - MIXED USE
67, RESIDENTIAL, NEIGHBORHOOD RESIDENTIAL (5.0 DU/AC MAX)
68, RESIDENTIAL, NEIGHBORHOOD RESIDENTIAL/CIRCULATION STUDY (5.0 DU/AC MAX)
69, RESIDENTIAL, NEIGHBORHOOD RESIDENTIAL/SPECIFIC PLAN (5.0 DU/AC MAX)
70, OFFICE, OC - OFFICE COMMERCIAL
72, OFFICE, OFFICE PROFESSIONAL (O-P)
73, OFFICE, OP - OFFICE PARK
74, OPEN-NONDEV, OPEN SPACE
75, OPEN-NONDEV, OS/D - OPEN SPACE DRAINAGE
76, INSTITUTIONS/GOVERNMENT, P-GOV'T - GOVERNMENT FACILITY
77, PARKS, P - PARK/REC - PARK & RECREATION
79, GEN. COMMERCIAL, PC - PEDESTRIAN COMMERCIAL
80, URBAN MIXED, PD-2.5; PLANNED DEVELOPMENT-2.5 MINIMUM LOT SIZE
81, INSTITUTIONS/GOVERNMENT, PIO - PUBLIC/INSTITUTIONAL OVERLAY
82, URBAN MIXED, Planned Development
83, INSTITUTIONS/GOVERNMENT, PUBLIC FACILITY (PF)
85, RESIDENTIAL, R-LD; LOW DENSITY
86, RESIDENTIAL, R-SF
87, RESIDENTIAL, R1 - 1800 (2.1 - 2.4 DU/AC); 87, RESIDENTIAL, R1 - 18000 (21. - 2.4 DU/AC)
88, RESIDENTIAL, R1 - 4500 (4.6 - 8.0 DU/AC)
89, RESIDENTIAL, R1 (2.5 - 4.5 DU/AC)
90, TRANSPORTATION, RAILROAD INDUSTRIAL
91, OPEN-NONDEV, RC
92, OPEN-NONDEV, RC-SCP,RESOURCE CONSERVATION
93, OPEN-NONDEV, RC-SCp; RESOURCE CONSERVATION-SIGN CONTROL OVERLAY
94, REGIONAL COMMERCIAL, RC - REGIONAL COMMERCIAL
95, OPEN-NONDEV, RC - RESOURCE CONSERVATION/OAK HILLS COMMUNITY PLAN
96, OPEN-NONDEV, RC; RESOURCE CONSERVATION
97, OPEN-NONDEV, REC-COM - RECREATIONAL COMMERCIAL
98, OPEN-NONDEV, Recreational Activities
100, PARKS, REGIONAL RECREATION
101, REGIONAL COMMERCIAL, Regional Commercial
102, INSTITUTIONS/GOVERNMENT, RELIGOUS FACILITY
103, RESIDENTIAL, RER - RURAL ESTATE RESIDENTIAL
104, RESIDENTIAL, RL
105, RESIDENTIAL, RL-10-AP; RURAL LIVING
108, RESIDENTIAL, RL-10-SCp; RURAL LIVING-10 ACRE MINIMUM LOT SIZE-SIGN CONTROL OVERLAY
109, RESIDENTIAL, RL-10; RURAL LIVING-10 ACRE MINIUM LOT SIZE
110, RESIDENTIAL, RL-2.5; RURAL LIVING-2.5 ACRE MINIMUM LOT SIZE
111, RESIDENTIAL, RL-20-SCp; RURAL LIVING-20 ACRE MINIMUM LOT SIZE-SIGN CONTROL OVERLAY
113, RESIDENTIAL, RL-20; RURAL LIVING-20 ACRE MINIMUM LOT SIZE
114, RESIDENTIAL, RL-40; RURAL LIVING
116, RESIDENTIAL, RL-5-SCp; RURAL LIVING-5 ACRE MINIMUM LOT SIZE-SIGN CONTROL OVERLAY
118, RESIDENTIAL, RL-5; RURAL LIVING-5 ACRE MINIMUM LOT SIZE
119, RESIDENTIAL, RL-SCp; RURAL LIVING
120, RESIDENTIAL, RL-SCp; RURAL LIVING-SIGN CONTROL OVERLAY
121, RESIDENTIAL, RL; RURAL LIVING
122, RESIDENTIAL, RM; MULTIPLE RESIDENTIAL
123, RESIDENTIAL, RM;MULTIPLE FAMILY RESIDENTIAL
124, RESIDENTIAL, RR - 1 (0.41 - 1.0 DU/AC)
125, RESIDENTIAL, RR - 2 1/2 (0.0 - 0.4 DU/AC)
126, RESIDENTIAL, RR - 20000 (1.1 - 2.0 DU/AC)
128, TRANSPORTATION, RR CORRIDOR
129, RESIDENTIAL, RS-1-SCp; SINGLE RESIDENTIAL-1 ACRE MINIMUM LOT SIZE-SIGN CONTROL OVERLAY
130, RESIDENTIAL, RS-1.25; SINGLE FAMILY RESIDENTIAL
132, RESIDENTIAL, RS-1; SINGLE RESIDENTIAL-1 ACRE MINIMUM LOT SIZE
133, RESIDENTIAL, RS-10m; SINGLE RESIDENTIAL-10,000 SQ. FT. MINIMUM LOT SIZE
134, RESIDENTIAL, RS-12m; SINGLE FAMILY RESIDENTIAL
135, RESIDENTIAL, RS-15m
136, RESIDENTIAL, RS-18m; SINGLE FAMILY RESIDENTIAL
137, RESIDENTIAL, RS-2; SINGLE FAMILY RESIDENTIAL
138, RESIDENTIAL, RS-20m; SINGLE RESIDENTIAL-20,000 SQ. FT. MINIMUM LOT SIZE
139, RESIDENTIAL, RS-40m; SINGLE RESIDENTIAL-40,000 SQ. FT. MINIMUM LOT SIZE
140, RESIDENTIAL, RS; SINGLE FAMILY RESIDENTIAL
141, RESIDENTIAL, RS; SINGLE RESIDENTIAL
142, GEN. COMMERCIAL, RURAL COMMERCIAL
143, K-12 SCHOOLS, SCHOOL DISTRICT OFFICE
144, MISC. COMMERCIAL, SERVICE COMMERCIAL (C-S)
145, URBAN MIXED, SP-89-01 - RANCHO LAS FLORES SPECIFIC PLAN
146, URBAN MIXED, SP-91-003 - SUMMIT VALLEY RANCH SPECIFIC PLAN
147, URBAN MIXED, Specific Plan
149, GEN. INDUSTRIAL, TRI - Transportation Related Industrial
150, UTILITIES, UC - UTILITY CORRIDOR
151, RESIDENTIAL, URBAN LIVING (15.0 DU/AC MAX)
152, RESIDENTIAL, VERY LOW DENSITY RESIDENTIAL (R-VLD)
153, GEN. COMMERCIAL, Visitor-Serving Commercial
154, CEMETARY, RS; SINGLE FAMILY RESIDENTIAL
155, UTILITIES, WATER STORAGE FACILITY

Legend
CITY OF ADELANTO
CITY OF BARSTOW
CITY OF HESPERIA
CITY OF VICTORVILLE
TOWN OF APPLE VALLEY

Coolwater - Lugo Transmission Project
Figure 4.10-2
Zoning
Page 4 of 4

Proposed Transmission Routes
Proposed Project
Alternative Project
4 Segment Identification

Existing Electrical (SCE, 2007)
500 kV Transmission Lines
220 kV Transmission Lines
LADWP Transmission Lines

Substations
Existing
Proposed

Proposed Telecommunication Routes
OH
UG

Roads
Interstate
US Route
State Hwy
County
Railroad

Water (TBM, 2008)
Dry Lake
Reservoir
Mojave River Active Channel
Intermittent Stream
Manmade

Jurisdictional Boundary

See page 4 for zoning legend

Source: SANBAG (San Bernardino Associated Governments, 2011)

0 3 6
Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.10_2_Zoning_20130812.mxd

This page is intentionally blank.

4.10.1.1 San Bernardino County

All portions of the Coolwater-Lugo area are located in unincorporated San Bernardino County with the exception of a portion of Alternative Transmission Line Route Segment 9 within City of Barstow, a portion of Proposed Transmission Line Route Segment 7 and Alternative Transmission Line Route Segment 6 in the City of Hesperia, and a portion of the Apple Valley to Desert View Telecommunication Route in the Town of Apple Valley. San Bernardino County, the largest county in the United States by area, consists of three distinct geographic planning regions: the Valley, the Mountain, and the Desert. The Coolwater-Lugo area is located in the Desert Planning Region, which is defined as all of the unincorporated area of San Bernardino County lying north and east of the Mountain Planning Region.

4.10.1.2 Lucerne Valley (Unincorporated San Bernardino County)

A portion of the Coolwater-Lugo transmission line routes (Proposed and Alternative Transmission Line Segment 5) is located in Lucerne Valley. The Lucerne Valley Community Plan (San Bernardino County 2007) designates these areas as Agriculture (AG), Rural Living (RL), or Resource Conservation (RC) lands. Other areas not designated as AG, RL, or RC are not under County jurisdiction and are designated as Federally owned or managed or State-owned or -managed lands. The Rancho Lucerne Specific Plan, within Lucerne Valley has been approved, but is currently on hold for legal issues. The specific plan area is located at the intersection of SR-247 (Barstow Road) and Rabbit Springs Road. The Rancho Lucerne development would have approximately 4,500 new housing units with an estimated population of 10,000 at final build out. The proposed location of Rancho Lucerne is approximately 4.0 miles southeast from Proposed Transmission Line Segment 5. Although Rancho Lucerne has been put on hold, future land use in this area will remain designated as RL.

4.10.1.3 Newberry Springs and Daggett (Unincorporated San Bernardino County)

Portions of the Proposed Project are located within the Communities of Newberry Springs and Daggett. The Gale to Pisgah Telecommunication Route runs through Newberry Springs, and Daggett is located approximately 1 mile to the east of the junction of Alternative Transmission Line Segments 9 and 10.

There are no applicable community plans for Newberry Springs and Daggett. Planning documents and relevant regulations from San Bernardino County would apply.

4.10.1.4 Town of Apple Valley

The Apple Valley to Desert View Telecommunications Route would be located partially in the Town of Apple Valley. The Land Use Map of the *Town of Apple Valley General Plan* designates these areas as General Commercial ("C-G"), Service Commercial (C-S), Medium Density Residential (R-M), Mixed Use (M-U) and Public Facility (P-F). The land use pattern in Apple Valley has been primarily residential, with commercial

development mainly occurring along SR 18 and Bear Valley Road, the Town's connection to surrounding communities.

4.10.1.5 City of Hesperia

A portion of the Coolwater-Lugo transmission line routes (Segments 6 and 7) is located in the City of Hesperia. Existing Lugo Substation is located within the City of Hesperia sphere of influence. The City of Hesperia is divided into 11 Planning Areas in the Draft Technical Land Use Plan. Coolwater-Lugo is located in Planning Areas 2, 7, 8, 10, and 11. Segment 7 is proposed for areas zoned as Utility Corridor ("UC"). Lugo Substation is also zoned as UC. Segment 6 would be located in or adjacent to areas zoned as UC. According to the Hesperia General Plan, SCE holds easements to 301 acres of UC land. The Coolwater-Lugo transmission line routes run through a portion of Planning Area 2 zoned as Rural Residential ("RR-2½") that has a land use distribution of commercial, office professional, industrial, and residential. Planning Area 2 is designated primarily for residential development. Planning Area 7 contains a portion of Segment 7, is zoned Residential (R1-18000), and has a land use designation of low-density residential with single-family dwellings. Lugo Substation is located in Planning Area 10, which is zoned RR-2½ and has a land use designation of almost exclusively residential. A portion of Segment 6 runs through Planning Areas 8 and 11, which are mostly undeveloped. Planning Area 8 includes two general plan designations of Planning Mixed Use and Special Development. Two Specific Plans (i.e., Rancho Las Flores and Summit Valley Ranch) are proposed within Planning Area 8. The Rancho Los Flores Specific Plan has been approved, but is currently on hold. The Alternative Transmission Line Segment 6 traverses the Rancho Las Flores Specific Plan in the northern most portion of the Specific Plan area. Planning Area 11 is primarily designated as Special Development. At build out, the Specific Plans may accommodate over 16,000 new units, commercial development, public facilities, recreation and open space.

4.10.1.6 City of Barstow

A portion of the Coolwater-Lugo transmission line routes (Alternative Transmission Line Segment 9) is located in the City of Barstow. The portion of Coolwater-Lugo that lies in the City of Barstow is also located entirely in the MCLB Barstow. This area is zoned as a Military Zone District (MZ), and all land uses and activities in this area are under the jurisdiction of the U.S. Department of Defense (City of Barstow 1997). Therefore, no other City of Barstow zoning or land use planning applies.

4.10.2 Regulatory Setting

4.10.2.1 Federal Regulatory Setting

U.S. Bureau of Land Management

California Desert Conservation Area Plan

In 1976, Congress passed the Federal Land Policy and Management Act ("FLPMA") to direct the management of the public lands of the United States. Section 601 of the FLPMA was included to give direction about the California Desert Conservation Area ("CDCA"). In that section, Congress required the preparation of a comprehensive long-range plan for the CDCA (BLM 1999). The purpose of the plan is to establish guidance for the management of the public lands of the California desert by the BLM. All public lands in the CDCA under BLM management have been designated geographically into the following four multiple-use classes, with the classifications based on the sensitivity of resources and the kinds of uses allowed in each geographic area:

- **Multiple-Use Class C:** These areas are "preliminary recommended" as suitable for wilderness designation by Congress and used in the future to show those areas formally designated as wilderness by Congress. No areas in the Coolwater-Lugo area are Multiple-Use Class C lands.

- **Multiple-Use Class L:** The Class L classification is used to designate "Limited Use" and protect sensitive, natural, scenic, ecological, and cultural resource values. These lands are managed to provide for generally lower intensity, carefully controlled multiple use of resources while ensuring that sensitive values are not significantly diminished. Most of Lucerne Valley and the BLM lands between Lucerne Valley and Hesperia are designated as Class L lands.

- **Multiple-Use Class M:** The Class M classification is used to designate "Moderate Use" and establish a controlled balance between higher intensity use and protection of public lands. Class M provides for a wide variety of present and future uses, such as mining, livestock grazing, recreation, energy, and utility development. Class M management is also designed to conserve desert resources and to mitigate damage to those resources that permitted uses may cause. The northeastern side of SR-247 and south to Lucerne Valley is designated as Class M lands.

- **Multiple-Use Class I:** The Class I classification is used to designate "Intensive Use" and provides concentrated use of lands and resources to meet human needs. Sensitive natural and cultural values on Class I lands receive reasonable protection. Impacts on resources are mitigated and affected areas are rehabilitated as possible. The northwestern side of SR-247 and south to Lucerne Valley is designated as Class I lands.

In addition to multiple-use classes of BLM lands, the CDCA Plan has site-specific plan elements that provide a more specific application of the multiple-use class guidelines for a specific resource or activity about which the public has expressed significant concern. Of the 12 plan elements, four elements pertain to the Coolwater-Lugo area: Wildlife, Livestock Grazing, Motorized Vehicle Access, and Energy Production and Utility Corridors:

- **Wildlife Element:** The CDCA supports more than 635 species of vertebrates and thousands of invertebrate organisms in a diversity of wildlife habitats. Immediate management is required to protect unique and sensitive habitats; sensitive, rare, threatened, and endangered species; and more common desert habitats and ecosystems and the fish and wildlife resources they support. In the Coolwater-Lugo area, two types of management areas are recognized in the CDCA Plan: habitat management plan ("HMP") area and Sensitive, Rare, Threatened, and Endangered Fish and Wildlife Areas of Critical Environmental Concern ("ACEC").

- An HMP is identified for the raptor breeding area in the Newberry/Granite Mountains area located in and adjacent to Lucerne Valley. The HMP is a detailed plan developed specifically for the habitats or species that require intensive, active management programs.

- An ACEC is identified for wildlife resources to include aggressive management actions to halt and reverse declining trends and ensure the long-term maintenance of critical resources. Specific wildlife ACECs for the Bendire's Thrasher and Mojave Monkeyflower, are located in the Coolwater-Lugo area. Another ACEC, Juniper Flats, is located within the project area, but was not established primarily for wildlife resources.

- **Livestock Grazing Element:** Livestock grazing has been and continues to be a significant use of renewable resources on public land in the CDCA. Goals of this element are to continue the use of the California desert for livestock production, continue its use as a tool to change or improve vegetation for meeting livestock needs, maintain lands in good to excellent condition, and improve lands in poor to fair condition. In the Coolwater-Lugo area, there is an ephemeral livestock grazing area known as the Stoddard Mountains Allotment.

- **Motorized-Vehicle Access Element:** The CDCA has 15,000 miles of paved and maintained roads, 21,000 miles of unmaintained dirt roads, and 7,000 miles of vehicle-accessible washes. Although the BLM is responsible for vehicle use on public lands, much of the control of vehicle travel in the desert is the responsibility of the user, whether the goal is recreational or commercial. The goals of this element are to avoid or minimize damage or degradation of the natural, cultural, and aesthetic values of the desert; provide a reasonable network of travel routes; reduce to the greatest possible degree conflicts among desert users; provide an element that is understandable and easy to follow; implement and manage these programs efficiently; and provide for "appropriate" use of off-

road recreational vehicles as directed by FLPMA. The vehicle access designations not managed by BLM, in the Coolwater-Lugo area are limited approved routes of travel located in the Lucerne Valley area, Open access located along SR-247 (Barstow Road), and limited to existing routes of travel located east of SR-247.

- **Energy Production and Utility Corridors Element:** Goals of this element are to establish a network of joint-use planning corridors capable of meeting projected utility service needs, identify and establish future communication-site locations and establish power plant sites, and establish and identify potential geothermal and wind siting regions. In 1980, there were 16 planned utility corridors. One corridor runs northeast-southwest through the Coolwater-Lugo area. One of the proposed transmission line segments (Segment 1) falls within the designated corridor that runs from northeast of Baker, California, through Victorville, California. For future corridors, the following decision criteria are evaluated: (1) minimize the number of separate rights-of-way ("ROWs") by using existing ROWs as basis for planning corridors; (2) encourage joint use of corridors for transmission lines, canals, pipelines, and cables; (3) provide alternative corridors to be considered during processing of applications; (4) avoid sensitive resources wherever possible; (5) conform to local plans whenever possible; (6) consider wilderness values and be consistent with final wilderness recommendations; (7) complete the delivery-systems network; (8) consider ongoing projects for which decisions have been made; and (9) consider corridor networks that take into account power needs and alternative fuel resources.

West Mojave Plan

The West Mojave Plan ("WMP"), established in 2006, is composed of a Federal component that amends the CDCA Plan of 1980, as well as a habitat conservation plan ("HCP") component that covers State and local government actions (BLM 2006). The planning area covers 9.4 million acres in the western portion of the Mojave Desert in southern California, covering parts of San Bernardino, Los Angeles, Kern, and Inyo counties. This interagency HCP was prepared by the BLM in collaboration with the region's city, county, State, and Federal agencies. The plan applies to the 3.2 million acres of public lands and 2.9 million acres of private lands in the planning area and is consistent with the resource management plans adopted by each of the region's five military bases and with the desert tortoise recovery plan.

The goal of the plan is to conserve and protect the desert tortoise and nearly 100 other sensitive plants and animals, as well as the ecosystems on which they depend. At the same time, the plan provides developers of public and private projects with a streamlined program for compliance with the California and Federal Endangered Species Acts that regulates consistency, reduces delays and expenses, eliminates uncertainty, and applies the costs of compensation and mitigation equitably to all agencies and parties.

4.10.2.2 State Regulatory Setting

The California State Land Commission grants rights-of-way on state land, typically by lease. Coolwater-Lugo crosses a small portion of state land along Proposed and Alternative Transmission Line Segment 2.

4.10.2.3 Regional Regulatory Setting

Desert Renewable Energy Conservation Plan

The Desert Renewable Energy Conservation Plan ("DRECP") is a proposed land use plan that would cover much of the Mojave and Colorado Desert regions of California (California Energy Commission 2013). The DRECP is currently under development, and is expected to be approved in 2014.

The DRECP is a science-based conservation plan designed to identify preferred areas for development of utility-scale renewable energy projects, for construction of transmission facilities, and for long-term natural resource conservation. It is intended to facilitate Federal and State endangered species permitting for renewable energy projects and transmission facilities. Upon its implementation, the DRECP will function as both an HCP under the Federal Endangered Species Act and a natural community conservation plan ("NCCP") under the California Endangered Species Act. It will also serve as a land use plan amendment in accordance with FLPMA. Preparation of the DRECP is being led by the Renewable Energy Action Team, which is comprised of representatives from the following agencies:

- California Energy Commission
- California Department of Fish and Wildlife (formerly the California Department of Fish and Game)
- U.S. Bureau of Land Management
- U.S. Fish and Wildlife Service

Numerous other stakeholder groups are also actively participating in the DRECP process, including Federal, State, and local government agencies; environmental and community nongovernmental organizations; industry groups; and members of the public.

Coolwater-Lugo is located in the DRECP planning area. Because it involves a high-voltage transmission line, it would qualify as a "covered activity" under the DRECP. The applicability of the DRECP to Coolwater-Lugo in regard to special-status species is further discussed in Section 4.4, *Biological Resources*.

4.10.2.4 Local Regulatory Setting

The California Public Utilities Commission ("CPUC") has sole exclusive State jurisdiction over the siting and design of Coolwater-Lugo because the CPUC regulates

and authorizes the construction of investor-owned public utility facilities. Such projects are exempt from local land use and zoning regulations and permitting in accordance with General Order ("G.O.") No. 131-D, which is applicable to all components of the Project including but not limited to the transmission lines, substations, staging yards, and marshaling yards. However, Section XIV.B requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain a nondiscretionary local permit." As part of its environmental review process, SCE considers local and State land use plans and policies and local land use priorities and concerns.

County of San Bernardino General Plan

The *County of San Bernardino 2007 General Plan* (San Bernardino County 2013), which serves as the blueprint document for future development in the county, provides countywide and regional goals and policies. Most of the policies in the County General Plan are countywide policies that address the county in its entirety. The Land Use Element uses text and maps to designate the future use or reuse of land in a given jurisdiction's planning area. The relevant County General Plan policies are listed below.

Countywide Goals and Policies of the Land Use Element

The following Land Use Element ("LU") countywide policies are relevant to land use and planning:

- **LU 1.1:** Develop a well-integrated mix of residential, commercial, industrial, and public uses that meet the social and economic needs of the residents
- **LU 1.2:** The design and siting of new development will meet locational and development standards to ensure compatibility of the new development with adjacent land uses and community character
- **LU 4.1:** Protect areas best suited for industrial activity by virtue of their location and other criteria from residential and other incompatible uses
- **D/LU 1.2:** Limit future industrial development to those uses which are compatible with the Community Industrial Land Use Zoning District or zone, are necessary to meet the service, employment, and support needs of the desert region, do not have excessive water requirements, and do not adversely impact the desert environment
- **D/LU.1.5:** Work with the BLM to identify BLM lands that would be more appropriately managed under private ownership and under the jurisdiction of the County to provide a more effective land use pattern for the desert region

Countywide Goals and Policies of the Circulation and Infrastructure Element

The following Circulation and Infrastructure Element ("CI") countywide policy is relevant to land use and planning:

- **CI 18.1:** Coordinate with SCE and other utility suppliers to make certain that adequate capacity and supply exists for current and planned development in the County.

Countywide Goals and Policies of the Conservation Element

The following Conservation Element (CO) countywide policies are relevant to land use and planning:

- **CO 8.1:** Maximize the beneficial effects and minimize the adverse effects associated with the siting of major energy facilities. The County will site energy facilities equitably in order to minimize net energy use and consumption of natural resources, and avoid inappropriately burdening certain communities. Energy planning should conserve energy and reduce peak load demands, reduce natural resource consumption, minimize environmental impacts, and treat local communities fairly in providing energy efficiency programs and locating energy facilities.

- Program Specific to the Utility Corridor Land Use: Because land uses adjacent to utility corridors must be compatible, the County will approve only those secondary uses within corridors that are compatible with adjacent land uses.

- **CO 9.2:** The County will work with utilities and generators to maximize the benefits and minimize the impacts associated with siting major energy facilities. It will be the goal of the County to site generation facilities in proximity to end-users in order to minimize net energy use and natural resource consumption, and avoid inappropriately burdening certain communities.

- Program Specific to the Utility Corridor Land Use: Because land uses adjacent to the utility corridors must be compatible, the County will approve only those secondary land uses within corridors that are compatible with adjacent land uses.

- **CO 10.1:** Electric infrastructure is essential to serve growth and development in the County. Effective planning for electrical infrastructure requires collaboration between the major utilities and the County.

- **CO 10.2:** The location of electrical facilities should be consistent with the County's General Plan, and the General Plan should recognize and reflect the need for new and upgraded electric facilities.

Lucerne Valley Community Plan (Unincorporated San Bernardino County)

The *Lucerne Valley Community Plan* is included within the County of San Bernardino General Plan. The primary purpose of the *Lucerne Valley Community Plan* is to guide the future use and development of land in the area in a manner that preserves the character and independent identity of the community (San Bernardino County 2007). Policies and goals identified in the community plan build on the goals and policies of each element of the General Plan and are customized and regarded as refinements of the broader General

Plan goals and policies that meet the specific needs or unique circumstances in Lucerne Valley.

Goals and Policies of the Land Use Element

The following Land Use Element policies are relevant to land use and planning:

- **LV/LU 1.1:** Require strict adherence to the land use policy map unless proposed changes are clearly demonstrated to be consistent with the community character.

- **LV/LU 1.6:** Develop standards for outdoor storage to ensure compatibility with surrounding development. This can be accomplished by:

  A. Prohibiting the use of truck semi-trailers as storage containers in commercial districts without appropriate screening.

  B. Limit the height, size, and volume of outdoor storage containers by land use district.

  C. Require adequate screening of outdoor storage in commercial and industrial districts.

- **LV/LU 2.4:** Require adequate buffering between industrial and non-industrial land uses.

Circulation and Infrastructure Element

The following Circulation and Infrastructure Element policy is relevant to land use and planning:

- **LV/CI 1.6:** Preserve the status of State Highway 18 and State Highway 247 as County Scenic Routes, except within the Rural Commercial Land Use Zoning District between Custer Avenue and Ladera Avenue, and ensure protection of the views through compliance with the provisions of the Open Space Overlay.

Conservation Element

The following Conservation Element policies are relevant to land use and planning:

- **LV/CO 2.2:** The conversion of agricultural land to non-agricultural uses shall be discouraged unless the proposed use can be demonstrated to be preferable in terms of economic development, and resource availability and resource conservation.

- **LV/CO 2.3:** Encourage adequate buffering between agricultural and non-agricultural land use districts.

City of Hesperia General Plan

The *City of Hesperia General Plan* (City of Hesperia Planning Department 2007) is the blueprint for the long-range physical development of the city, addressing direct city services, as well as services and activities undertaken by allied entities in the community. The City's general plan was reviewed for applicable policies, which are presented below.

Goals and Policies of the Land Use Element

The following policies are relevant to land use and planning:

- **LU-1.3:** Require that new construction, additions, renovations, and infill developments be sensitive to the intent of the land use designations, incorporating neighborhood context as well as building form and scale.

- **LU-4.5:** Design non-industrial uses adjacent to residential property to minimize impacts to the residential property.

- **LU-8.2:** Coordinate land use planning with infrastructure provision and planning, both within the city and within the sphere of influence, to ensure adequate, convenient, and efficient provision of support services as development occurs, funded by those who benefit.

Town of Apple Valley General Plan

The *Town of Apple Valley General Plan* (2009) is the blueprint for the long-range physical development of the town, addressing all the direct town services. This general plan was reviewed for applicable policies, which are provided below.

Goals and Policies of the Land Use Element

The following Land Use Element policies are relevant to land use and planning:

- **Policy 2.A:** The Town shall maintain a land use map that assures a balance of residential, commercial, industrial, open space and public lands.

- **Policy 2.B:** All new development and redevelopment proposals shall be required to install all required infrastructure, including roadways and utilities, and shall have complied with requirements for public services prior to occupancy of the project.

- **Policy 2.E:** The Town shall protect right of way for the High Desert Corridor as determined by Caltrans.

- **Policy 3.A:** The Town will support measures that buffer both new and established residences from commercial, industrial and agricultural uses.

- **Policy 6.A:** Commercial development shall be permitted only in areas with provisions for adequate circulation, utilities, infrastructure and public services.

- **Policy 6.B:** The Town shall promote commercial and industrial development that are capable of strengthening the local economy and enhancing the quality of life of Town residents.

- **Policy 7.A:** Industrial development shall be permitted only in areas with provisions for adequate circulation, utilities, infrastructure and public services.

Apple Valley Multi-Species Habitat Conservation Plan

The Apple Valley to Desert View Telecommunications Route would be located partially in the Town of Apple Valley. The Town of Apple Valley Multi-Species Habitat Conservation Plan ("MSHCP") is under development and is intended to guide the Town's conservation efforts; allowing the Town to preserve its open space, protect threatened and endangered species, and maintain its high-desert character. The plan will safeguard features and areas that warrant protection; plus ensure that future development within the Town and its sphere of influence is compliant with the Federal ESA and California ESA. The Apple Valley MSHCP will also streamline the environmental permitting process. SCE is participating as a stakeholder in the Apple Valley MSHCP development process.

Airport Land Use Compatibility Plans

Hesperia Airport is one of two airports in the vicinity of Coolwater-Lugo that has an Airport Land Use Compatibility Plan ("ALUCP"). It is classified in the national Plan of Integrated Airport System as a General Aviation, basic utility airport. The Hesperia Airport accommodates emergency air services, such as air ambulances, California Highway Patrol aircraft, and fire control aircraft. Hesperia Airport is located in proximity to Alternative Transmission Line Segment 6 and Proposed Transmission Line Segment 7.

Barstow-Daggett Airport, located near Proposed and Alternative Transmission Line Segment 12 and the Gale to Pisgah Telecommunication Route, also has an ALUCP. The Barstow-Daggett Airport is a general aviation airport, and it supports military training at the Fort Irwin National Training Center.

Rabbit Ranch Airport, located near Proposed and Alternative Transmission Line Segment 5 does not have an airport land use plan. Airport safety hazards and potential effects associated with implementing Coolwater-Lugo are discussed in Section 4.8, *Hazards and Hazardous Materials*.

4.10.3 Significance Criteria

4.10.3.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to land use and planning come from the California Environmental Quality Act ("CEQA") Environmental Checklist.

According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Physically divide an established community
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect
- Conflict with any applicable habitat conservation plan or natural community conservation plan

As stated above, CPUC G.O. 131-D, Section XIV.B states that "[l]ocal jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the Commission's jurisdiction. However in locating such projects, the public utilities shall consult with local agencies regarding land use matters." Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county and city regulations are not applicable as the county and cities do not have jurisdiction over the Proposed Project.

4.10.3.2 NEPA Analysis

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27).

4.10.4 Impact Analysis

This assessment is based on the potential impacts of implementing the Proposed Project on land use and planning. The Proposed Project's consistency with applicable plans and zoning was also considered. The impact assessment was conducted to identify the type and extent of impacts on land use and planning that may be affected by implementing the Proposed Project. Impacts were evaluated in an area defined to be within and immediately adjacent to the Proposed Project ROW. Impacts from the Alternative Project are discussed in Section 4.10.6, *Alternative Project*.

Various documents were reviewed to complete this land use analysis, including the County of San Bernardino General Plan, City of Hesperia General Plan, Lucerne Valley Community Plan, land use maps, aerial photographs, GIS maps, and environmental impact reports for other projects in the area. In addition, County planners were contacted.

As discussed in Chapter 3, *Project Description*, either the Proposed Project or the Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. There would be no differences in potential impacts on land

use and planning under the IBO and FBO scenarios; therefore, the following impact assessment applies to both scenarios for Desert View Substation. FBO of either the Proposed or the Alternative Desert View Substation would occur in the disturbance footprint established during the IBO of Desert View Substation construction; therefore, no disturbance of additional lands would be needed for the FBO of Desert View Substation.

4.10.4.1 CEQA Impact Assessment

Would the project physically divide an established community?

Construction Impacts

The Proposed Project would be constructed primarily in existing SCE ROWs, or near or parallel to existing transmission lines, or on undeveloped desert land. The Proposed Desert View Substation site is currently vacant desert land. Portions of Proposed Transmission Line Segment 7 would replace existing transmission lines (Lugo-Pisgah No. 1 and No. 2 lines) in an existing SCE ROW, which passes through a neighborhood in the City of Hesperia. During construction of the Proposed Project, including temporary materials staging yards, a combination of existing and new access roads would be constructed. The majority of new access roads would be built in areas that are generally undeveloped and rural in nature. In areas where established communities are located, SCE construction crews and contractors would rely on the existing road network and new spur roads. Therefore, new access roads are not anticipated to divide established communities.

Accordingly, the Proposed Project would be developed in existing transmission line or telecommunication ROWs, or near or parallel to existing transmission lines, or in a nonurban, undeveloped desert setting. Therefore, implementing the Proposed Project would not physically divide an established community. No impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Operation and maintenance of the Proposed Project would take place in the ROWs and roads established during construction. These activities would not physically divide an existing community; therefore, no impacts are anticipated during operation of the Proposed Project.

Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Construction Impacts

The CPUC's jurisdiction over electric power line projects and substations exempts the Proposed Project under G.O. No. 131-D from local land use regulations. Therefore, the

jurisdictions of San Bernardino County, the City of Hesperia, the City of Barstow, the Town of Apple Valley, and any other local jurisdictions are pre-empted from regulating the Proposed Project pursuant to G.O. 131-D.

Construction of the Proposed Project, including temporary material staging yards, would not conflict with any applicable environmental plan, policy, or regulation of an agency with jurisdiction over the Proposed Project. Therefore, no impacts are anticipated during construction of the Proposed Project.

Operation Impacts

The CPUC's jurisdiction over electric power line projects and substations exempts the Proposed Project under G.O. No. 131-D from local land use regulations. Additionally, because the Project is exempt as stated above, operation and maintenance of the Proposed Project would not conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the Proposed Project. Therefore, no impacts are anticipated during operation of the Proposed Project.

Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

Construction Impacts

The Proposed Project would be located in the planning areas for the CDCA, the WMP, the proposed DRECP, and the proposed Apple Valley MSHCP.

Both the CDCA and the WMP allow for the authorization of new ROWs on public lands, consistent with Title V of FLPMA and the Energy Production and Utilities Corridor Element of the CDCA Plan. Construction of the Proposed Project, including temporary material staging yards, would not occur in any CDCA Class C lands suitable for wilderness designation. New transmission and distribution facilities are allowed on public lands that are unclassified or classified as "Limited," "Moderate," or "Intensive" use as identified in the CDCA. To the extent they are reasonably available, for "Limited" lands, new ROWs should be placed in existing ROWs. The CDCA and WMP allow for upgrades to facilities and may be included in any amendments of the original ROW grants. The portions of the Proposed Project developed on public lands would be on land either unclassified or classified as "Limited," "Moderate," or "Intensive."

SCE is a participating entity in the CDCA and the WMP. From a land use and planning perspective, the Proposed Project would not conflict with or otherwise affect the CDCA, WMP, or either the HCP or NCCP, and would therefore not require a plan amendment.

The proposed DRECP, expected to be adopted in 2014, is intended to promote the responsible development of renewable energy projects while conserving habitat for special-status species. It considers high-voltage transmission facilities such as the Proposed Project to be "covered activities," eligible for participation in the DRECP HCP/NCCP permitting process. As a covered activity, construction of the Proposed Project would not be in conflict with the DRECP.

The Apple Valley MSHCP is currently under development but has not been finalized or approved. SCE is participating as a stakeholder in the review of the Apple Valley MSHCP.

Therefore, no impacts are anticipated during construction of the Proposed Project. See Section 4.4, *Biological Resources*, for a discussion of potential project-related effects on biological resources in the CDCA, WMP, DRECP, and Apple Valley MSHCP.

Operation Impacts

As discussed in Construction Impacts, both the CDCA and the WMP allow for the authorization of new ROWs on public lands, consistent with Title V of FLPMA and the Energy Production and Utilities Corridor Element of the CDCA Plan. Operation of the Proposed Project would not occur in any CDCA Class C lands suitable for wilderness designation. New transmission and distribution facilities are allowed on public lands that are unclassified or classified as "Limited," "Moderate," or "Intensive" use as identified in the CDCA. To the extent they are reasonably available, for "Limited" lands, new ROWs should be placed in existing ROWs. The CDCA and WMP allow for upgrades to facilities and may be included in any amendments of the original ROW grants. The portions of the Proposed Project developed on public lands would be on land either unclassified or classified as "Limited," "Moderate," or "Intensive."

SCE is a participating entity in the CDCA and the WMP. From a land use and planning perspective, the Proposed Project would not conflict with or otherwise affect the CDCA, WMP, or either the HCP or NCCP, and would therefore not require a plan amendment.

The proposed DRECP, expected to be adopted in 2014, considers high-voltage transmission facilities such as the Proposed Project to be "covered activities," eligible for participation in the DRECP HCP/NCCP permitting process. As a covered activity, the operation of the Proposed Project would not be in conflict with the DRECP.

The Apple Valley MSHCP is currently under development but has not been finalized or approved. SCE is participating as a stakeholder in the review of the Apple Valley MSHCP.

Therefore, no impacts are anticipated during operation of the Proposed Project. See Section 4.4, *Biological Resources*, for a discussion of potential project-related effects on biological resources in the CDCA, WMP, DRECP, and the Apple Valley MSHCP.

4.10.4.2 NEPA Impact Assessment

Based on the analysis performed, it is anticipated that the Project would not result in significant effects under NEPA.

4.10.5 Applicant Proposed Measures

No potentially significant impacts related to land use and planning are anticipated to result from construction and operation of the Proposed Project; therefore, no applicant proposed measures related to land use and planning are identified.

4.10.6 Alternative Project

As described in Section 3.14, *Project Alternatives*, either Segment 9 or Segment 10 could be used as part of the Alternative Transmission Route, but not both. Separate impact analyses are provided for these two scenarios.

4.10.6.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation; the Alternative Transmission Line Route with Segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6; and, the Alternative Apple Valley to Desert View and Gale to Pisgah Telecommunication Routes.

The Alternative Project would be governed by the same regulations and policies as the Proposed Project, including CPUC G.O. No. 131-D, which exempts electric power line and substation projects from local land use jurisdiction. The Alternative Project with Segment 9 would also be located in the CDCA, WMP, proposed DRECP, and proposed Apple Valley MSHCP planning areas. Additionally, a portion of Segment 9 would cross the MCLB Barstow adjacent to an existing SCE ROW. As discussed for the Proposed Project, electric transmission is an allowable use in the CDCA and WMP planning areas, consistent with applicable regulations. High-voltage transmission facilities are a covered activity under the proposed DRECP and therefore not in conflict with the DRECP's goals and objectives. The Alternative Project with Segment 9 would not physically divide an established neighborhood or cross or be constructed on Native American nation (reservation) lands.

Construction and operation of the Alternative Project with Segment 9 would have the same level of potential effect on land use and planning as the Proposed Project. No impacts are anticipated during construction and operation of the Alternative Project with Segment 9.

4.10.6.2 Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation; the Alternative Transmission Line Route with Segments 12, 11, 10, 8, 2, 4, 5,

5B, and 6; and the Alternative Apple Valley to Desert View and Gale to Pisgah Telecommunication Routes.

There would be no substantial difference in impacts on land use and planning between the use of Segment 9 and the use of Segment 10. Use of Segment 10 would avoid use of MCLB Barstow lands that would occur with use of Segment 9, but because no substantial land use or planning issue would occur from use of Segment 9 on the MCLB Barstow, impacts associated with the Alternative Project with Segment 10 would be similar to those of the Proposed Project and Alternative Project with Segment 9. The Alternative Project with Segment 10 would not physically divide an established neighborhood or cross or be constructed on Native American nation (reservation) lands. No impacts are anticipated during construction and operation of the Alternative Project with Segment 10.

4.10.7 References

California Energy Commission. (2013). Desert Renewable Energy Conservation Plan. Retrieved from http://www.drecp.org.

City of Barstow. (1997). Title 19: Zoning Ordinance.

City of Hesperia Planning Department. (2010). City of Hesperia General Plan.

San Bernardino County. (2007). Lucerne Valley Community Plan. Adopted March 13. Effective April 12, 2007.

San Bernardino County. (2013). County of San Bernardino 2007 General Plan. March 13. Effective April 12, 2007. Amended June 18, 2013.

Town of Apple Valley. (2009). Town of Apple Valley General Plan.

U.S. Bureau of Land Management (BLM), Desert District. (1999). The California Desert Conservation Area Plan 1980 as amended.

BLM. (2006). West Mojave Plan.

This page is intentionally blank.

4.11 Mineral Resources

This section describes the known mineral resources in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). It analyzes the potential impacts on the identified mineral resources associated with construction and operation of the Proposed Project and Alternative Project.

4.11.1 Environmental Setting

This discussion describes the existing conditions for known mineral resources in the Coolwater-Lugo area. For this section, information was obtained from existing documents and plans. Mineral resources include oil, natural gas, and metallic and nonmetallic deposits. The mineral resources in San Bernardino County include extensive deposits of sand and aggregates, metals, boron, rare earths, and salt (San Bernardino County 2013). These deposits are an important part of the economic well-being of the county and industries outside of the county.

No oil or natural gas fields are located in or near the Coolwater-Lugo area (California Department of Conservation 2004 and 2010). In addition, no metallic mineral deposits are currently being commercially extracted within 1.0 mile of the Coolwater-Lugo area (U.S. Geological Survey ["USGS"] 2010). However, two mines are listed as past producers of metallic minerals. Dixie Extension No. 1, located approximately 260 feet west of the southern portion of Alternative Transmission Line Segment 8, is listed as a past producer of copper, and a second, unnamed mine, located approximately 0.5 mile southeast of Proposed Transmission Line Route Segment 1, is listed as a past producer of silver. An occurrence of tungsten is located approximately 0.8 mile southeast of the north end of Proposed Transmission Line Route Segment 5 (USGS 2010).

In the past, nonmetallic deposits have been extracted near the Coolwater-Lugo area. Johnson Granite Quarry, located approximately 0.2 mile southwest of the north end of the Proposed and Alternative Transmission Line Segment 2, the Richter Dolomite Deposit, located approximately 1 mile east-southeast of the north end of Proposed Transmission Line Segment 3, and the Peterson Limestone Deposit, located approximately 0.8 mile east of the north end of Proposed Transmission Line Segment 5, are listed as past producers of granite, dolomite, and limestone, respectively (USGS 2012).

There is an active mine (Barstow Plant) located approximately 1.0 mile north of Alternative Transmission Line Segment 9 that produces sand and gravel. A second mine listed as a "Producer" (Owl Rock Products Company, Barstow Pit) is located approximately 1.3 miles north of Segment 9. The plant produces sand and gravel products (USGS 2012). An additional mine (Unnamed Gravel Pit) located on Alternative Transmission Line Segment 9 is listed as a past producer of sand and gravel (USGS 2012). No other mining occurrences or prospects are located in the Coolwater-Lugo area (USGS 2012).

The USGS Mineral Resources Data System (2012) shows 13 mineral resource sites within 1.0 mile of the Gale to Pisgah Telecommunications Route. There are three active

mines: Hector, Hector Mine, and Omaya California Quarry, located within 1.0 mile where boron, bentonite, and crushed stone are mined, respectively. One of the sites (Newberry Borrow Pit), located approximately 1.0 mile south of the route, is listed as a "Producer" of sand and gravel. Two of the mineral resource sites (Newberry Site, Brown) are listed as an "Occurrence" of granite (approximately 0.8 mile south) and talc-soapstone (approximately 0.3 mile north). Two sites (Black Raven, Fort Cady Deposit) are listed as "Prospects" for manganese (approximately 0.6 mile south) and for colemanite and boron-borates (approximately 1.0 mile southwest), respectively. The remaining five mineral resource sites (Railroad Ballast Quarry, Unnamed Quarries, Newberry Quarry, Red Wine Quarry, Gravel Pit) are listed as "Past Producers" of stone, sand and gravel, and volcanic materials.

The Surface Mining and Reclamation Act ("SMARA") of 1975 was enacted to address mineral conservation in California. SMARA requires the State Geologist to conduct research and prepare reports that classify lands that contain mineral deposits that meet marketability and threshold value criteria adopted by the California State Mining and Geology Board ("SMGB"). Four Mineral Resource Zones ("MRZs") are used for classifications:

- MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence
- MRZ-2: Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists
- MRZ-3: Areas containing mineral deposits, the significance of which cannot be evaluated from available data
- MRZ-4: Areas where available information is inadequate for assignment to any other MRZ zone

MRZ classifications are determined without regard for current land use; therefore, classification reports prepared for metropolitan areas also identify deposits or portions of deposits that are classified as MRZ-2 and that have not been preempted from mineral production by incompatible land uses, such as urbanization. These areas, called resource sectors, are used to focus the attention of land use planners and local governments on the areas that remain potentially available for future mineral extraction. Resource sectors are considered by the SMGB for designation as mineral resources of regional or statewide significance.

Classification and designation for aggregate resources, such as sand, gravel, and crushed stone, in San Bernardino County were completed by the SMGB in 1987 (SMGB 1987) and updated in 2008 (California Geological Survey ["CGS"] 2008). The 2008 update identified MRZs and resource sectors that were not identified in 1987. The two aggregate resource sectors (Sectors J and K) that were added in the 2008 update have not been

designated by the CGS as having regional or statewide importance, but they may be considered for designation in the future. The Coolwater-Lugo components are located entirely in areas that have not been classified by CGS.

The State of California Division of Geology has identified significant concrete aggregate deposits in Apple Valley (Town of Apple Valley 2009). Mineral resources are found primarily along or near the Mojave River. These resources include sand, gravel, and stone deposits that provide useful sources of concrete aggregate. The Mojave River area designated as Aggregate Resource Area ("ARA") -8 is located just west of the Apple Valley Substation. The designation of ARA-8 refers to that part of the Mojave River, classified as MRZ-2b that is rated as "Highly Significant". However, the Apple Valley to Desert View Telecommunications Route is not located within an ARA, but is located entirely in areas classified as MRZ-3a, which are areas that contain mineral deposits, the significance of which cannot be evaluated from available data. The majority of the Apple Valley to Desert View Telecommunications Route would be installed on existing SCE overhead structures.

4.11.2 Regulatory Setting

4.11.2.1 Federal Regulatory Setting

Mining and Mineral Policy Act of 1970

This act declared that federal government policy is to encourage private enterprise in the development of a sound and stable domestic mineral industry and to encourage the orderly and economic development of mineral resources, research, and reclamation methods. However, activities related to mining and mine reclamation are regulated by the State.

U.S. Bureau of Land Management California Desert Conservation Area Plan

In 1976, Congress required the preparation of a comprehensive long-range plan for the California Desert Conservation Area ("CDCA"). The purpose of the plan is to establish guidance for the management of the public lands of the California desert by the BLM. The CDCA Plan includes a Geology, Energy, and Mineral Resources Element which includes the goals of assuring the availability of known mineral resource lands for exploration and development, and encouraging the development of mineral resources in a manner which satisfies national and local needs and provides for economically and environmentally sound exploration, extraction, and reclamation processes (BLM 1999).

4.11.2.2 State Regulatory Setting

California Surface Mining and Reclamation Act

The SMARA mandates the classification of valuable lands that are subject to urban expansion or other irreversible actions in order to protect mineral resources in the State. The SMARA also allows the State to designate lands containing mineral deposits of

regional or statewide significance. The law provides for significant mineral resources to be recognized and considered before land use decisions are made that may compromise the availability of these resources.

4.11.2.3 Local Regulatory Setting

The California Public Utilities Commission ("CPUC") has sole exclusive State jurisdiction over the siting and design of Coolwater-Lugo because the CPUC regulates and authorizes the construction of investor-owned public utility facilities. Such projects are exempt from local land use and zoning regulations and permitting in accordance with General Order No. 131-D which is applicable to all components of a project including but not limited to the transmission lines, substations, staging yards, and marshaling yards. However, Section XIV.B, requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain a nondiscretionary local permit." As part of its environmental review process, Southern California Edison ("SCE") considers local and State land use plans and policies, and local land use priorities and concerns.

County of San Bernardino General Plan

The *County of San Bernardino 2007 General Plan* (San Bernardino County 2013) recognizes the importance of mineral resources and has developed policies to protect the current and future extraction of mineral resources that are important to the County's economy while minimizing the impact of this use on the public and the environment. The County has not incorporated the State MRZ or resource sector classifications into its General Plan because the 2008 update of MRZ and resource sector classifications was not available when the General Plan was adopted in 2007. The County will incorporate these classifications when the General Plan is updated to protect the access and economic use of these resources (San Bernardino County 2013).

City of Hesperia General Plan

According to the *City of Hesperia General Plan 2010* (City of Hesperia 2010), the most significant mineral resources in the City's planning area are sand, gravel, and stone deposits located primarily in wash areas and Summit Valley. Deposits with the potential for use as construction materials have been identified in the specific plans for the areas of Rancho Las Flores and Summit Valley Ranch. These deposits include gravelly alluvium located along the West Fork Mojave River and Grass Valley Creek floodplain, and sandy alluvium located in the northeastern portions of the Rancho Las Flores Specific Plan area (City of Hesperia 2010). The locations of these deposits are not designated on the City General Plan Land Use Map. The Summit Valley Ranch Specific Plan area is located approximately 3.0 miles south of Lugo Substation and is approximately 2.5 miles from the nearest Coolwater-Lugo component, Alternative Transmission Line Segment 6; therefore, any mineral resource deposits in the Summit Valley area are not relevant to Coolwater-Lugo. Alternative Transmission Line Segment 6 does cross the Rancho Las Flores Specific Plan Area. Segment 6 is located approximately 1.5 miles from the West Fork Mojave River, which is the location of gravelly alluvium deposits. The location of

the sandy alluvium, referenced as being in the northeastern portion of the Rancho Las Flores Specific Plan Area, in relation to the location of Segment 6 is unknown. However, according to the City of Hesperia General Plan, mineral resources in the City are not considered to be significant because of the vast availability of similar deposits in the region (City of Hesperia 2010).

Town of Apple Valley General Plan

The State of California Department of Conservation, Division of Mines and Geology identified significant aggregate deposits within the Town of Apple Valley and its Sphere of Influence. Current sources of aggregates within the planning area for the Town of Apple Valley are found primarily along or near the Mojave River floodplain. These resources include sand, gravel, and stone deposits that provide useful sources of concrete aggregate and are considered potentially important mineral resources. ARAs or areas with current land uses that may be compatible with resource exploitation were identified by the *Town of Apple Valley General Plan* (Town of Apple Valley 2009). These ARAs include substantial deposits of aggregate resources. However, these areas are located adjacent to and west (ARA-8) and approximately 2.5 miles northwest (ARA-9) of the Apple Valley Substation.

4.11.3 Significance Criteria

4.11.3.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to mineral resources come from the California Environmental Quality Act ("CEQA") Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan

4.11.3.2 NEPA Analysis

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27).

4.11.4 Impact Analysis

The assessment is based on the potential impact of implementing the Proposed Project on mineral resources. The impact assessment was conducted to identify the type and extent of impacts on mineral resources that may be affected by the Proposed Project. Impacts were evaluated in an area defined to be within and immediately adjacent to the Proposed

Project. Impacts from implementing the Alternative Project are discussed in Section 4.11.6, *Alternative Project*.

As discussed in Chapter 3, *Project Description*, either the Proposed Project or Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. There would be no differences in potential impacts on mineral resources under the IBO and FBO scenarios; therefore, the following impact assessment applies to both scenarios for Desert View Substation. Full build out of either the Proposed or Alternative Desert View Substation would occur in the disturbance footprint established during the IBO of Desert View Substation construction; therefore, no disturbance of additional lands would be needed for the FBO of Desert View Substation.

4.11.4.1 CEQA Impact Assessment

Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

Construction Impacts

The Proposed Project is located entirely in areas that have not been classified by CGS. Mineral resource areas have been identified in the general plans for the San Bernardino County and the City of Hesperia; however, the Proposed Project would not be located in these resource areas. In addition, no active mines or mineral occurrences or prospects are located in the Coolwater-Lugo area. Construction of the Proposed Project would not result in a loss of availability of a known mineral resource that would be of value to the region and residents of the state. Therefore, no impacts are anticipated during construction of the Proposed Project.

Operation Impacts

The effects on mineral resources during operation of the Proposed Project would be the same as the effects during construction, described above. Therefore, no impacts are anticipated during operation of the Proposed Project.

Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Construction Impacts

Although the *County of San Bernardino 2007 General Plan* does not currently incorporate the state classifications and designations, they reportedly will be incorporated when the General Plan is updated (San Bernardino County 2013). In addition, the Proposed Project components located in unincorporated San Bernardino County are not located in areas that have been mapped by SMGB. Thus, construction of the Proposed Project would not result in loss of availability of a locally important mineral resource recovery site as delineated on the County General Plan. No impacts are anticipated during construction of the Proposed Project.

The *City of Hesperia General Plan 2010* has designated mineral resources in two areas: Rancho Las Flores and Summit Valley Ranch. None of the Proposed Project components would be located in these areas. Thus, construction of the Proposed Project would not result in loss of availability of a locally important mineral resource recovery site delineated in the *City of Hesperia General Plan 2010*. No impacts are anticipated during construction of the Proposed Project.

Operation Impacts

The effects on mineral resources during operation of the Proposed Project would be the same as the effects during construction, described above. Therefore, no impacts are anticipated during operation of the Proposed Project.

4.11.4.2 NEPA Impact Assessment

Based on the analysis performed, it is anticipated that the Project would not result in significant effects under NEPA.

4.11.5 Applicant Proposed Measures

No impacts related to mineral resources are anticipated to result from construction and operation the Proposed Project; therefore, no applicant proposed measures related to mineral resources are identified.

4.11.6 Alternative Project

As described in Section 3.14, *Project Alternatives*, either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Route, but not both. A separate impact analysis is provided for these two scenarios.

4.11.6.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation, the Alternative Transmission Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6, and the Apple Valley to Desert View and Gale to Pisgah Telecommunications Routes.

The setting for mineral resources for the Alternative Desert View Substation is the same as for the Proposed Desert View Substation. The setting for the Alternative Transmission Line Route includes an identified potential mineral resource area. With regard to Alternative Transmission Line Segment 6, the western portion of the segment crosses the northern portion of the Rancho Las Flores planning area, which contains mineral resource areas identified in the *City of Hesperia General Plan 2010*. The deposit of concern is sandy alluvium located in the northeastern portion of the specific plan area. The specific location of this potential resource area is not mapped, so its relation to the location of Segment 6 is unknown. However, the resources in this area are considered not significant by the City because of the vast availability of the same resources in the area; therefore, there would be no loss of availability of important mineral resources. The setting for

mineral resources along all the other Alternative Transmission Line Route segments is the same as for the Proposed Transmission Line Routes. Therefore, no impacts are anticipated during construction and operation of the Alternative Project with Segment 9.

4.11.6.2 Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, the Alternative Transmission Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and the Apple Valley to Desert View and Gale to Pisgah Telecommunications Routes.

There is no significant difference in the setting for mineral resources for Segment 9 and Segment 10. Therefore, impacts from the Alternative Project with Segment 10 would be similar to those from the Alternative Project with Segment 9. No impacts are anticipated during construction and operation of the Alternative Project with Segment 10.

4.11.7 References

California Department of Conservation, Department of Oil, Gas, and Geothermal Resources. (2004). District 1 Wildcat Map W1-4. Retrieved from http://www.conservation.ca.gov/dog/maps/Pages/d1_index_map1.aspx, February 22, 2004.

California Department of Conservation, Department of Oil, Gas, and Geothermal Resources. (2010). District 1 Wildcat Map W1-5. Retrieved from http://www.conservation.ca.gov/dog/maps/Pages/d1_index_map1.aspx, May 26, 2010

California Geological Survey (CGS). (2008). Update of Mineral Land Classification for Portland Cement Concrete-Grade Aggregate in the San Bernardino Production-Consumption Region, San Bernardino and Riverside Counties, California, Special Report 206.

California State Mining and Geology Board (SMGB). (1987). Regionally Significant Construction Aggregate Resource Areas in the San Bernardino Production-Consumption Region, Devore Quadrangle, SMARA Designation Map No 85-2, San Bernardino, Plates 1 to 18, January [online] http://www.conservation.ca.gov/smgb/reports/Designation/Documents/Table%201.pdf

City of Hesperia. (2010). City of Hesperia General Plan 2010. Retrieved from http://www.cityofhesperia.us/index.aspx?NID=409

San Bernardino County. (2013). County of San Bernardino 2007 General Plan. March 13, 2007; Effective April 12, 2007; and Amended June 18, 2013

U.S. Bureau of Land Management (BLM), Desert District. (1999). The California Desert Conservation Area Plan 1980 as amended.

U.S. Geological Survey. (2010). Mineral Resources Spatial Data. Retrieved from http://mrdata.usgs.gov/website/MRData-US/viewer.htm

U.S. Geological Survey (USGS). (2012). Mineral Resources On-Line Spatial Data. Retrieved http://mrdata.usgs.gov/mrds/show-mrds.php?dep_id=10262354

This page is intentionally blank.

4.12 Noise

This section describes the existing noise conditions in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"), and analyzes potential noise impacts associated with the construction and operation of the Proposed Project and the Alternative Project.

4.12.1 Environmental Setting

The environmental setting provides definitions for noise and vibration terminology, explains basic concepts, describes the existing noise levels, and identifies noise-sensitive receptors in the Coolwater-Lugo area.

4.12.1.1 Noise Definitions and Terminology

Sound is a disturbance created by a moving or vibrating source that is capable of being detected by the hearing organs. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment.

In its most basic form, a continuous sound can be described by its frequency or wavelength (pitch) and its amplitude (loudness). Frequency is expressed in cycles per second, or hertz. Loudness is expressed in decibels ("dB").

Noise Measurement Terms

To measure sound in a manner that accurately reflects human perception, several measuring systems or scales have been developed. The amplitude of pressure waves generated by a sound source determines the loudness of that source, typically expressed as sound-pressure levels, described in units of dB; dBs are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. Because the human ear does not perceive all pitches or frequencies equally, dB measurements are adjusted (or weighted) to compensate for human beings' lack of sensitivity to low-pitched and high-pitched sounds. The adjusted unit for humans is known as the A-weighted decibel ("dBA").

The equivalent continuous noise level ("Leq") descriptor is the preferred method to describe sound levels that vary over time, resulting in a single value that takes into account the total sound energy over the period of time of interest. Leq values are commonly expressed for 1-hour periods, but different averaging times may be specified.

For the evaluation of community noise effects, Community Noise Equivalent Level ("CNEL") is often used. It represents the average A-weighted noise level during a 24-hour day with a 5-dB addition for the period from 7:00 p.m. to 10:00 p.m. and a 10-dB addition for the period from 10:00 p.m. to 7:00 a.m. to account for a higher sensitivity to

noise during the evening and nighttime hours. The day/night average sound level ("Ldn") is the same as CNEL, except the evening period is included in the daytime period.

Perception of Noise at the Receptor

A number of factors affect people's perception of sound. These factors include the actual level of noise, the frequencies involved, the period of exposure to the sound, and changes or fluctuations in the sound level during exposure.

The subjective human perception of the loudness of a noise source would usually be different than what is measured. Generally, a 3-dBA increase in ambient noise levels is considered the minimum threshold at which a trained ear can detect a change in the noise environment; a 5-dBA increase is considered to be readily audible to most people, and an increase of 10 dBA is perceived as a doubling of the ambient noise level.

Humans are generally more sensitive to what is referred to as tonal noise and impulse noise. Pure tones are wave forms that occur at a single frequency. Examples of sources that can cause tonal noise include fans, compressors, motors, and transformers. Tolerance levels for tonal noise are generally at a lower threshold. Impulse noise is a short-duration transient noise event characterized by a sudden rise or spike in sound pressure followed by a uniform or oscillatory decay (depends on type of source equipment) lasting less than a 1/2 second. Examples of impulse noise include gunshots and startup of loud equipment.

Table 4.12-1, *Typical Noise Levels*, provides examples of common activities and the sound levels associated with those activities.

Table 4.12-1 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock Band
Jet Fly-over at 300 m (1,000 ft)	100	
Gas Lawn Mower at 1 m (3 ft)	90	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	80	Food Blender at 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	60	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	50	Large Business Office Dishwasher in Next Room

Table 4.12-1 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	30	Library
Quiet Rural Nighttime	20	Bedroom at Night, Concert Hall (Background)
	10	Broadcast/Recording Studio
	0	Lowest Threshold of Human Hearing

Source: Caltrans 2009

4.12.1.1 Corona Noise

When a transmission or subtransmission line is in operation, an electric field is generated in the air surrounding the conductors forming a "corona." Corona results from the partial breakdown of the electrical insulating properties of the air surrounding the conductors. When the intensity of the electric field at the surface of the conductor exceeds the insulating strength of the surrounding air, a corona discharge occurs at the conductor surface, representing a small dissipation of heat and energy. Some of the energy may dissipate in the form of small local pressure changes that result in audible noise or in radio or television interference. Audible noise generated by corona discharge is characterized as a hissing or crackling sound that may be accompanied by a 120-hertz hum.

Slight irregularities or water droplets on the conductor and/or insulator surface accentuate the electric field strength near the conductor surface, thereby making corona discharge and the associated audible noise more likely. Under weather conditions such as rain and high wind, ambient noise levels would generally be higher than those generated by the transmission line operation, and would mask the corona noise levels. Therefore, audible noise from transmission lines is generally a foul weather (wet conductor) phenomenon. However, during fair weather, insects and dust on the conductors can also serve as sources of corona discharge.

The Electric Power Research Institute has conducted several studies of corona effects (EPRI Transmission Line Reference Books 1978 and 1987. The typical noise levels for transmission lines with wet conductors are shown in Table 4.12-2, *Transmission Line Voltage and Audible Noise Level*.

Table 4.12-2 Transmission Line Voltage and Audible Noise Level

Line Voltage (kV)	Audible Noise Level Directly Below the Conductor (dBA)
138	33.5
240	40.4
356	51.0

kV = kilovolt
Source: EPRI Transmission Line Reference Books 1978 and 1987

The data in shown in Table 4.12-2, *Transmission Line Voltage and Audible Noise Level*, indicate the typical noise level directly below the conductor of a 240 kV transmission line with a wet conductor to be 40.4 dBA. The corona noise levels decrease with lower voltage, therefore, a 220 kV line would emit a lesser noise level than the 40.4 dBA for a 240 kV transmission line. In addition, the corona noise level drops at a rate of approximately 4 dBA for each doubling of the distance beyond 100 feet distance from a transmission line.

4.12.1.2 Ground-borne Vibration and Noise

Typical outdoor sources of perceptible ground-borne vibration and noise are construction equipment and traffic on rough roads. Construction activity can also result in varying degrees of ground-borne vibration, depending on the type of equipment, methods employed, and site geology.

Ground vibrations from construction activities do not often reach levels that can damage structures, but they can be noticeable in buildings very close to construction activities. A major concern with regard to construction vibration is building damage, which is assessed in terms of peak particle velocity ("PPV") and is expressed in inches per second ("in/sec").

The rumbling sound caused by the vibration of room surfaces is called ground-borne noise. Ground-borne noise related to human annoyance is generally related to root mean square velocity levels expressed in vibration decibels ("VdB"). In contrast to airborne noise, ground-borne noise is not a phenomenon that most people experience every day. The background vibration velocity level in residential areas is usually 50 VdB or lower, well below the threshold of perception for humans, which is around 65 VdB.

4.12.1.3 Existing Noise Sources

The existing ambient noise sources within the Coolwater-Lugo area could include the vehicular traffic on the local arterial system, and highways and freeways; rail noise; aircraft noise; and noise associated with existing electrical substations and transmission lines. Other existing noise sources within the Coolwater-Lugo area also contributing the environmental noise levels include activities at the Marine Corps Logistics Base

("MCLB") Barstow, the Barstow Landfill, a variety of light industrial facilities and retail centers, schools, and parks.

The noise levels associated with roadways vary with the traffic volume, vehicular speed, the relative number or percentage of trucks and cars in the traffic volumes, the roadway cross-section and geometric design, and the local topography. Typically, the greater the vehicle speed and number of trucks, the greater the level of noise from the roadway.

Railroad activity, including heavy rail locomotives and railcars, also constitutes a major, but less widespread, element of the noise environment in San Bernardino County. The Burlington Northern and Santa Fe and Union Pacific rail lines extend through the City of Hesperia in a north/south direction. Rail lines also extend to the east and west along Desert View Road just south of the Proposed Desert View Substation site, and parallel to Interstate 40 ("I-40") just south of the Coolwater Switchyard. The Proposed and Alternative Transmission Line Segment 5, Proposed Transmission Line Segment 7 and Proposed and Alternative Transmission Line Segment 12 would cross over these rail lines. Rail traffic results in considerable noise impacts on adjacent lands, although the elevated noise levels are periodic and of relatively short duration.

The Hesperia Airport is just south of and adjacent to Proposed Transmission Line Segment 7, approximately 0.8 mile north of Alternative Transmission Line Segment 6, and approximately 2.5 miles east of the Lugo Substation. The State of California has adopted 65 CNEL (or Ldn) as the standard (CCR 1998) for the acceptable level of aircraft noise for persons living in the vicinity of airports. The 65 CNEL noise contour for the Hesperia Airport extends less than 50 feet from the runway, and the 60 CNEL contour for the airport extends approximately 100 feet from the runway (San Bernardino 1991).

The Barstow-Daggett Airport is located just north of I-40 and approximately 0.8 mile north of the Gale-Pisgah Telecommunication Route. The airport is a small, county-owned, public-use airport located approximately 5 miles east of the unincorporated community of Daggett. The airport is approximately 1,087 acres in size. According to the Airport Comprehensive Land Use Plan ("CLUP") prepared for this airport, the 65 CNEL noise contour does not extend past the airport property (San Bernardino County 1992).

The privately owned Rabbit Ranch Airport is located approximately 3 miles west of the community of Lucerne Valley, north of State Route 18 ("SR-18") and approximately 0.6 mile south of Proposed and Alternative Transmission Line Segment 5. The Rabbit Ranch Airport does not have a CLUP. It is a private airport with a dirt runway and it is unlikely that operations of this airport result in a 65 CNEL noise contour that extends past the airport property.

4.12.1.4 Existing Noise Levels

Existing ambient noise levels in the vicinity of the Coolwater-Lugo segments that pass through the City of Hesperia are documented in the *City of Hesperia General Plan 2010* Noise Element. Noise levels along Alternative Transmission Line Segment 6 and Proposed Transmission Line Segment 7 range from 61 to 75 dBA Leq (City of Hesperia

2010), depending on the measurements' proximity to stationary noise sources, roadways, and railways.

Noise levels along the remaining Coolwater-Lugo segments can be expected to range from 44 through 56 dBA Leq (Kunzman 2012). The lower end of this range represents a rural residence in the high desert located approximately 0.3 mile from SR-18. The higher end of this range represents a campground/recreational facility located adjacent to SR-18.

The existing residential neighborhoods, adjacent to Bear Valley Road, currently experience exterior noise levels approaching 65 CNEL (Town of Apple Valley 2009).

4.12.1.5 Sensitive Receptors

Noise-sensitive receptors typically include, but are not limited to, schools, hospitals, convalescence homes, long-term care facilities, mental-care facilities, residences, places of worship, libraries, and passive recreation areas. Sensitive receptors in the vicinity of proposed facilities are primarily residential, as described below by project component. Distances to actual homes listed below were estimated using Geographic Information System shape files and Google Earth.

Locations

Residentially zoned properties are located adjacent to all boundaries of the Proposed Desert View Substation, the Alternative Desert View Substation, and the existing Lugo Substation. Properties zoned for residential use are also adjacent to the west and south boundaries of the Coolwater Generation Station 220 kV Switchyard ("Coolwater Switchyard"). Residences are located approximately 0.3 mile from the Proposed Desert View Substation, approximately 80 feet from the Lugo Substation, and approximately 240 feet from the Coolwater Switchyard. One residence is located within approximately 160 feet from the footprint of the Alternative Substation.

Proposed & Alternative Coolwater-Lugo Transmission Route Segments

The following discussion provides a description of existing sensitive receptors (primarily residential land uses) in the vicinity of the approximate centerline of each of the proposed transmission line segments for evaluation of noise ordinance compliance. The distances from the approximate centerline of the transmission lines to the location of the residential properties and residences are also provided to give a better understanding of the environment.

Segment 1. There are no noise-sensitive land uses adjacent to Segment 1. The nearest noise-sensitive land uses are residences located approximately 0.2 mile, northwest of the intersection of Barstow Road and Chuckwagon Road, and approximately 0.8 mile to the north of Segment 1. The entire segment is within an area zoned as Open Space.

Segment 2. There are no noise-sensitive land uses adjacent to Segment 2. The nearest residence is located approximately 0.3 mile, to the north from Segment 2, near the

intersection of Greastwood Lane and Millberry Street in the Lucerne Valley. The entire segment is within an area zoned as Open Space.

Segment 3. Segment 3 traverses through properties zoned for residential and agricultural land uses and there are residential properties adjacent to Segment 3. The nearest residence is located approximately 110 feet, to the southwest from Segment 3, near the intersection of Spinel Street and State Route 247 ("SR-247").

Segment 4. Segment 4 traverses through properties zoned for open space, residential and agricultural land uses. There are residential properties adjacent to Segment 4. The nearest residences are located approximately 600 feet, to the east of Alternative Transmission Line Segment 4, and approximately 2,500 feet from Segment 4, west of SR-247.

Segment 5. Segment 5 traverses through properties zoned for utilities, open space, residential and agricultural land uses. Segment 5 is adjacent to residential property in the vicinity of a Recreational Vehicle Park/Campground, known as Sundowner Ranch, located in Lucerne Valley. Nearby cross streets are Essex Street and Sussex Avenue. The nearest residences are located within approximately 500 feet from Segment 5. Segment 5 enters another residential area south of SR-18; the closest residence in this area is located within approximately 330 feet from Segment 5.

Segment 6. Segment 6 traverses through a variety of properties zoned for institutional, utilities, open space, urban mixed, residential and agricultural land uses; however, most of Segment 6 is not developed. Although there are residential properties adjacent to Segment 6, the residences on these properties are located at a distance of approximately 240 feet west of the northern segment and approximately 950 feet from the southern end of Segment 6. There are also residential properties in the vicinity of Arrowhead Lake Road. One residential property is located within the alignment of Alternative Transmission Line Segment 6.

Segment 7. Land uses at the eastern end of Segment 7 are primarily developed as rural residential, becoming increasingly urban as the segment extends west into the City of Hesperia. Segment 7 traverses through properties zoned for institutional, utility, open space, residential and agricultural land uses. Many residences are close to Segment 7, which would be located in an existing Southern California Edison ("SCE") right-of-way ("ROW"); the residences are as close as approximately 100 feet to the ROW along some portions of Segment 7.

Segment 8. Segment 8 traverses through properties zoned for residential and agricultural land uses. However, there are no existing homes on properties adjacent to Segment 8. The nearest residence is located 2 miles to the north of Segment 8.

Segment 9. Segment 9 traverses through properties zoned for residential, agricultural land uses, and military land uses. There are no existing homes on adjacent properties. The nearest residence is located over approximately 0.7 mile north of Segment 9.

Segment 10. Segment 10 traverses through properties zoned for residential and agricultural land uses. There are no existing homes on adjacent properties. The nearest residences are located more than 2 miles to the north of Segment 10.

Segment 11. Segment 11 extends in an east/west direction from the eastern end of Segment 10, south of I-40 and east of "A" Street to the southern end of Segment 12 located directly south of the Coolwater Switchyard and I-40. Segment 11 traverses properties zoned for open space and residential land uses. The nearest residence is located approximately 0.4 mile to the north of Segment 11 and west of Camp Rock Road.

Segment 12. Segment 12 traverses properties zoned for open space, industrial and residential land uses. There are adjacent residential properties at the north end of Segment 12 just north of National Trails Highway. The nearest residences are located within the Proposed and Alternative Segment Transmission Line Segment 12 alignment, and six additional residences are located west of Segment 12 ranging from 50-860 feet from the alignment.

Gale to Pisgah Telecommunication Route

The Gale to Pisgah Telecommunication Route would be constructed along a combination of predominately existing distribution and subtransmission poles with some replacement poles paralleling the National Trails Highway, Pioneer Road, Newberry Road, Pisgah Crater Road and in the general vicinity of I-40. The route traverses property zoned residential and open space and there are several residences within the vicinity of the alignment located approximately 30 feet from this alignment in the Newberry Springs community. There are also several residences in a neighborhood southeast of the Barstow-Daggett Airport and other, more remote residences, spread along the alignment.

Apple Valley to Desert View Telecommunication Route

The Apple Valley to Desert View Telecommunication Route would also be constructed along and in the vicinity of Deep Creek Road, Kiowa Road, Bear Valley Road, Tujunga Drive, Del Oro Road, and Laguna Seca Drive (Proposed Substation) or Japatul Road (Alternative Substation), on a combination of predominately existing distribution and subtransmission poles with some replacement poles and some new poles in the vicinity of the Proposed or Alternative Desert View Substation. This telecom line would traverse parcels zoned agriculture, residential commercial and urban mixed uses. There are many properties zoned residential, with and without existing residences, which are adjacent to the Apple Valley to Desert View Telecommunication Route.

4.12.2 Regulatory Setting

4.12.2.1 Federal Regulatory Setting

There are no federal noise standards that directly regulate noise from the operation of electrical power lines and substation facilities.

The U.S. Environmental Protection Agency ("EPA"), Office of Noise Abatement and Control, was established to coordinate Federal noise control activities. After its inception, EPA's Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, which established programs and guidelines to identify and address the effects of noise on public health and welfare and the environment. Administrators of the EPA determined in 1981 that subjective issues, such as noise, would be better addressed at lower levels of government. Consequently, in 1982, responsibilities for regulating noise control policies were transferred from the Federal government to state and local governments. Noise control guidelines and regulations contained in rulings by the EPA in prior years remain valid, but more individualized control for specific issues is allowed by designated state and local government agencies.

4.12.2.2 State Regulatory Setting

California Public Utilities Commission

The California Public Utilities Commission ("CPUC") has sole and exclusive State jurisdiction over the siting and design of Coolwater-Lugo because the CPUC regulates and authorizes the construction of investor-owned public utility facilities. There are no Federal or State laws concerning noise that apply to planning and construction of facilities for the generation of electricity and certain electric transmission facilities per General Order 131-D.

State of California Department of Health Services

The California Department of Health Services established noise criteria for various land uses. These standards are designed to protect noise-sensitive land uses from high noise levels and to be used as guidelines in the planning for future land uses. The City of Hesperia and the San Bernardino County have adopted their own noise-land use compatibility criteria based on these guidelines. The San Bernardino County and City of Hesperia criteria are discussed below.

4.12.2.3 Local Regulatory Setting

The CPUC has sole exclusive State jurisdiction over the siting and design of Coolwater-Lugo because the CPUC regulates and authorizes the construction of investor-owned public utility facilities. Such projects are exempt from local land use and zoning regulations and permitting in accordance with General Order No. 131-D, which is applicable to all components of a project including, but not limited to the transmission lines, substations, staging yards, and marshaling yards. However, Section XIV.B requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain a nondiscretionary local permit." As part of its environmental review process, Southern California Edison ("SCE") considers local and State land use plans and policies and local land use priorities and concerns.

Although not subject to local noise ordinances, Coolwater-Lugo construction would voluntarily comply with local noise ordinances. There may be a need to work outside the

local ordinances in order to take advantage of low electrical draw periods during the nighttime hours. SCE would comply with variance procedures requested by local authorities, if required.

Coolwater-Lugo would be located within San Bernardino County, the cities of Barstow and Hesperia, and the Town of Apple Valley. A portion of Alternative Transmission Line Segment 9 would also cross the jurisdiction of the MCLB Barstow. The General Plan Noise Element Goals and Policies and Ordinances from each of these jurisdictions are discussed below.

County of San Bernardino General Plan Noise Element

The Noise Element of the *County of San Bernardino 2007 General Plan* (San Bernardino County 2013) provides the following Goals and Policies related to land use noise compatibility:

Goal N 1. The County will abate and avoid excessive noise exposures through noise mitigation measures incorporated into the design of new noise-generating and new noise-sensitive land uses, while protecting areas within the County where the present noise environment is within acceptable limits.

Policy N 1.5. Limit truck traffic in residential and commercial areas to designated truck routes; limit construction, delivery, and through-truck traffic to designated routes; and distribute maps of approved truck routes to County traffic officers.

Policy N 1.6. Enforce the hourly noise-level performance standards for stationary and other locally regulated sources, such as industrial, recreational, and construction activities as well as mechanical and electrical equipment.

Policy N 1.7. Prevent incompatible land uses, by reason of excessive noise levels, from occurring in the future.

Goal N 2. The County will strive to preserve and maintain the quiet environment of mountain, desert and other rural areas.

Policy N 2.1. Requires appropriate and feasible on-site noise attenuating measures that may include noise walls, enclosure of noise generating equipment, site planning to locate noise sources away from sensitive receptors, and other comparable features.

San Bernardino County Development Code

Ordinances that regulate noise in the San Bernardino County Development Code are presented below.

Section 83.01.080 - Noise. Noise Standards set forth in Table 4.12-3, *San Bernardino County Noise Standards for Stationary Noise Sources* apply to stationary noise sources as they affect adjacent properties, measured at the property line.

Table 4.12-3 San Bernardino County Noise Standards for Stationary Noise Sources

Affected Land Uses (Receiving Noise)	7:00 a.m. - 10:00 p.m. Leq	10:00 p.m. - 7:00 a.m. Leq
Residential	55 dBA	45 dBA
Professional Services	55 dBA	55 dBA
Other Commercial	60 dBA	60 dBA
Industrial	70 dBA	70 dBA

Source: San Bernardino County 2007

The maximum noise level limits presented in Table 4.12-3, *San Bernardino County Noise Standards for Stationary Noise Sources* are further defined based on the duration of the noise event as follows:

No person shall operate or cause to be operated a source of sound at a location or allow the creation of noise on property owned, leased, occupied, or otherwise controlled by the person, which causes the noise level, when measured on another property, either incorporated or unincorporated, to exceed any one of the following:

(A) The noise standard for the receiving land use as specified in Table 4.12-3 above, for a cumulative period of more than 30 minutes in any hour

(B) The noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour

(C) The noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour

(D) The noise standard plus 15 dBA for a cumulative period of more than 1 minute in any hour

(E) The noise standard plus 20 dBA for any period of time

If the measured ambient level exceeds any of the first four noise limit categories above, the allowable noise exposure standard shall be increased to reflect the ambient noise level. If the ambient noise level exceeds the fifth noise limit category in Subdivision above, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

If the alleged offense consists entirely of impact noise or simple tone noise, each of the Noise Standards for Stationary Noise Sources shall be reduced by five dB(A).

Temporary construction, maintenance, repair, or demolition activities are exempt from the noise limits between the hours of 7:00 a.m. and 7:00 p.m. except Sundays and Federal holidays.

Section 83.01.090 – Vibration. No ground vibration shall be allowed that can be felt without the aid of instruments at or beyond the lot line, nor shall any vibration be allowed which produces a particle velocity greater than or equal to two-tenths (0.2) inches per second measured at or beyond the lot line. Temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays are exempt from this ordinance.

City of Hesperia General Plan, Noise Element

The Noise Element of the *City of Hesperia General Plan 2010* (City of Hesperia 2010) provides the following Goals and Policies related to land use noise compatibility:

Goal NS-1. To achieve and maintain an environment which is free from excessive or harmful noise through identification, control and abatement.

Policy NS-1.1. Incorporate noise reduction features during site planning and into land use planning decisions to mitigate anticipated noise impacts on affected noise-sensitive land uses.

Policy NS-1.2. Control and abate undesirable sounds through the use of the land use compatibility criteria shown in General Plan Noise Element Table NS-3[1] and noise standards presented Municipal Code Section 16.20.125(B), which is discussed below. These standards apply to stationary noise sources as they affect adjacent properties.

Policy NS-1.5. Require the design and construction of commercial, industrial, office and mixed-use structures developments with noise attenuation methods to minimize excessive noise upon noise-sensitive land uses.

Policy NS-1.9. Encourage commercial, industrial, office and mixed-use developments to locate loading areas, parking lots, driveways, trash enclosures, mechanical equipment, and other noisier components away from noise-sensitive land uses.

Policy NS-1.10. Limit the hours of construction activity in, and around, residential areas in order to reduce the intrusion of noise in the early morning and late evening hours and on weekends and holidays.

Goal NS-2. To achieve and maintain an environment which is free from excessive vibration.

Policy NS 2.1. Control exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels as set forth in Table 4.12-4, *FTA Ground-borne Criteria for General Assessment* and in Municipal Code Section 16.20.130 (discussed below).

[1] General Plan Noise Element Table NS-3 (Federal and California State Traffic Noise Abatement Criteria) are Federal Highways Administration criteria related to siting sensitive receptors near highways. The applicable portion of this policy is adherence to City of Hesperia Municipal Code 16.20.125(B).

Table 4.12-4 FTA Ground-borne Criteria for General Assessment

Land Use Category	Frequent Events	Occasional Events	Infrequent Events
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB	65 VdB	65 VdB
Category 2: Residences and buildings where people normally sleep	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primary daytime use.	75 VdB	78 VdB	83 VdB

Source: City of Hesperia 2010. General Plan Noise Element Table NS-2

VdB -1 micro-inch per second

Note: "Frequent Events" is defined as more than 70 vibration events of the same source per day; "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day; and "Infrequent Events" is defined as more than 30 vibration events of the same kind per day.

In addition to the goals and policies listed above, the City has developed policies related to land use and acceptable noise levels, as shown in Table 4.12-5, *City of Hesperia Interior and Exterior Noise Standards*. This table is a primary tool which allows the City to ensure integrated planning compatibility between land uses and outdoor noise compatibility guidelines. The information is used to identify projects or activities which may require special treatment to minimize noise exposure.

Table 4.12-5 City of Hesperia Interior and Exterior Noise Standards

Land Use Categories	Noise Equivalent Level (CNEL)	
	Interior[1]	Exterior[2]
Residential Single Family, Duplex, Multiple Family	45[3]	65
Mobile Homes	n/a	65[4]
Hotel, Motel, Transient Lodging	45	65[5]
Commercial Retail, Bank, Restaurant	55	n/a
Office Building, Research and Development, Professional Offices, City Office Building	50	n/a
Amphitheatre, Concert Hall, Meeting Hall	45	n/a
Gymnasium (Multipurpose)	50	n/a
Sports Club	55	n/a
Manufacturing, Warehousing, Wholesale, Utilities	65	n/a
Commercial, Industrial, Institutional, Movie Theatres	45	n/a

Table 4.12-5 City of Hesperia Interior and Exterior Noise Standards

Land Use Categories	Noise Equivalent Level (CNEL)	
	Interior[1]	Exterior[2]
Institutional Hospitals, School Classrooms	45	65
Church, Library	45	n/a
Open Space Parks	n/a	65

Source: City of Hesperia 2010. General Plan Noise Element Table NS-4

Interpretation

1. Indoor environment excluding bathrooms, toilets, closets, corridors.
2. Outdoor environment limited to private yard of single family, multi-family private patio or balcony which is served by a means of exit from inside, mobile-home park, hospital patio, park picnic area, school playground, or hotel and motel recreation area.
3. Noise level requirement with closed windows, mechanical ventilation system or other means of natural ventilation shall be provided per Building Code.
4. Exterior noise level should be such that interior noise level will not exceed 45-dBA CNEL.
5. Except those areas affected by aircraft noise.

City of Hesperia Municipal Code

Section 16.20.125. Table 4.12-6, *City of Hesperia Municipal Code Noise Standards*, presents maximum noise level standards established in Section 16.20.125 (B) of the City of Hesperia Municipal Code. These standards, intend to regulate noise transmission from one property to another are presented in Table 4.12-6.

Table 4.12-6 City of Hesperia Municipal Code Noise Standards

Affected Land Use (Receiving Noise)	Maximum Noise Level[1]	Time Period
A-1, A-2, R-1, R-3 and RR Zone Districts	55 dBA	10:00 p.m. - 7:00 a.m.
A-1, A-2, R-1, R-3 9 and RR Zone Districts	60 dBA	7:00 a.m. - 10:00 p.m.
C-1, C-2, C-3, C-4, C-R, AP, and P-I Zone Districts	65 dBA	Anytime
I-1 and I-2 Zone Districts	70 dBA	Anytime

Source: City of Hesperia 1990. Municipal Code Section 16.20.125
[1]Due to wind noise, the maximum permissible noise level may be adjusted so that it is no greater than five dBA above the ambient noise level.

The maximum noise level limits presented in Table 4.12-6 are further defined based on the duration of the noise event as follows:

(A) The noise standard for the receiving land use as specified in Table 4.12-6 for a cumulative period of more than 30 minutes in any hour

(B) The noise standard plus 5 dBA for a cumulative period of more than 15 minutes in any hour

(C) The noise standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour

(D) The noise standard plus 15 dBA for a cumulative period of more than 1 minute in any hour

(E) The noise standard plus 20 dBA for any period of time

Increases in Allowable Noise Levels. If the measured ambient level exceeds any of the first four noise limit categories above, the allowable noise exposure standard shall be increased to reflect the ambient noise level. If the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

Reductions in Allowable Noise Levels. If the alleged offense consists entirely of impact noise or simple tone noise, each of the noise levels in Subsection (B)(1) of this Section shall be reduced by 5 dBA. Corona noise and transformer noise fall under the category of "tone noise". Therefore, each of the allowable noise levels in Table 4.12-6 shall be reduced by 5 dBA for corona and transformer noise ordinance compliance analysis.

Temporary construction, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays, are exempt from the allowable noise levels set forth in Section 16.20.125 of the City's Municipal Code.

16.20.130 - Vibration. No ground vibration shall be allowed which can be felt without the aid of instruments at or beyond the lot line; nor will any vibration be permitted which produces a particle velocity greater than or equal to 0.2 inches per second measured at or beyond the lot line. Temporary construction, maintenance or demolition activities that occur between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays, are exempt from this code's vibration criteria.

City of Barstow General Plan

Transmission line Segment 9 lies partly within the City of Barstow, but the entire portion of the segment within the city limits is also on the MCLB Barstow. All activities on the MCLB Barstow are under the jurisdiction of the U.S. Department of the Defense (see Section 4.10, *Land Use*). The nearest residential properties within the City are located over 0.7 mile north of Segment 9 and would not be affected by construction or

operational noise. Therefore, the City of Barstow General Plan Noise Element does not affect Coolwater-Lugo.

City of Barstow Municipal Code

The City of Barstow does not have an ordinance regulating project construction or operational noise.

Town of Apple Valley Development Code

The Town of Apple Valley Ordinance 9.73.050 establishes operational noise level limits for the transmission of noise from one property to another. Components of the Proposed Project are not to cause noise that is audible on adjacent residential properties that exceeds 50 dBA Leq from 7:00 a.m. to 10:00 p.m. or 40 dBA Leq from 10:00 p.m. to 7:00 a.m. for a period that exceeds 30 minutes. Other standards for shorter periods also apply.

Section 9.73.060 of the Town of Apple Valley Development Code states that no person shall unnecessarily make, continue, or cause to be made or continued, any noise disturbance. The causing or permitting of operating of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7 p.m. and 7 a.m., or at any time on weekends or holidays, such that the sound there from creates a noise disturbance across a residential or commercial real property line, except for emergency work of public service utilities or by variance issued by the town, would be in violation of this ordinance.

Where technically and economically feasible, construction activities shall be conducted in such a manner that the maximum noise levels at affected properties will not exceed those listed in Table 4.12-7, *Town of Apple Valley Maximum Construction Noise Levels*.

Table 4.12-7 Town of Apple Valley Maximum Construction Noise Levels

At Residential Properties			
Mobile Equipment: Maximum noise levels for nonscheduled intermittent, short- term operation (less than 10 days) of mobile equipment:			
	Type I Areas Single-Family Residential	**Type II Areas Multi-Family Residential**	**Type III Areas Semi-Residential/ Commercial**
Daily, except Sundays and Legal Holidays, 7 a.m. to 7 p.m.	75 dBA	80 dBA	85 dBA
Daily, 7 p.m. to 7 a.m. and all day Sunday and Legal Holidays	60 dBA	65 dBA	70 dBA
Stationary Equipment: Maximum noise levels for repetitively scheduled and relatively long-term operation (periods of 10 days or more) of stationary equipment:			
	Type I Areas	**Type II Areas**	**Type III Areas**

Table 4.12-7 Town of Apple Valley Maximum Construction Noise Levels

	Single-Family Residential	Multi-Family Residential	Semi-Residential/ Commercial
Daily, except Sundays and Legal Holidays, 7 a.m. to 7. p.m.	60 dBA	65 dBA	70 dBA
Daily, 7 p.m. to 7 a.m. and all day Sunday and Legal Holidays	50 dBA	55 dBA	60 dBA
At business properties			
Mobile Equipment: Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment: Daily, including Sundays and legal holidays, all hours: maximum of 85 dBA.			
Stationary Equipment: Maximum noise levels for repetitively scheduled and relatively long-term operation of stationary equipment: Daily, including Sundays and legal holidays, all hours: maximum of 75 dBA.			

Town of Apple Valley Ordinance 9.73.060 states that operation of any device that creates a vibration which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at one hundred fifty (150) feet (46 meters) from the source if on a public space or public right-of-way, would be in violation of the ordinance. The ordinance defines the vibration perception threshold as the minimum ground- or structure-borne vibration motion necessary to cause a normal person to be aware of the vibration by such direct means as, but not limited to, sensation by touch or visual observation of moving objects. The perception threshold shall be presumed to be a motion velocity of 0.01 in/sec over the range of 1 to 100 Hz.

Hesperia Airport Comprehensive Land Use Plan

The purpose of the CLUP is to promote compatibility between public use and airports and the noise-sensitive land uses that surround them to the extent that these areas are not already devoted to incompatible land uses. Aircraft noise contours are developed using the CNEL descriptor as part of the land use compatibility analysis conducted in support of the CLUP. No noise-sensitive land uses would be impacted by Coolwater-Lugo.

The Hesperia Airport has adopted a standard (PUC Section 21669) for the acceptable level of aircraft noise of 65 CNEL for persons living in the vicinity of airports.

Barstow-Daggett Airport Comprehensive Land Use Plan

According to the CLUP prepared for this airport, the 65 CNEL noise contour does not extend past the airport property (San Bernardino County 1992).

4.12.3 Significance Criteria

4.12.3.1 CEQA Significance Criteria

The significance criteria for assessing the impacts related to noise come from the California Environmental Quality Act ("CEQA") Environmental Checklist. According to this CEQA checklist, a project could potentially result in a significant impact if it would cause:

- Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the Project expose people residing or working in the project study area to excessive noise levels
- For a project within the vicinity of a private airstrip, would the project would expose people residing or working in the project study area to excessive noise levels

4.12.3.2 NEPA Analysis

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27).

4.12.4 Impact Analysis

This impact assessment is based on the potential noise impact of the Proposed Project. The Proposed Project's consistency with applicable noise and vibration standards was evaluated. Impacts were evaluated in the Coolwater-Lugo noise study area that generally includes public and private properties adjacent to the proposed and alternative substation properties, transmission line route ROWs, and telecommunication routes, which include the closest sensitive receptors to the project components of Coolwater-Lugo, and extend up to approximately 2 miles to take into account airports that are considered for impact

analysis. Impacts from implementing the Alternative Project are discussed in Section 4.12.6, *Alternative Project*.

As discussed in Chapter 3, *Project Description*, either the Proposed Project or Alternative Project would include an initial build out ("IBO") and a full build out ("FBO") of Desert View Substation. Worst-case construction and operation noise scenarios from the Desert View Substation were modeled and analyzed to address potential impacts associated with both the IBO and FBO scenarios.

A projected worst-case operational noise scenarios were evaluated by determining whether or not the proposed facilities would generate noise levels that would exceed Town of Apple Valley, City of Hesperia and San Bernardino County general plans and noise ordinance standards, or result in substantial increases in ambient noise levels at the nearest sensitive receptor location.

Operational noise source data was compiled and summarized from a number of existing documents, including the Proponent's Environmental Assessment prepared for the Mascot Substation (CPUC 2009a), the Proponent's Environmental Assessment prepared for the Tehachapi Renewable Transmission Line (CPUC); the Draft Environmental Impact Statement ("EIS")/Environmental Impact Report ("EIR") prepared for the East County Substation/Tule Wind/Energia Sierra Juarez Gen-Tie Projects (SDG&E 2010); and the Draft EIS/EIR for the Devers–Palo Verde No. 2 Transmission Line Project (CPUC 2006).

Project consistency with San Bernardino County, Town of Apple Valley, and City of Hesperia Noise Ordinances were evaluated based on Project-generated noise levels as measured at property lines of noise-sensitive receptors, as required by the ordinances. However, the Proposed Project's potential to result in substantial temporary or permanent increases in ambient noise levels was evaluated based on projected noise levels at the actual noise-sensitive receptors, (e.g., active outdoor use areas of residences).

4.12.4.1 CEQA Impact Assessment

Would the project result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction Impacts

The construction of the Proposed Project would generate typical construction noise levels from the operation of a variety of typical construction equipment and vehicles, and construction activities. Maximum noise levels for the loudest construction equipment range from 80 to 90 dBA at 50 feet from the source; however, the average noise level of construction is typically less than the maximum noise levels because the equipment operates in alternating cycles of full power and low power and also depends upon the amount of time that the equipment operates and the intensity of the construction during the time period. Project construction activities would occur on weekdays and Saturdays

between the hours of 7 a.m. and 7 p.m. Therefore, project construction activities would be exempt from the noise level limits of the City of Hesperia, and San Bernardino County Noise Ordinances, provided that these activities occur between the hours of 7 a.m. and 7 p.m. on weekdays and Saturdays only.

For construction within the Town of Apple Valley, project construction would be allowed between 7 a.m. and 7 p.m. on weekdays only (i.e., not on Saturdays, Sundays, and federal holidays). Construction between weekday evening hours of 7 p.m. and 7 a.m., or at any time on weekends or holidays, such that construction noise creates a noise disturbance across a residential or commercial real property line, except for emergency work of public service utilities or by variance issued by the Town, would be in violation of this ordinance. Therefore, project construction outside of the weekday daytime hours set forth by the Town of Apple Valley would require a variance. The Town of Apple Valley has also set forth maximum construction noise level limits that are to be adhered to wherever technically and economically feasible (see Table 4.12-7).

Construction activities associated with the Proposed Project would occur in accordance with restrictions and standards established by the City of Hesperia, San Bernardino County, and the Town of Apple Valley Noise Ordinances. If work is required outside the allowed hours, the Proposed Project would obtain a noise variance from the respective municipalities. Best management practices would further reduce and minimize project construction noise impacts. Therefore, less than significant impacts are anticipated from construction of the Proposed Project.

Operation Impacts

Operation of the Proposed Substation and Proposed Transmission Line Route would generate noise from two primary noise sources: the proposed substation transformer banks and the transmission lines. Operation of the proposed telecommunication lines would not generate operational noise impacts. Noise generating activities would be subject to the City of Hesperia, Town of Apple Valley and the San Bernardino County Noise Ordinances. The Proposed Desert View Substation and Proposed Transmission Line Route segments are all located within unincorporated areas of San Bernardino County, except for the western portion of Segment 7, located within the City of Hesperia. The Apple Valley to Desert View Substation Telecom line would be subject to the Town of Apple Valley Noise Ordinance. The applicable noise exposure standards for each project element, after allowed adjustments are made, are presented below in Table 4.12-8, *Operational Noise Exposure Standards*.

The Proposed Project's maintenance, emergency work, and operation of distribution and telecommunication facilities are not expected to significantly contribute to the Proposed Project's operational noise levels.

Table 4.12-8 Operational Noise Exposure Standards

Noise Source	Allowable Noise Exposure Standard Daytime/Nighttime at Residential Properties	Adjusted for Tonal or Impact Noise	Ambient Noise	Adjusted Allowable Noise Exposure Standard Daytime/Nighttime at Residential Properties
San Bernardino County (Leq)				
Substation	55/45	50/40	56[1] /44	56/44
Segments 12, 1, 2, 3, 5, 5a, 7 (portion), Gale to Pisgah Telecommunication Route	55/45	50/40	44[1]/40	50/40
City of Hesperia (Leq)				
Segment 7 (portion)	60/55	55/50	61[2]/50	61/50
Town of Apple Valley (Leq)				
Apple Valley to Desert View Telecommunication Route	50/40	n/a	61[2]/50	n/a

Sources: (San Bernardino County 1990, Town of Apple Valley2010, and City of Hesperia 2007)
[1] Representative Noise Measurements (Kunzman Associates 2012)
[2] Representative Noise Measurements (City of Hesperia 2010)

Substations

Operational noise levels associated with IBO would be very low as no transformers and associated fans would be installed initially. At FBO, fourteen 500/220 kV transformers, four 220/115 kV transformers, and four 115/12 kV transformers would be installed and operational at the Desert View Substation.

Based on the NEMA Standards Publication No. TR 1-1993 (R2000)/ANSI/IEEE Standard C57.12.90-2010, the calculated sound power levels of these transformers would be 96 dBA for the 500/220 kV and 220/115 kV transformers, and 84 dBA for the 115/12 kV transformers.

The calculated sound pressure level of one 500/220 kV or 220/115 kV transformer would be approximately 59 dBA at 100 feet, and approximately 47 dBA for one 115/12 kV unit at 100 feet. Assuming the acoustical center of all transformers to be in the center of the substation's footprint, the total calculated noise level of all transformers simultaneously in operation would be approximately 71 dBA at 100 feet from the acoustical center of the

units, attenuating by 6 dBA for each doubling in distance (i.e., 65 dBA at 200 feet; 51 dBA at 1,000 feet). The total calculated noise level of all transformers simultaneously in operation would be approximately 50 dBA at the Desert View Substation property lines.

The Proposed Desert View Substation would be surrounded by an 8-foot high concrete panel wall. This barrier would potentially provide an approximate 5 dBA noise reduction, resulting in a transformer banks noise level of approximately 45 dBA at the substation's property lines.

The nearest existing residence and associated outdoor area is located approximately 3,080 feet from the substation's center. The total transformer banks noise level is estimated not to exceed 36 dBA at this location. Therefore, the 36 dBA transformer banks' noise level would not violate the Proposed Project's San Bernardino County 56 dBA Leq daytime (7 a.m. to 10 p.m.) and 44 dBA nighttime (10 p.m. to 7 a.m.) noise level limit for stationary sources.

Maintenance activities at the substation are planned to be limited to occasional inspection and repair activities by a crew consisting of as many as four people and may require a tool truck, an assist truck, and a large bucket lift truck and possibly a helicopter. Activities would include equipment testing, equipment monitoring, and repair, as well as emergency and routine procedures for service continuity and preventive maintenance. Helicopters may travel between marshaling yards and work locations, and may land within SCE ROWs, which could include landing on access or spur roads. If helicopters and trucks are used during inspection activities, helicopters would generate noise levels of approximately 80 dBA at 200 feet, and trucks approximately 75 dBA at 50 feet (CPUC 2006). These mobile sources are not subject to the County limits for stationary sources.

There also would be one new No.3AA 500/220 kV transformer bank installed at the existing Lugo Substation. The addition of this transformer bank to the existing transformer banks in operation at the Lugo Substation is not anticipated to significantly contribute to the existing equipment noise levels at this substation.

Transmission Lines

One double-circuit 220 kV transmission line is proposed along project segments 12, 1, 2, 3 and 5. Proposed Transmission Line Segment 7 would be constructed as a 500 kV transmission line but would be energized at 220 kV until FBO of Desert View Substation. At that time, Segment 7 would operate as a 500 kV transmission line. The corona noise associated with a 220 kV line is expected not to exceed 40 dBA Leq (CPUC 2009a) below the conductor. Corona noise associated with a 500 kV double-circuit transmission line is not expected to exceed 44 dBA below the conductor (CPUC 2009b) during weather conditions that contribute to high corona noise (e.g., high humidity, fog and rain).

Segments 12, 1, 2, 3, 5, and 5a are entirely within unincorporated areas of San Bernardino County. Operation of these segments would be subject to the San Bernardino County Noise Ordinance criteria, which as adjusted for the Project would be 50 dBA Leq

during the day (7:00 a.m. to 10:00 p.m.) and 40 dBA Leq at nighttime (10:00 p.m. to 7:00 a.m.) at the property line of adjacent residential properties. Segment 7 is partially within unincorporated San Bernardino County and partially within the City of Hesperia. City of Hesperia noise level limits would apply to the portion of Segment 7 that is within the city boundaries. Property line noise level limits adjusted for the Project would be 61 dBA Leq during the day (7:00 a.m. to 10:00 p.m.) and 50 dBA Leq at nighttime (10:00 p.m. to 7:00 a.m.), as shown in Table 4.12-9.

Segments 1, 2, 3, 4, 5, 5a, and 12. These transmission line segments would operate at 220 kV during both IBO and FBO. Operation of 220 kV transmission lines would not exceed 40 dBA L_{eq} under the conductor (CPUC 2009a) and would not exceed the San Bernardino County 50 dBA L_{eq} daytime and 40 dBA L_{eq} nighttime noise level at the property line.

Segment 7. The proposed 500 kV line, initially energized at 220 kV would replace two existing 220 kV lines in the same ROW and would not exceed 44 dBA Leq under the conductor and would not exceed the San Bernardino County 50 dBA L_{eq} daytime and 40 dBA L_{eq} nighttime noise level at the property line.

Under FBO conditions, Segment 7 would operate as a 500 kV line. One 500 kV line is expected to generate noise levels of up to 44 dBA Leq below the conductor during inclement weather (CPUC 2009b). Noise levels would drop to 39 dBA at 100 feet from the conductor (CPUC 2009b). The portion of the 500 kV line proposed within the San Bernardino County would not exceed the applicable County 50 dBA L_{eq} daytime and nighttime noise level limit of 40 dBA Leq at adjacent residential property lines.

A portion of Segment 7 would be located in the City of Hesperia. Considering that existing noise levels along Segment 7 in the City of Hesperia currently range between 61-75 dBA Leq (City of Hesperia 2010), the base Noise Ordinance noise standard would be raised accordingly to at least 61 dBA Leq for the project. In addition, ambient nighttime noise levels within the city are not expected to fall below 50 dBA Leq (City of Hesperia 2010). Noise associated with Segment 7 under the FBO scenario, 39 dBA at 100 feet from the conductor, would not exceed the City of Hesperia noise ordinance standards of 61 dBA Leq.

Telecommunication Routes

Operation of the Telecommunication Routes would not result in any audible noise. Telecommunication Route maintenance would only require the use of trucks, and would not require the use of helicopters.

Based on the analysis of various Proposed Project component operation activities as discussed above, a less than significant impact is anticipated during operation of the Proposed Project.

Would the Project result in the exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?

Construction Impacts

Construction activities produce varying degrees of ground vibration, depending on the equipment and methods employed. While ground vibrations from typical construction activities very rarely reach levels high enough to cause damage to structures, special consideration must be made when sensitive land uses are near the construction site. The construction activities that typically generate the highest levels of groundborne noise and vibration are blasting and impact pile driving.

Ground-borne vibration and noise generated by during the Proposed Project's construction would occur with varying intensities and durations during the various phases of construction. Construction activities may produce minor groundborne vibration in the immediate vicinity of the construction activity.

Groundborne vibration or noise level impacts from construction activities are considered significant if they cause damage to structures, or cause sleep disturbance if such activities occur at night near residential areas. Although construction activities could generate perceptible vibrations to people in the immediate vicinity of the construction sites, the vibration and noise levels are typically attenuated over short distances (i.e., 50 feet).

Ground-borne noise and ground-borne vibration levels associated with typical construction equipment are presented in Table 4.12-9. Actual vibration levels are dependent upon construction procedures, soil and geologic conditions, and the structural characteristics of the receptors.

Rock blasting operations may be required for the Proposed Project, if rock is encountered, and would occur prior to grading and development. In addition, implosive sleeves, which use explosives, may be used for splicing conductors together[x]. Blasting operations, if required, would occur independently from all other adjacent construction activities, which would cease during a blasting event. Using explosives to break rock generates low frequency sound waves that can structurally damage buildings in proximity. However, techniques have been developed that allow blasting to be conducted in relative proximity to buildings without causing damage. The character of the blast and ground vibrations would be dependent on such factors as soil and rock type, amount and type of explosive used, depth below surface, and meteorological conditions. Prior to any blasting, a blasting plan and a noise and vibration assessment would be performed.

Ground-borne vibration levels from a blasting event diminish rapidly with distance. Since it is anticipated that blasting would only be used in areas at large distances from residences and other structures, the ground-borne vibration impacts associated with the Proposed Project would not have significant ground-borne vibration and noise impacts.

The San Bernardino County Development Code discourages ground vibration that can be felt without the aid of instruments at or beyond the lot line, or any vibration level greater than or equal to 0.20 PPV at or beyond the lot line.

The data in Table 4.12-9 indicate that a vibratory roller would represent a worse case situation with a vibration level of 0.21 PPV at 25 feet. However, there would be no residences located within 25 feet of Proposed Project's construction activities associated with transmission line and/or telecommunication line installation and the nearest residence to the Proposed Desert View Substation is located over 1,500 feet away.[1]

In addition, temporary construction, maintenance, repair, or demolition activities between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays are exempt from the County's vibration thresholds. There are no vibration sensitive structures identified in the Proposed Project's immediate vicinity and the project construction will not adversely affect existing structures.

Table 4.12-9 Ground-borne Vibration and Noise Levels for Typical Construction Equipment

Equipment	Peak Particle Velocity in inches per second			Approximate Lv in VdB[1]				
	Ground-borne Vibration PPV(in/sec) at 25 feet	at 50 ft.	at 100 ft.	Ground-borne Noise Lv (VdB) (1 micro-inch/second at 25 ft.	at 50 ft.	at 75 ft.	at 100 ft.	at 150 ft.
Clam Shovel Drop (slurry wall)	0.202	0.071	0.025	94	85	80.5	76	71.5
Vibratory Roller	0.210	0.074	0.026	94	85	80.5	76	71.5
Hoe Ram	0.089	0.031	0.011	87	78	73.5	69	64.5
Large Bulldozer	0.089	0.031	0.011	87	78	73.5	69	64.5
Caisson Drilling	0.089	0.031	0.011	87	78	73.5	69	64.5
Loaded Trucks	0.076	0.027	0.010	86	77	72.5	68	63.5
Jackhammer	0.035	0.012	0.004	79	70	65.5	61	56.5
Small Bulldozer	0.003	0.001	0.0004	58	49	44.5	40	35.5

Source: Federal Transit Administration: Transit Noise and Vibration Impact Assessment, 2006

Note: These values are based on the field studies conducted by the FTA (2006). Actual vibration levels are dependent upon construction procedures, soil and geologic conditions, and the structural characteristics of the receptors.
[1] L_V = velocity level in decibels (VdB) referenced to 1 microinch/second and based on the root mean square velocity amplitude

City of Hesperia General Plan 2010 Policy NS 2.1 establishes limits for exposure of persons to or generation of excessive ground-borne noise levels. For frequent events, ground-borne noise is not to exceed 72 VdB; for occasional events, ground-borne noise is not to exceed 75 VdB; and for infrequent events, ground-borne noise is not to exceed 80

[1] Implosive splicing involves placing a layer of explosives are placed around an aluminum sleeve. A protective layer of plastic is wrapped around the explosive to keep the entire assembly clean and dry. The layer of explosive is designed with the right properties of detonation velocity, pressure and geometry so that it will create the required compression. Although explosive energy is extremely high, it can be controlled to a high degree of accuracy. In the case of implosive connectors, explosive energy is harnessed in a precisely engineered manner to produce a carefully controlled compression of the sleeve around the conductor.

VdB. Project construction activities would not exceed 30 vibration events of the same kind per day. The 80 VdB standard for infrequent events is the most applicable to the Proposed Project.

Installation of Proposed Segment 7 would include the use of vibratory equipment including vibratory rollers, dozers and trucks. The residences closest to the Proposed Project are approximately 100 feet to the ROW throughout the length of Segment 7. Based on Table 4.12-9, vibratory rollers at 100 feet would generate 76 VdB. The vibration level would be less than the 80 VdB standard.

The City of Hesperia Municipal Code also states that no ground vibration shall be felt without the aid of instruments; nor will any vibration be permitted which produces a particle velocity greater than or equal to 0.2 inches per second measured at or beyond the lot line. As discussed previously, project construction activities would not exceed this vibration threshold at nearby residences; Further, temporary construction, maintenance or demolition activities that occur between 7:00 a.m. and 7:00 p.m., except Sundays and Federal holidays, are exempt from this code's vibration criteria. The residences are at a sufficient distance that vibration levels would be below FTA standards, so as to not incur damage from vibration.

Town of Apple Valley Ordinance 9.73.060 states that operation of any device that creates a vibration which is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at 150 feet (46 meters) from the source if on a public space or public right-of-way is not permitted. Installation of the proposed telecommunication line in the Town of Apple Valley would include the use of line trucks but not the use of dozers, rollers or other equipment that generates substantial levels of ground vibration. Line trucks are substantially less vibratory than the loaded trucks referred to in Table 4.12-9.

Based on the analysis of various Proposed Project component construction activities as discussed above, a less than significant impact is anticipated during construction of the Proposed Project.

Operation Impacts

Increases in vibration from normal operation and maintenance would not be anticipated. The operation and maintenance activities associated with the Proposed Project could involve earthwork (e.g., vegetation management, access road maintenance); most of the activities would involve upkeep of the Proposed Project components. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the Project result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?

Construction Impacts

Construction activities in the project area would be temporary, not permanent; the duration of construction activities for the Proposed Project is expected to be approximately 30 months. Therefore, project construction would not result in a substantial permanent increase in ambient noise levels above existing levels; therefore, a less than significant impact is anticipated during construction of the Proposed Project.

Operation Impacts

Operational noise sources would be considered permanent (i.e., for the expected useful life of the facilities) and would include equipment operation of the Proposed Project components, which may include corona noise from proposed transmission lines and maintenance of proposed general facilities.

Substations

Operational noise associated with IBO would be very low, as no transformers and associated fans would be installed. At FBO, operational noise associated with all of the proposed transformers at the Proposed Desert View Substation would be 71 dBA at 100 feet in all directions from center of the substation, and attenuate with distance to 50 dBA at the substation property lines and to 36 dBA at the nearest residence approximately 0.3 miles away.

The Proposed Desert View Substation would be surrounded by an 8-foot high concrete panel wall. This barrier would potentially provide an approximate 5 dBA noise reduction, resulting in a transformer banks noise level of approximately 45 dBA at the substation's property lines.

Although the Proposed Desert View Substation is surrounded by residentially zoned property, the nearest existing residence and associated outdoor area is located approximately 3,080 feet from the substation's center. The total transformer banks noise level is estimated not to exceed 36 dBA at this location.

Ambient noise levels within the vicinity of the Proposed Desert View Substation range between 44 to 56 dBA Leq (Kunzman 2012). Therefore, operation of the Proposed Desert View Substation would not result in a permanent substantial increase in ambient noise levels.

The addition of one new No.3AA 500/220 kV transformer at the existing Lugo Substation would result in a maximum increase of 3dBA in substation noise and not result in a substantial permanent increase in ambient noise.

Transmission Lines

Corona noise associated with a 220 kV line is not expected to exceed 40 dBA Leq under the conductor (CPUC 2009a). Existing ambient noise levels along Proposed Transmission Line Segments 12, 1, 3, 5, 5a, and 7 (for the portion of Segment 7 that is within unincorporated San Bernardino County) range between 44 through 56 dBA Leq (Kunzman 2012). The lower end of this range was measured at a rural residence in the

high desert located approximately 0.3 mile from SR-18. This measurement is representative of conditions along Segments 1, 3, and 5. The higher end of the range is a measurement taken at a campground/ recreational facility located adjacent to SR-18 (Kunzman 2012). This measurement represents conditions along the portion of Segment 7 that is within unincorporated San Bernardino County. Operation of 220 kV lines along Segments 12, 1, 3 and 5 would not result in substantial increases in ambient noise levels. Operation of Segment 7 as a 500 kV line under FBO conditions would generate noise levels of up to 44 dBA below the conductor, which would not result in substantial increases in ambient noise levels.

Ambient noise levels in the vicinity of the portion of Segment 7 that passes through the City of Hesperia jurisdiction range between 61 to 75 dBA Leq (City of Hesperia 2010). Operation of a 500 kV line under FBO conditions would generate noise levels of up to 44 dBA under the conductor, during inclement weather. Considering that ambient noise levels are considerably higher than 44 dBA Leq within the City of Hesperia, the Proposed Project would not result in substantial increases in ambient noise levels.

Based on the analysis of various Proposed Project component operation activities as discussed above, a less than significant impact is anticipated during operation of the Proposed Project.

Would the Project result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?

Construction Impacts

Project construction would be short-term and temporary. Construction would involve the use of heavy equipment, possibly including helicopters, to transport and install project components. Construction of the Proposed Project would require the temporary use of various types of noise-generating equipment, such as graders, backhoes, augers, flatbed boom trucks, water trucks, rigging and mechanic trucks, air compressors and generators, cranes, concrete trucks, pile drivers, man lifts, pullers, tensioners, and cable reel trailers. Heavy equipment would be used to construct the substation and its associated components.

To evaluate potential construction noise impacts, reference noise levels were obtained from the *Roadway Construction Noise Model User's Guide* ("RCNM") (FHWA 2006), which provides a comprehensive assessment of noise levels and usage factors for construction equipment. Based on the reference values in the guide and the list of construction equipment to be used on the Project, the loudest equipment would generally emit maximum noise levels in the range of 80 to 90 dBA at 50 feet. These noise levels represent the construction equipment's maximum noise levels, with the equipment operating under full load conditions. Most construction equipment operates in alternating cycles of full power and low power, and during varying periods of time. Consequently, the average sound level at construction sites is typically less than the equipment's maximum noise levels.

Substations

The type of construction equipment and the number of equipment pieces near any specific receptor location would vary over time. To provide a reasonable and conservative estimate of average construction noise of a substation, five pieces of equipment were modeled using the RCNM model as a group (compactor, excavator, scraper, water truck and loader).

Equipment was modeled at the following distances: compactor (25 feet), excavator (50 feet), scraper (100 feet), dump truck (50 feet) and a loader (100 feet). Based on RCNM usage factors, equipment was assumed to be operating 40 percent of the time, except for the compactor, which was assumed to be operating 20 percent of the time. Table 4.12-10, *Construction Equipment Noise Levels at Various Distances – Substation*, shows the resulting hourly average noise levels of this particular scenario offsite from a substation property line.

Table 4.12-10 Construction Equipment Noise Levels at Various Distances – Substation

Distance off site from Substation Property Line (feet)	Leq Noise Level (dBA)
25	84
50	78
100	72
200	66
400	60
800	54
1,600	48
3,200	42
6,400	36

Although the Proposed Project is not subject to the Federal Transit Administration ("FTA"), the FTA provides guidelines for reasonable criteria for assessment of construction noise (FTA 2006). The FTA guidelines are used in this analysis only as an industry standard. These guidelines state that construction noise that exceeds a 1-hour Leq of 90 dB or an 8-hour Leq of 80 dBA during the day would provoke adverse community reaction.

Noise levels at the existing residential properties adjacent to the substation may experience construction noise levels of up to 84 dBA Leq within 25 feet of the property line, which is less than the FTA criteria of 90 dBA Leq. It should be noted however, that operational characteristics of heavy construction equipment are typified by short periods of full power operation followed by extended periods of operation at lower power, idling,

or powered-off conditions. Therefore, it is highly unlikely that construction activities over 8 hours would result in a continuous noise level of 84 dBA Leq at adjacent residential properties for eight hours.

As shown in Table 4.12-10, substation construction noise levels at the residence closest to the Proposed Desert View Substation (approximately 1,500 feet away) would be approximately 48 dBA Leq. Daytime ambient noise levels at the residential property are currently 56 dBA Leq. Therefore, Substation construction noise would result in temporary increases (up to 20 dB) in ambient noise levels in proximity to the substation, however, would not result in a substantial increase in ambient noise levels at the nearest residence.

CEQA has not defined what is considered to be a "substantial" increase. FTA and other agencies define substantial noise level increase as 10 dBA or greater, as an increase of 10 dBA is perceived by the human ear as a doubling of noise level (i.e., perceived as twice as loud); therefore a 10 dBA increase is used as an industry standard for defining a substation noise increase. While construction noise would result in a temporary increase of 10 dBA or more within approximately 200 feet of the substation property line, beyond this, the increase in ambient would be not be substantial. Therefore, at the nearest residence, the construction noise would be less than ambient, and therefore, result in a negligible increase in ambient noise levels.

Transmission Lines

Various construction activities would occur with installation of the transmission segments. Equipment lists for each of these activities have been provided in the Project Description.

For analysis purposes, the construction of new roadways was chosen as a worst-case noise scenario and modeled using the RCNM. Equipment was modeled at the following distances: backhoe (25 feet), dozer (50 feet), grader (75 feet), excavator (100 feet). All equipment was assumed to be operating 40 percent of the time. Table 4.12-11, *Construction Equipment Noise Levels at Various Distances – Transmission Line*, shows the resulting noise levels of this particular scenario at various distances from the ROW.

Table 4.12-11 Construction Equipment Noise Levels at Various Distances – Transmission Line

Distance from Transmission Line ROW(feet)	Leq Noise Level (dBA)
25	83
50	77
100	71
200	65
400	59

800	53
1,600	47
3,200	41
6,400	35

Noise levels at the existing residential properties adjacent to the proposed transmission lines may be up to 83 dBA Leq during construction at residences within 25 feet of the proposed activities.

Noise levels associated with this construction scenario would reach 83 dBA Leq at 25 feet from the ROW. Existing ambient noise levels along Proposed Transmission Line Segments 12, 1, 3, 5, 5a, and 7 (for the portion of Segment 7 that is within unincorporated San Bernardino County) range between 44 through 56 dBA Leq (Kunzman 2012). Therefore, the installation of transmission lines would not result in substantial increases over existing ambient noise levels at approximately 800 feet from the transmission line ROW, which as shown in Table 4.12-11, results in 53 dBA Leq, less than a 10 dBA increase over the low end ambient noise level range (i.e., 44 dBA Leq). Best management practices will be utilized as necessary to minimize construction noise impacts.

Telecommunication Routes

Installation of the proposed telecommunication routes would include the use of line trucks but not the use of dozers, rollers or other “heavy” equipment. Therefore, construction of the telecommunication lines is not anticipated to generate noise levels that would be a substantial increase over ambient levels.

Blasting

It is anticipated that for some of the areas described, rocks, boulders, and other hard materials may interfere with grading activities, and may require rock crushing or blasting operations during construction. Blasting activities are not anticipated to occur within the City of Hesperia. During site preparation and excavation/foundation work activities, blasting or fracturing may be required in some locations where rock is present. In addition, implosive sleeves, which use explosives, may be used for splicing conductors together. Prior to blasting or use of implosive sleeves, distances to any receptors in the area would be assessed to ensure that the blast would be engineered to be safe and effective. Blasting may occur along Proposed Segment 1 east of SR-247 and along Proposed Segment 5. However, during final engineering for the Proposed Transmission Line Route, specific locations where blasting or fracturing may be required would be identified. If applicable, pre-blast coordination and/or notification would be made to residents, utilities, and others potentially affected by blasting operations. All blasting would be conducted in accordance with applicable laws and regulatory requirements, including but not limited to Occupational Safety and Health Administration requirements, and all applicable permits from local agencies would be obtained prior to blasting activities.

The use of blasting or fracturing may be required at some locations where rock is present. Prior to blasting, the area will be assessed to make any required site measurements (e.g., distance to utilities or houses) and the blast will be engineered for a safe and effective explosion.

The blast is generally perceived as a brief, dull thud, rather than as a loud explosion. The blasting contractor would be required to notify residents, utilities, and others potentially affected by blasting operations in advance and limit the blasting intensities so as to prevent damage to all existing structures.

According to the FHWA's RCNM, construction blasting generates a maximum instantaneous noise level of approximately 94 dBA at a distance of 50 feet, resulting in average calculated Leq noise levels of 88 dBA at a distance of 100 feet, 68 dBA at a distance of 1,000 feet, 62 dBA at a distance of 2,000 feet, and 56 dBA at a distance of 4,000 feet. These noise events would be instantaneous and would not result in a substantial temporary increase in ambient noise levels.

Construction Traffic

A doubling in traffic volume on the roadways would increase noise levels by 3 dBA in the Proposed Project area. Generally, a 3-dBA increase in ambient noise levels is considered the minimum threshold at which a trained ear can detect a change in the noise environment. Project construction-related traffic would not double overall traffic volumes, and therefore any associated increases would be well below 3 dBA.

While construction noise would be noticeable, the noise levels identified in this analysis are typically considered acceptable for construction activities during daytime hours and do not exceed the daytime hourly Leq of 90 dBA noise level identified by the FTA as the construction noise level where adverse community reaction can occur. Noise levels would be reduced further with maintenance of the construction equipment, muffling of construction equipment, and minimization of the amount of time that equipment is idled. Further, construction would comply with all applicable noise ordinances, and a variance would be acquired in the event the construction must occur outside the noise ordinance allowable work hours.

Based on the analysis of various Proposed Project component construction activities as discussed above, a less than significant impact is anticipated during construction of the Proposed Project.

Operation Impacts

Project operations would be long-term and permanent relative to the useful life of the proposed facilities. Therefore, changes in ambient noise levels from project operations are previously addressed under that section.

Ambient noise levels along the along Proposed Transmission Line Segments range between 44 and 56 dBA Leq in affected areas of unincorporated San Bernardino County

and between 61 and 75 dBA Leq in affected areas of the City of Hesperia. The addition of one or two 220 kV lines or a 500 kV line would not result in a substantial increase in ambient noise levels. Maintenance and emergency repairs are anticipated to be a minimal contribution to the Proposed Project's operational noise levels. Therefore, project operations would not result in a substantial temporary increase in ambient noise levels. Less than significant impacts are anticipated during operation of the Proposed Project.

For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

Construction Impacts

The Hesperia Airport is just south of and adjacent to Proposed Transmission Line Segment 7 and approximately 2.5 miles east of the Lugo Substation. California has adopted a standard (PUC Section 21669) for the acceptable level of aircraft noise for persons living in the vicinity of airports. This standard is 65 CNEL. The 65 CNEL (or Ldn) noise contour for the Hesperia Airport extends less than 50 feet from the runway and the 60 CNEL/Ldn contour for the airport extends 100 feet from the runway. Segment 7 is at least 0.2 mile from the nearest point of the Hesperia airport runway and, therefore, not within the 65 or 60 dBA CNEL noise contour.

The Barstow-Daggett Airport is located just north of I-40 and approximately 0.8 mile north of the proposed Gale to Pisgah telecommunication route. It is a County-owned public-use airport located approximately 5 miles east of the unincorporated community of Daggett. According to the CLUP prepared for this airport, the 65 CNEL noise contour does not extend past the airport property (San Bernardino County 1992).

Construction workers may be exposed to occasional over-flight noise of small aircraft, but they would not be exposed to excessive noise levels. Proposed Project construction activities would not expose any residents or workers in the area to excessive noise levels. Less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

The Proposed Project does not propose to build any residences or permanent places of employment in the vicinity of the Hesperia Airport and Barstow-Daggett Airport and would not, therefore, expose people residing or working in the Project Area to excessive noise levels. Operations and maintenance workers may occasionally be exposed to over-flight noise of small aircraft, but they would not be exposed to excessive noise levels. Less than significant impacts are anticipated during operation of the Proposed Project.

For a project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project Area to excessive noise levels?

Construction Impacts

Rabbit Ranch Airport, a small private airstrip is located approximately 0.6 mile south of Proposed and Alternative Transmission Line Segment 5. The runway is 0.7 mile long and only accommodates small aircraft. People working in the Project Area may occasionally be exposed to over-flight noise of small aircraft from Rabbit Ranch Airport, but they would not be exposed to excessive noise levels. Less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Operations and maintenance workers may occasionally be exposed to over-flight noise of small aircraft from Rabbit Ranch Airport, but they would not be exposed to excessive noise levels. Less than significant impacts are anticipated during operation of the Proposed Project.

4.12.2 NEPA Impact Assessment

Based on the analysis performed, it is anticipated that the Project would not result in significant effects under NEPA.

4.12.5 Applicant Proposed Measures

No potentially significant impacts relative to noise are anticipated from or to the Proposed Project; therefore, no applicant proposed measures have been identified related to noise.

4.12.6 Alternative Project

As described in Section 3.14, *Project Alternatives*, either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Route, but not both. Separate impact analyses are provided for these two scenarios.

4.12.6.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation; the Alternative Transmission Line Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6; and the Alternative Apple Valley to Desert View and Gale to Pisgah Telecommunication Routes.

The primary components of the Alternative Project include an alternative site for the Desert View Substation and several alternative transmission line segments. Considering that the alternative segment alignments would be the same voltages as described for the proposed transmission line segments, the following alternative analysis is focused on

comparison of the number of sensitive receptors that would be exposed to construction and corona noise.

Alternative Desert View Substation. At IBO and FBO, substation components and capacity would be the same for the Alternative Substation as described for the Proposed Desert View Substation. There would not be a substantial difference in noise levels at IBO or at FBO between the Proposed and Alternative Desert View Substations. There is a residence located at approximately 2,225 feet from the Alternative Substation Site center, which is closer than the nearest residence located at approximately 3,080 feet from the Proposed Substation site center. This would result in 3 dBA higher (39 dBA) transformer banks noise level for the alternative site, but still be in compliance with the San Bernardino County 56 dBA Leq daytime (7 a.m. to 10 p.m.) and 44 dBA nighttime (10 p.m. to 7 a.m.) noise level limit for stationary sources.

Alternative Segments 8, 9, and 11. Segments 8, 9 and 11 of the Alternative Transmission Line Route with Segment 9, would be alternatives to Segment 1 of the Proposed Transmission Line Route. There are adjacent residential properties along segments 8, 9, and 11. The nearest residential properties are located more than 0.7 mile north of Segment 9. Segment 9 traverses the MCLB Barstow from east to west. There are no existing residences within 2 miles of Segment 8. The nearest residence to Segment 11 is approximately 0.4 mile to the northwest of its western end. There are no residential properties adjacent to Segment 1. The nearest home to this segment is located approximately 0.2 mile northwest of the intersection of Barstow Road and Chuckwagon Road. Another is located approximately 0.8 mile to the north. Less than significant impacts to sensitive receptors associated with these segments are anticipated during construction and operation.

Alternative Segment 4. Alternative Transmission Line Segment 4 is an alternative to Proposed Transmission Line Segment 3. There are residential properties adjacent to Segment 4. The nearest residence to Segment 4 is located approximately 600 feet to the east and approximately 2,500 feet west of SR-247. The nearest residence to Proposed Transmission Line Segment 3 is located approximately 110 feet to the southwest near the intersection of Spinel Street and Highway 247. Although noise impacts would not be significant with implementation of either segments 3 or 4; however, Segment 4 would have less impact to sensitive receptors than Segment 3 because Segment 3 would pass through a rural residential area adjacent to SR-247.

Alternative Segment 6. Alternative Transmission Line Segment 6 is an alternative to Proposed Transmission Line Segment 7. Most of Segment 6 is rural with very little development. Although there are residential properties adjacent to Segment 6, the residences on these properties are located at a distance of approximately 240 feet west of the northern segment and approximately 950 feet from the southern end of Segment 6. There are also residential properties in the vicinity of Arrowhead Lake Road. One residential property is located within the alignment of Alternative Transmission Line Segment 6.

Alternatively, land uses at the eastern end of Proposed Transmission Line Segment 7 are primarily rural residential and become increasingly urban as the segment extends west

into the City of Hesperia. Residences are as close as 100 feet to the ROW throughout the length of Segment 7. Segment 6 would be located in a new ROW directly adjacent to an existing utility ROW with two 500 kV lines; whereas, Segment 7 would be located within an existing transmission line ROW. In comparison, Segment 6 would affect far fewer sensitive receptors than Segment 7.

Blasting may also occur along Alternative Segments 4 (north end), and along Alternative Segments 6, 8, and 9. These noise events would be instantaneous and controlled, and would not result in a substantial temporary increase in average ambient noise levels.

Less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 9.

4.12.6.2 Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation; the Alternative Transmission Line Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6; and the Alternative Apple Valley to Desert View and Gale to Pisgah Telecommunication Routes.

There would be no substantial difference in noise impacts from the construction and operation of Segment 10 from Segment 9; therefore, impacts from the Alternative Project with Segment 10 would be similar to those described for the Alternative Project with Segment 9. The nearest residential properties are located more than 2 miles north of Segment 10.

Blasting may also occur along Alternative Segments 4 (north end), and along Alternative Segments 6, 8, and 10. These noise events would be instantaneous and controlled, and would not result in a substantial temporary increase in average ambient noise levels.

Less than significant noise impacts are anticipated during construction and operation of the Alternative Project with Segment 10.

4.12.7 References

Apple Valley, Town of. (2009, August). General Plan Environmental Hazards Element. http://www.applevalley.org/Index.aspx?page=687. Accessed May 27, 2013.

Apple Valley, Town of (2010, April). Development Code. http://www.applevalley.org/Index.aspx?page=391. Accessed May 27, 2013.

California Department of Transportation (Caltrans). (2009, November). Technical Noise Supplement. Division of Environmental Analysis.

California Department of Transportation (Caltrans). (1998, October). Technical Noise Supplement. Division of Environmental Analysis.

California Public Utilities Commission. (1994, June 8). General Order 131-D. Retrieved from http://www.cpuc.ca.gov/PUC/documents/go.htm. Accessed February 15, 2013.

California Public Utilities Commission. (2006). Draft EIS/EIR for the Devers–Palo Verde No. 2 Transmission Line Project.

California Public Utilities Commission. (2009a). PEA for the Mascot Substation Project.

California Public Utilities Commission. (2009b). PEA for the Tehachapi Renewable Transmission Project.

City of Hesperia. (1990). City of Hesperia Municipal Code Section Title 16, Division 20, Chapter 16.20, Sections 125 (16.20.125) and 130 (16.020.130). Retrieved from http://library.municode.com/index.aspx?clientId=16400. Accessed February 15, 2013

City of Hesperia. (2010). City of Hesperia General Plan.

Federal Highways Administration (FHWA). (2006, January). Road Construction Noise Model User's Guide.

Federal Interagency Committee on Noise. 1992 (August). *Federal Agency Review of Selected Airport Noise Analysis Issues*, Table B.1.

Federal Transit Authority (FTA). (2006, May) Transit Noise and Vibration Impact Assessment.

Kimley-Horn and Associates, Inc. (2010, April 18). City of Hesperia General Plan Update, Draft Background Technical Report.

Kunzman Associates, Inc. (2012, August). Noise Technical Report. Mitsubishi Cement Corporation South Quarry Noise Impact Analysis.

San Bernardino County (1991, January). Comprehensive Land Use Plan: Hesperia Airport.

San Bernardino County. (1992, May). Airport Comprehensive Land Use Plan Barstow-Daggett Airport.

San Bernardino County. (2007). Development Code, Title 8, Division 3, Chapter 83.01, Section 80.

San Bernardino County. (2007, March 13). General Plan. (Effective April 12, 2007).

San Diego Gas and Electric (SDG&E). (2010). Draft EIS/EIR East County Substation/Tule Wind/Energia Sierra Juarez Gen-Tie Projects.

State of California Code of Regulations (CCR) (1998). Title 21, Division 2.5, Chapter 6, Article (Section 5012)

This page is intentionally blank.

4.13 Socioeconomics, Population and Housing, and Environmental Justice

This section describes the existing socioeconomic, population and housing, and the environmental justice conditions in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). It analyzes the potential impacts on identified population and housing aspects associated with the construction and operation of the Proposed Project and Alternative Project. Population and housing is addressed as a California Environmental Quality Act ("CEQA") resource topic. Socioeconomics and environmental justice are included for National Environmental Policy Act ("NEPA") purposes.

4.13.1 Environmental Setting

The environmental setting section describes the population, housing, employment, and environmental justice demographics in the communities that contain the Coolwater-Lugo components, including the Town of Apple Valley, the Cities of Hesperia and Barstow, and the communities of Lucerne Valley, Daggett, and Newberry Springs, which are part of the unincorporated area of San Bernardino County. The portion of the City of Barstow that would be affected by Coolwater-Lugo is entirely within the Marine Corps Logistics Base ("MCLB") Barstow. The portion of the MCLB Barstow where Coolwater-Lugo would occur has no population and employment; therefore, Barstow data is not included in the following discussion. In addition, population and housing data is not currently available for the communities of Newberry Springs and Daggett.

4.13.1.1 Population

Population data for the communities in which Coolwater-Lugo would be located is presented in Table 4.13-1, *Historic and Estimated Population*; this table includes information for San Bernardino County, the Town of Apple Valley, the City of Hesperia, and the community of Lucerne Valley in unincorporated San Bernardino County. In general, there have been population increases in the communities and cities that are within the Coolwater-Lugo area and within San Bernardino County over the last 20 years.

Although there has been a decrease in population in the unincorporated portion of San Bernardino County, population is expected to increase from 2010 to 2035 by 27.7 percent, which is a slower growth rate than the population of San Bernardino County as a whole. The decrease in population in unincorporated areas from 1990 to 2000 can be attributed to the incorporation of Chino Hills and Yucca Valley in 1991, and the decrease from 2000 to 2010 can be attributed to minor changes in land areas and boundaries within the county (CDF 2011). The overall County population is estimated to increase by 35 percent from 2010 to 2035.

The unincorporated portion of San Bernardino County that is included in the Coolwater-Lugo area is part of the Desert Planning Region, the largest of the county planning regions. It is expected to grow at a slower rate than the Valley and Mountain Regions of the County. In general, San Bernardino County's population growth rate has exceeded

California and the United States, mainly due to congestion and rising land costs in California's coastal counties that has caused growth to expand eastward. From 1990 to 2010, the population of Hesperia and Lucerne Valley increased by 78.9 percent and 16.5 percent, respectively. Hesperia is projected to grow by 46.9 percent between 2010 and 2035. Lucerne Valley is projected to grow by 12.7 percent between 2010 and 2030. The Town of Apple Valley has experienced a 50.0 percent increase in population from 1990 to 2010 and is projected to grow 57.7 percent between 2010 and 2035.

Table 4.13-1 Historic and Estimated Population

Year	San Bernardino County	Unincorporated San Bernardino County	City of Hesperia	Town of Apple Valley	Community of Lucerne Valley
1990	1,418,380[1]	322,557[3]	50,418[1]	46,079[1]	4,986[1]
2000	1,709,434[1]	292,857[1]	62,582[1]	54,239[1]	5,337[1]
2010	2,035,210[1]	291,776[1]	90,173[1]	69,135[1]	5,811[1]
2020	2,268,000[2]	301,600[2]	98,200[2]	82,900[2]	-
2035	2,750,000[2]	372,600[2]	132,500[2]	109,000[2]	6,550[4*]

Note: Data is currently unavailable for the communities of Newberry Springs and Daggett.

- No data provided.

Sources:

[1] Bureau of the Census 1990, 2000, 2010

[2] SCAG, *Adopted 2012 RTP Growth Forecast*

[3] CDF, *E-8 Historical Population and Housing Estimates for Cities, Counties, and the State, 1990 - 2000*

[4] *Lucerne Valley Community Plan*, 2007, projection estimate for 2030

4.13.1.2 Housing

According to the 2010 U.S. Census, unincorporated San Bernardino County had 132,921 housing units[1], which is 19 percent of units in all of San Bernardino County. There were also 29,004, 26,117, and 2,949 housing units reported in Hesperia, Apple Valley, and Lucerne Valley, respectively.

A total of 94,085 households[2] are present in unincorporated San Bernardino, 24,889 in Hesperia, 23,598 in Apple Valley, and 2,055 in Lucerne Valley. Persons per household ranged from 3.1 in unincorporated San Bernardino, to 3.46 in Hesperia, to 2.91 in Apple Valley, and 2.73 in Lucerne Valley. Table 4.13-2, *Housing Statistics* summarizes the results of the 2010 U.S. Census statistics for housing within the Coolwater-Lugo area.

[1] According to U.S. Census, a housing unit is defined as a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied as separate living quarters.

[2] According to U.S. Census, a household consists of all the people who occupy a housing unit, related family members or unrelated.

According to the *County of San Bernardino 2007 General Plan*, construction of housing units in the Desert Region of the County, where Coolwater-Lugo is located, will increase households in the region by promoting expansion of home businesses, supporting commercial development that is compatible with surrounding development, and maintaining the rural base of the region (San Bernardino County 2013). From 2020 to 2035, unincorporated San Bernardino is estimated to grow from 97,700 to 117,500 households (SCAG 2012); in 2010, that area had 94,085 households.

In 2010, Hesperia had 26,431 households. Previous estimations projected 39,300 households by the year 2035 (SCAG 2012). This projected increase in households is 32 percent in growth, which can be attributed to an increase in housing affordability due to the decrease in property values and an influx of population from outside counties looking for affordable housing (SCAG 2011a).

In 2010, the Town of Apple Valley had 23,598 households, and the area is expected to grow to 37,100 households by the year 2035 (SCAG 2012). This projected increase in households is a 57.2 percent growth, which can be attributed to an increase in housing affordability and a decrease in property values (SCAG 2011b).

In 2010, the community of Lucerne Valley had 2,176 households, which is expected to increase to 2,703 households by the year 2030 according to the Community Plan (San Bernardino County 2007). The low growth rates are in response to the community goal to retain the existing rural desert character and limit industry to the existing transportation corridors. According to the Community Plan, the estimated Lucerne Valley average annual growth rates for population and households are 1.29 percent and 1.5 percent, respectively. These growth rates are based on development and growth of adjacent cities (San Bernardino County 2007).

Specific plans within the Coolwater-Lugo area include development of residential units. The City of Hesperia has adopted two specific plans that propose additional housing development – Summit Valley Ranch and Rancho Las Flores. The City anticipates that much of its future residential growth will occur in these specific plan areas, which upon build out will add more than 44,000 new housing units. In the community of Lucerne Valley, the Rancho Lucerne project has been approved and is estimated to provide approximately 4,500 housing units, resulting in an estimated population of 10,000 at build out. However, Rancho Lucerne has been put on hold because of legal issues, so future housing and population numbers from this project will not be included in the projected growth.

Table 4.13-2 Housing Statistics

Housing Statistic	San Bernardino County[1]	Unincorporated San Bernardino County[2]	City of Hesperia[1]	Town of Apple Valley	Community of Lucerne Valley[1]
Housing Units	699,637	132,921	29,004	26,117	2,949*
Owner Occupied	383,573 (54.8%)	-	17,688 (61%)	16,297 (62.4%)	1,454 (49.3%)
Renter Occupied	228,045 (32.6%)	-	8,743 (30.1%)	7,301 (28.0%)	722 (24.5%)
Vacant Units	88,019 (12.6%)	-	2,573 (8.96%)	2,519 (15.5%)	773 (26.2%)
Households	596,125	94,085	24,889	23,598	2,055*
Persons per Household	3.29	3.1	3.46	2.91	2.73

Notes:

Data is currently unavailable for the communities of Newberry Springs and Daggett. % - percent of total housing units

* Lucerne Valley statistics are included in the unincorporated San Bernardino statistics.

- No data provided.

Sources:

[1] U.S. Census Bureau 2010

[2] SCAG 2011c, *Profile of the unincorporated area of San Bernardino County*

4.13.1.3 Employment

According to the *County of San Bernardino 2007 General Plan*, the major county employers are colleges, hospitals, government, amusement, and retail. Generally, the salaries in the amusement and retail categories are lower than the other categories. From 2000 to 2035, employment at the county level is expected to increase by 72 percent. Major employers in unincorporated San Bernardino County include education and health at 21.9 percent, transportation-warehousing-utilities at 15.4 percent, professional-management at 11.1 percent, leisure-hospitality at 10.7 percent, and retail at 7.4 percent (SCAG 2011c). The major employers in Hesperia are education and health at 19.6 percent, retail at 14.2 percent, and construction at 12.1 percent (SCAG 2011a). In Apple Valley, the major employers are education and health at 44.5 percent, professional management at 10.4 percent, and leisure and hospitality at 9.1 percent (SCAG 2011b). Major employers in Lucerne Valley are education and health at 21.6 percent, construction at 18 percent, and transportation-warehousing-utilities at 11.8 percent (U.S. Census Bureau 2010).

Employment in 2010 in unincorporated San Bernardino County was 42,841; a 13.2 percent decrease from 2007. From 2020 to 2035, the growth in unincorporated San Bernardino County is estimated to increase from 58,300 to 77,700 employed with an overall increase of 81.4 percent from 2010 to 2035 (SCAG 2012). The 2010 employment in Hesperia was 13,889 with unemployment among the civilian labor force at 15.4 percent; however, Hesperia employment is expected to increase to 28,700 in 2035, which is a 107 percent increase. The 2010 employment in Apple Valley was 14,479 with unemployment among the civilian labor force at 14.8 percent. Employment in Apple Valley is expected to increase by 107 percent to 28,700 in 2035. The 2010 employment in the community of Lucerne Valley was 1,553 with unemployment among the civilian work force at 16.1 percent, and is estimated to increase to 1,994 by 2030 according to the Community Plan. This is a total increase of 28.4 percent and an annual growth rate of 1.9 percent for Lucerne Valley. Employment characteristics are summarized in Table 4.13-3.

Table 4.13-3 Employment Characteristics

Employment	San Bernardino County	Unincorporated San Bernardino County	City of Hesperia	Town of Apple Valley	Community of Lucerne Valley
2010 Employment	791,365	42,841	13,889	14,479	1,553
2010 Unemployment Rate	14.2%	-	15.4%	14.8%	16.1%
2035 Employment	1,059,000	77,700	28,700	22,500	1,994[1]

Notes:

% - percent of civilian labor force

Data is currently unavailable for the communities of Newberry Springs and Daggett. Sources:

[1] San Bernardino County 2007

4.13.1.4 Environmental Justice

Environmental justice is defined by the United States Environmental Protection Agency ("EPA") as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental law and policies." The environmental justice demographics for San Bernardino County, unincorporated San Bernardino County, the City of Hesperia, the Town of Apple Valley, and the community of Lucerne Valley include median income, poverty status, and minority populations. These demographics are summarized in Table 4.13-4.

Table 4.13-4 Environmental Justice Demographics in the Coolwater-Lugo Area

Demographic	San Bernardino County	Unincorporated San Bernardino	City of Hesperia	Town of Apple Valley	Community of Lucerne Valley
2010 Population	2,035,210	291,776	91,173	69,135	5,811
White	33.3%	49%	61.1%	55.5%	77.6%
Hispanic	49.2%	42.1%	48.9%	29.2%	24.9%
Black	8.4%	3.6%	5.8%	8.6%	2.9%
American Indian and Alaska Native	0.4%	0.7%	1.2%	0.5%	1.4%
Asian	6.1%	2.2%	2.1%	2.8%	1.5%
Median Household Income[1]	$55,845	-	$48,386	$51,826	$32,577
Estimated Poverty Status[2]	19.3%	-	22.7%	18.6%	23.8%

Notes:

% - percent of 2010 population

Data is currently unavailable for the communities of Newberry Springs and Daggett. Sources:

[1] U.S. Census Bureau 2011

[2] U.S. Census Bureau 2012

In general, the demographics for San Bernardino County, unincorporated San Bernardino County, the City of Hesperia, the Town of Apple Valley, and the community of Lucerne Valley contain a majority of white and Hispanic populations that have an average of 21 percent poverty and an average median household income of $47,159. According to the *County of San Bernardino 2007 General Plan*, the majority of respondents identified jobs and poverty as the major issues, and that the need to attract and retain a diverse set of businesses within the County was necessary for keeping jobs that pay above minimum wages (San Bernardino County 2013). White residents in the City of Hesperia remain the largest ethnic group; however, white residents declined from 77 percent in 1990 to 62 percent in 2000 to 61 percent in 2010. Hispanics, the second largest ethnic group, have increased from 19 percent in 1990 to 30 percent in 2000, and then to 48.9 percent in 2010. According to the *City of Hesperia General Plan*, the majority of the income level by household in the City, 57.5 percent, is in the moderate/upper income (City of Hesperia Planning Department 2010).

In the Town of Apple Valley, between 2000 and 2010, the portion of non-Hispanic white population decreased from 67.7 percent to 55.5 percent. Between 2000 and 2010, the portion of Hispanic population increased from 18.6 percent to 29.2 percent. In addition, it has a lower median income than the County.

The community of Lucerne Valley's largest ethnic group is white at 77 percent. It has a lower median income than the County. According to the Community Plan, Lucerne Valley is concerned with maintaining the rural character of the area and is interested in economic activity that will benefit local people and that will be compatible with the natural environment and surrounding uses.

4.13.2 Regulatory Setting

There are no socioeconomic, population, or housing laws, rules, or regulations that apply directly to Coolwater-Lugo. Environmental justice Federal and State laws, guidelines, and policies that apply to Coolwater-Lugo are discussed below.

4.13.2.1 Federal Regulatory Setting

National Environmental Policy Act (NEPA)

Under 42 United States Code [USC] 4321 et seq., a NEPA analysis must discuss social and economic effects if they are related to the natural or physical effects, and the definition of "effects" includes economic and social factors. Implementation of NEPA (40 CFR Parts 1500-1508) defines (Section 1508.8) "effects" to include, among other things, economic and social factors, whether direct, indirect, or cumulative. Consequently, a NEPA document must include an analysis of the proposed project's economic, social, and demographic impacts related to effects on the natural or physical environment in the affected area, but does not allow for economic, social, and demographic effects to be analyzed in isolation from the physical environment.

Executive Order 12898 (Establishment of the Federal Environmental Justice Program), 1994

This order requires Federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, polices, and activities on minority and low-income populations.

4.13.2.2 State Regulatory Setting

There are no state socioeconomic, population, housing, and environmental justice laws, rules, or regulations that apply directly to Coolwater-Lugo.

4.13.2.3 Local Regulatory Setting

There are no local socioeconomic, population, housing, and environmental justice laws, rules, or regulations that apply directly to Coolwater-Lugo.

4.13.3 Significance Criteria

4.13.3.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to population and housing come from the CEQA Environmental Checklist. Per CEQA Guidelines section 15131, economic or social information may be included in an EIR, but economic or social effects of a project shall not be treated as significant effects on the environment. According to the CEQA Checklist, a project causes a potentially significant impact to population and housing if it would:

- Induce substantial population growth in the area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through the extension of new roads or other infrastructure)
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere

4.13.3.2 NEPA Analysis

Unlike CEQA, NEPA does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27).

Per Executive Order 12898:

> To the greatest extent practicable and permitted by law, and consistent with the principles set forth In the report on the National Performance Review, each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Marian islands.

4.13.4 Impact Analysis

The assessment is based on the potential impact of the Proposed Project on population and housing, as well as potential environmental justice impacts. Environmental justice is not considered an environmental impact criteria under CEQA. The impact assessment was conducted to identify the type and extent of impacts on population and housing that may be affected by the Proposed Project. Impacts were evaluated in a study area defined

to be the communities that contain the Proposed Project. Impacts from the Alternative Project are discussed in Section 4.13.6, Alternative Project.

As discussed in Chapter 3, *Project Description*, either the Proposed Project or Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. There would be no differences in potential impacts to population and housing under the IBO and FBO scenarios, and therefore the following impact assessment is applicable to both scenarios for Desert View Substation. Full build out of either the Proposed or Alternative Desert View Substation would occur in the disturbance footprint established during the IBO of Desert View Substation construction. FBO would require less construction activity and related employment than would IBO. Therefore, the following impact assessment applies to both scenarios for Desert View Substation.

4.13.4.1 CEQA Impact Assessment

Would the project induce substantial population growth in the area, either directly (by proposing new homes and businesses) or indirectly (through the extension of new roads or other infrastructure)?

Construction Impacts

Construction activities for the Proposed Project are anticipated to occur for approximately 30 months from initial site development through energizing and testing. It is anticipated that approximately 600 workers would be employed during peak times of construction; however, construction workers would be dispersed along the Proposed Project. Construction would be temporary; therefore, the Proposed Project would not induce substantial population growth in the area or within local jurisdictions. It is anticipated that most of the construction workers for the Proposed Project would temporarily reside within the local area. The construction of the Proposed Project is not expected to increase the desirability or affordability of the area, or cause a significant increase in permanent population within the local community.

The Proposed Project may require temporary accommodations for construction workers from outside the Proposed Project area during construction. However, this need is anticipated to be met by hotels and motels available in San Bernardino County and surrounding areas. No new housing would need to be built for temporary construction workers.

Construction of the Proposed Project therefore would not induce growth. Less than significant impacts are anticipated during the construction of the Proposed Project.

Operation Impacts

Following construction of the Proposed Project, no permanent jobs are expected to be created in the vicinity of the Proposed Project as a result of operation of the Proposed Project. When in operation, the Proposed Desert View Substation would be unstaffed and remotely operated. It would not require dedicated, full-time personnel. Routine maintenance and inspection visits to the Proposed Desert View Substation site are

expected to occur three to four times a month. The transmission, subtransmission, and/or distribution lines would be inspected a minimum of once per year via ground and/or aerial observation, but would occur usually more frequently based on system reliability. In addition, routine access road maintenance would be conducted on an annual and/or as-needed basis. It is anticipated that existing SCE personnel and/or contractors would be used to perform ongoing operations and maintenance work.

New access roads that would be constructed to provide construction and maintenance access to the Proposed Project are anticipated to be used by SCE for occasional operations and maintenance activities; therefore, new access roads constructed for the Proposed Project would not provide new roadside development or access opportunities for local industry or commerce in the area. The existing and improved access roads would not directly or indirectly induce population growth.

The Proposed Project is being built to meet the current and anticipated future electrical needs of the area (see Section 6.2, *Growth Inducing Impacts*, for more information); therefore, it would not induce population growth in the area either directly or indirectly. Additionally, long-term operation and maintenance activities for the Proposed Project would not result in the demand for new residential units or significantly increase the desirability or affordability of the surrounding area. Similarly, it would not create new opportunities for local industry or commerce or impact population growth in the area. As a result, the Proposed Project is not expected to cause a direct or indirect increase in population growth. Less than significant impacts are anticipated during the operation of the Proposed Project.

Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

Construction Impacts

Construction of the Proposed Project as currently designed and described in Chapter 3, *Project Description*, could displace approximately four homes. Displacement of the houses would not be considered a substantial number compared to the almost 700,000 housing units present in San Bernardino County or the approximately 133,000 housing units present in unincorporated San Bernardino County. Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Operation and maintenance of the Proposed Project facilities would not displace any additional existing housing beyond that required for construction. Therefore, no impacts are anticipated during operation of the Proposed Project.

Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

Construction Impacts

Based on the average household size of 3.1 people for unincorporated San Bernardino County (Table 4.13-2), construction of the Proposed Project could displace approximately 12 people as a result of displacing approximately four homes. The total population of San Bernardino County and unincorporated San Bernardino County is approximately 2,000,000 and 300,000, respectively; therefore, displacement of approximately 12 people would not be considered a substantial number. Less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Operation and maintenance of the Proposed Project facilities would not displace any additional people beyond those that would be displaced during construction. Therefore, no impacts are anticipated during operation of the Proposed Project.

4.13.4.2 NEPA Impact Assessment

For the purposes of this analysis, the term "Proposed Action" as used in NEPA regulations and analysis is used interchangeably with the "Proposed Project."

Per Executive Order 12898, referenced above, a Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by NEPA. Based on the analysis performed, it is anticipated that the Proposed Project would not result in significant effects under NEPA.

Construction Impacts

The Proposed Project would cross lands within the jurisdiction of the City of Hesperia, the Town of Apple Valley, the communities of Lucerne Valley, Newberry Springs, and Daggett, and rural unincorporated areas of San Bernardino County, some of which consist of Bureau of Land Management land. The majority of the Proposed Transmission Line Route would be located within or adjacent to existing utility corridors and right-of-ways (ROWs) (Segments 1, 5, and 7). Portions of Segment 7 would be in an existing ROW in an urbanized portion of the City of Hesperia, where two existing 220-kilovolt (kV) transmission lines would be replaced with one 500-kV transmission line, initially energized at 220 kV.

The Proposed Project is anticipated to cause significant and unavoidable impacts to aesthetics and air quality during construction. A significant and unavoidable impact to aesthetics would occur at Key Observation Points ("KOPs") 6 and 9 during construction of Proposed Transmission Line Segments 2 and 3 (see Chapter 4.1, *Aesthetics*). However, there are no populated areas in the vicinity of the KOPs that could be impacted. Significant and unavoidable impacts to air quality would occur during construction of the

Proposed Project (see Chapter 4.3, *Air Quality*). Emissions of pollutants during construction may contribute to air quality violations. These impacts would occur over the duration of construction and would be temporary. However, because these impacts would occur on an air basin-wide basis, they would not result in a disproportionately high or adverse impact on minority or low-income populations. No other significant impacts have been identified during construction of the Proposed Project. Therefore, local populations, including minority or low-income populations, would not be disproportionately adversely impacted during construction of the Proposed Project.

Operation Impacts

The Proposed Project is not expected to cause significant impacts during operation. No disproportionately high or adverse impacts on minority or low-income population are anticipated during operation of the Proposed Project.

4.13.5 Applicant Proposed Measures

No potentially significant impacts relative to socioeconomics, population and housing, and environmental justice would result from the Proposed Project. Therefore, no applicant proposed measures are identified.

4.13.6 Alternative Project

As described in Section 3.14, *Project Alternatives*, either Segment 9 or Segment 10 would be used as part of the Alternative Project, but not both. A separate impact analysis is provided for these two scenarios.

4.13.6.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation, the Alternative Transmission Line Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6, and the Alternative Apple Valley to Desert View and Gale to Pisgah Telecommunications Route.

The Alternative Project has a similar setting to that of the Proposed Project and is similar in scope. As a result, impacts to socioeconomics, population and housing, and environmental justice would be similar to those of the Proposed Project. As currently designed and described in Chapter 3, *Project Description*, the Alternative Project could displace approximately six houses or approximately 19 people. This would not represent displacement of substantial numbers of existing housing or people relative to the approximately 700,000 housing units and approximately 2,000,000 people in San Bernardino County, and the 133,000 housing units and 300,000 people in unincorporated San Bernardino County. Segment 8 of the Alternative Transmission Line Route would pass through the Stoddard Valley Off-highway Vehicle (“OHV”) area, but is not expected to substantially affect the overall usage of the area by the OHV community, which could include tourists from out of the region. Therefore, less than significant

impacts are anticipated during construction and operation of the Alternative Project with Segment 9.

4.13.6.2 Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, the Alternative Transmission Line Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and the Alternative Apple Valley to Desert View and Gale to Pisgah Telecommunications Route.

There would be no significant difference in impacts to socioeconomics, population and housing, and environmental justice between the use of Segment 9 or Segment 10. Impacts associated with the Alternative Project with Segment 10 would be similar to those of the Proposed Project and the Alternative Project with Segment 9. Therefore, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 10.

4.13.7 References

City of Hesperia Planning Department. (2010). *City of Hesperia General Plan.*

County of San Bernardino. (2007). *Lucerne Valley Community Plan.* Adopted March 13, 2007. Effective April 12, 2007.

County of San Bernardino. (2013). *County of San Bernardino 2007 General Plan.* Adopted March 13, 2007. Effective April 12, 2007. Amended June 18, 2013.

Southern California Association of Governments (SCAG). (2011a, May). *Profile of the City of Hesperia*. Local Profiles Report 2011.

SCAG. (2011b, May). *Profile of the Town of Apple Valley*. Local Profiles Report 2011.

SCAG. (2011c, May). *Profile of the Unincorporated Area of San Bernardino County*. Local Profiles Report 2011.

SCAG. (2012). *Adopted 2012 Regional Transportation Plan Growth Forecast.* [online] http://www.scag.ca.gov/forecast/index.htm [accessed September 2012].

State of California, Department of Finance (CDF). (2007, August). *E-8 Historical Population and Housing Estimates for Cities, Counties, and the State, 1990 - 2000*.

CDF. (2011, June 4). *Historical Census Populations of California, Counties, and Incorporated Cities, 1850 – 2010.*

United States Census Bureau (U.S. Census Bureau) (2012). American Community Survey 1-year estimates, 2011. Available at http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

U.S. Census Bureau (2011). American Community Survey 5-year estimates, 2006-2010. Available at
http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

U.S. Census Bureau (2010). 2010 Census. Available at:
http://www.census.gov/2010census/

U.S. Census Bureau (2000). Census 2000 Gateway. Available at:
http://www.census.gov/main/www/cen2000.html

U.S. Census Bureau (1990) 1990 Census. Available at:
http://www.census.gov/main/www/cen1990.html

4.14 Public Services

This section describes existing public services in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). It analyzes the potential impacts on the identified public services associated with the construction and operation of the Proposed Project and Alternative Project.

4.14.1 Environmental Setting

This discussion describes the existing fire protection, police protection, schools, hospitals, and libraries in the Coolwater-Lugo area. Facilities associated with Coolwater-Lugo would be located in unincorporated San Bernardino County, the Town of Apple Valley, and the cities of Barstow and Hesperia. For this section, information was obtained from the County, cities, school districts, and other local sources of information.

4.14.1.1 Fire Protection Services

Fire protection throughout the areas surrounding Coolwater-Lugo is provided by the San Bernardino County Fire Department ("SBCFD") and the local jurisdictional fire departments of the cities of Hesperia, Barstow and the Town of Apple Valley. SBCFD operates 70 fire stations that service the unincorporated areas of San Bernardino County and maintains service contracts with five of the 24 cities in the County: Adelanto, Barstow, Hesperia, Twentynine Palms, and Victorville. SBCFD also provides hazardous materials response, household hazardous waste collection, emergency planning, and swift water rescue.

A portion of the proposed Apple Valley to Desert View Telecommunication Route is located in the Town of Apple Valley. The Apple Valley Fire Protection District ("AVFPD") services the Town of Apple Valley with fire prevention activities, hazardous materials and technical rescue response capabilities, and disaster preparedness programs. The AVFPD operates seven fire stations (Town of Apple Valley Fire Protection District 2012). The fire station closest to the Proposed Desert View Substation is the AVFPD Headquarters, located at 22400 Headquarters Drive, Apple Valley, approximately 7.5 miles northwest of the Proposed Desert View Substation site.

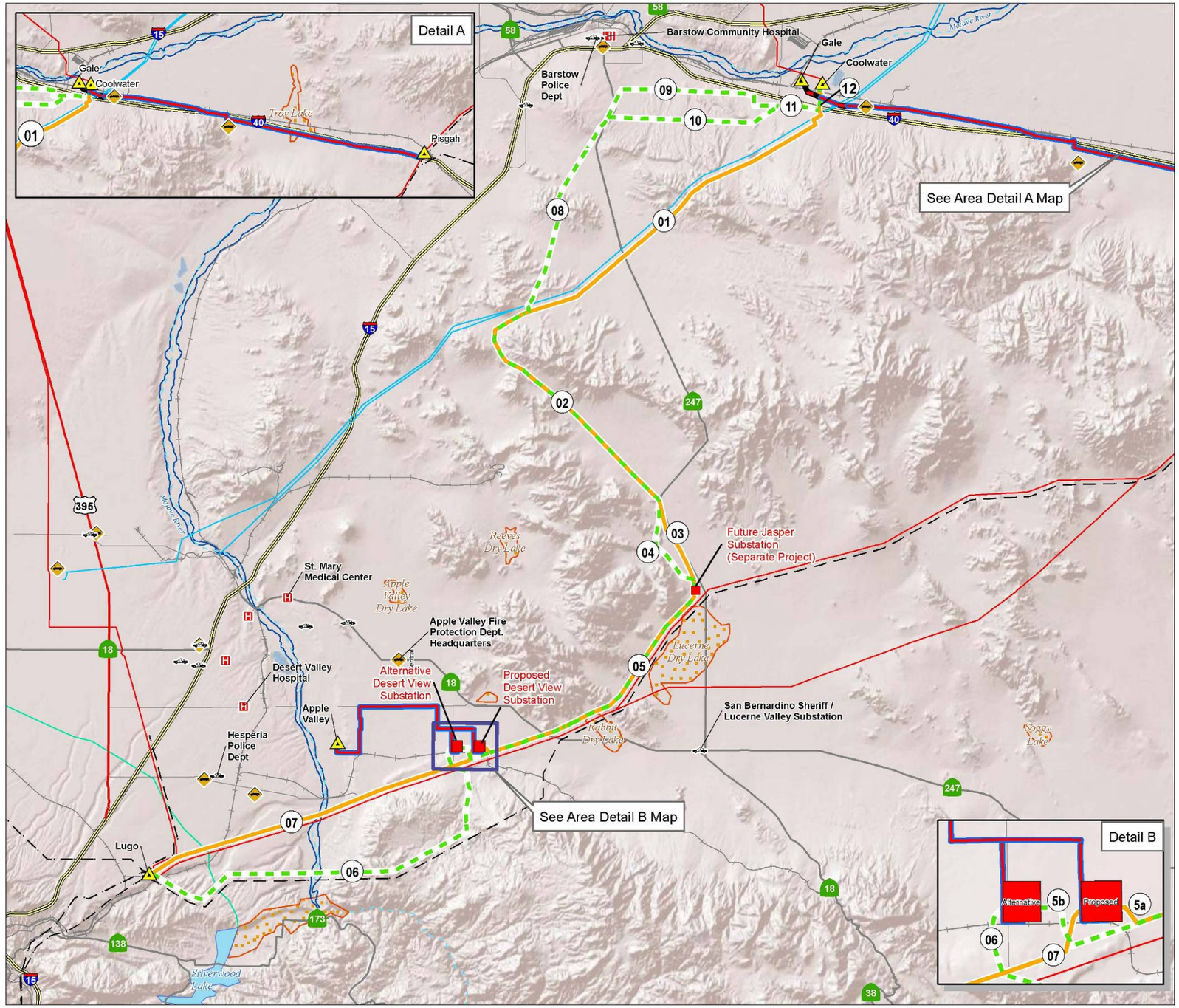
Fire stations serving the Coolwater-Lugo area are shown on Figure 4.14-1, *Fire and Police Stations in the Vicinity of Coolwater-Lugo*.

4.14.1.2 Police Protection Services

The San Bernardino County Sheriff's Department ("SBCSD") is the primary law enforcement agency for San Bernardino County and provides both community policing and the operation and maintenance of correctional facilities. The SBCSD has 3,400 employees.

This page is intentionally blank.

Coolwater - Lugo Transmission Project
Figure 4.14-1
Fire and Police Stations, Licensed Healthcare Facilities



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- Railroad

Water (TBM, 2008)
- Dry Lake
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Public Services
- Police
- Fire Station
- Hospital

Source: FEMA, U.S. Multi-Hazards Flood Model

0 5 10 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.14_1_FirePoliceHospital_20130812.mxd

This page is intentionally blank.

Ten sheriff substations are located throughout the County to provide area-level community service, including sheriff substations in the City of Hesperia, the Town of Apple Valley, the City of Barstow, and the unincorporated community of Lucerne Valley. The closest sheriff's substation to Coolwater-Lugo is the Lucerne Valley substation, located at 32818 Verdugo Road, Lucerne Valley.

The City of Hesperia Police Department ("HPD"), located at 15840 Smoketree Street, provides the primary police protection services for the City of Hesperia. The HPD has jurisdiction across southern portions of the Coolwater-Lugo area near Southern California Edison's ("SCE") existing Lugo Substation. The HPD consists of 54 sworn law enforcement personnel supporting marked-unit patrol, traffic enforcement, gang enforcement, graffiti/vandalism investigation and abatement, and advanced investigations (City of Hesperia 2012).

The City of Barstow Police Department ("BPD"), located at 220 East Mountain View Street, Suite B (City of Barstow 2012), has jurisdiction across northern portions of the Coolwater-Lugo area. The BPD provides the primary police protection services for the City of Barstow and consists of a patrol division, traffic division, and multiple enforcement teams.

The Town of Apple Valley contracts with the SBCFD for all public safety–related services. As part of the Town of Apple Valley Police Department, it provides general patrol in addition to special teams for traffic enforcement, retail theft, gangs, and more (Town of Apple Valley 2013). The Town of Apple Valley Police Department is located at 14931 Dale Evans Parkway, Apple Valley.

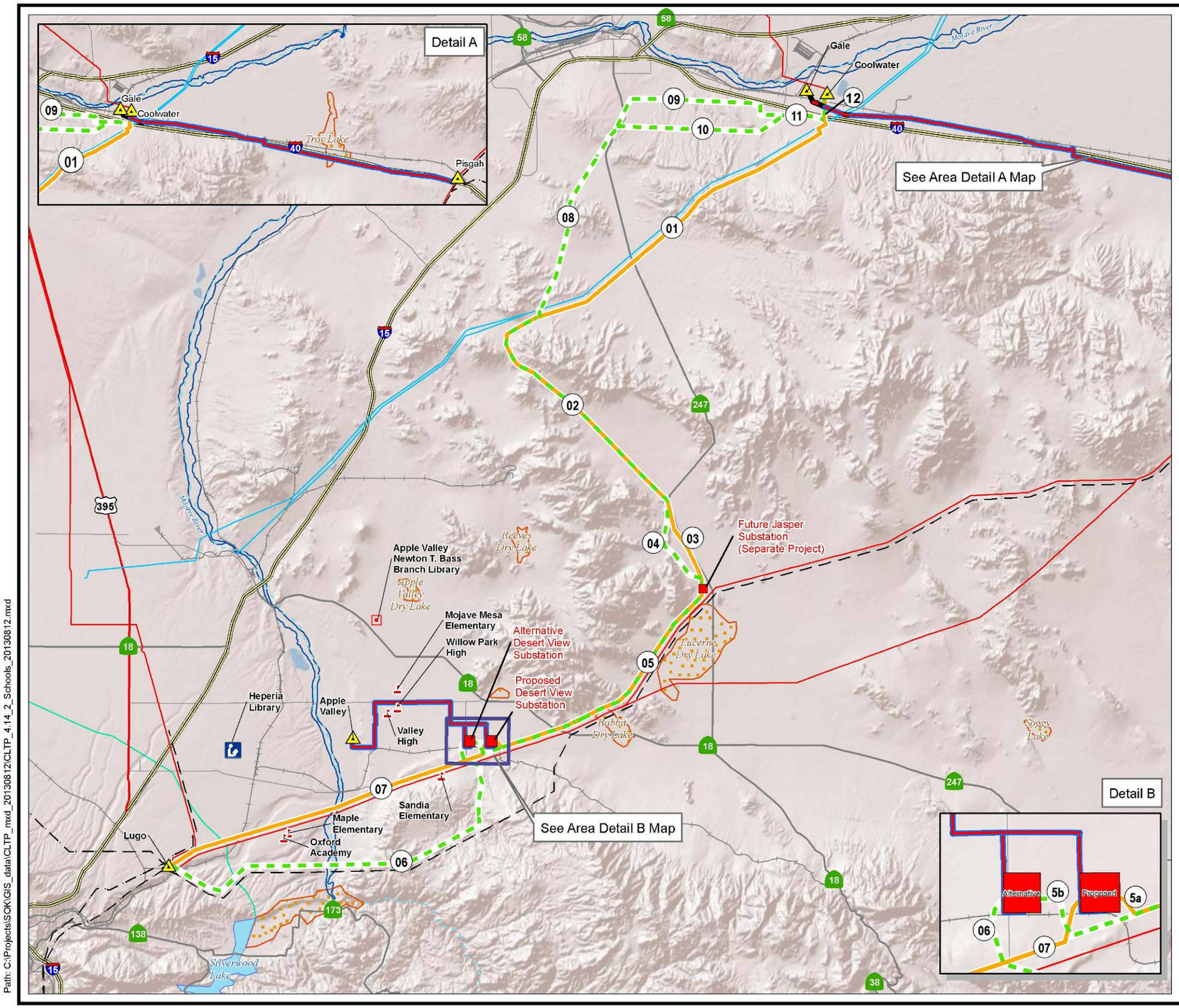
Police stations that serve the project area are shown in Figure 4.14-1, *Fire and Police Stations in the Vicinity of Coolwater-Lugo*.

4.14.1.3 School Services

San Bernardino County has 33 school districts and five community college districts (San Bernardino County Superintendent of Schools 2012). The Proposed and Alternative Desert View Substation sites are located in the Apple Valley Unified School District, whereas the Proposed and Alternative Transmission Line Routes and Telecommunications Routes traverse the Barstow Unified School District, Hesperia Unified School District, Apple Valley School District, Lucerne Valley Unified School District, and Silver Valley Unified School District.

Seven schools are located within one-half mile of Coolwater-Lugo. Three are in the Hesperia Unified School District (Hesperia Unified School District 2012), and four are in the Apple Valley Unified School District (Apple Valley Unified School District 2013).

This page is intentionally blank.



Coolwater - Lugo Transmission Project
Figure 4.14-2
Schools & Libraries

Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- Railroad

Water (TBM, 2008)
- Dry Lake
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Public Services
- School (within approx. 0.5 mile of project components)
- Library

Source: FEMA, U.S. Multi-Hazards Flood Model

0 5 10 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.14_2_Schools_20130812.mxd

This page is intentionally blank.

The following schools are located in the Hesperia Unified School District:

- Oxford Academy, located at 7300 Oxford Avenue, Hesperia, approximately 0.50 mile south of the Proposed Transmission Line Route Segment 7 and southwest of the Apple Valley to Desert View Telecommunication Route.
- Maple Elementary School, located 7473 Kingston Avenue, Hesperia, approximately 0.5 mile south of the Proposed Transmission Line Segment 7 and southwest of the Apple Valley to Desert View Telecommunication Route.

The following schools are located in the Apple Valley School District:

- Willow Park High School, located at 11837 Navajo, Apple Valley, approximately 0.5 mile north of the Proposed Transmission Line Route Segment 7 and north of the Apple Valley to Desert View Telecommunication Route.
- Valley High School, located at 21331 Sandia Road, Apple Valley, approximately 0.5 mile north of the Proposed Transmission Line Route Segment 7 and north of the Apple Valley to Desert View Telecommunication Route.
- Mojave Mesa Elementary School, located at 12555 Navajo Road, Apple Valley, approximately 0.5 mile north of the Proposed Transmission Line Route Segment 7 and south of the Apple Valley to Desert View Telecommunication Route.
- Sandia Elementary School, located at 15552 Witchita Road, Apple Valley, approximately 0.5 mile south of the Proposed Transmission Line Route Segment 7 and south of the Apple Valley to Desert View Telecommunication route.

No schools fall within 0.5 mile of the other project components within the jurisdictions of the City of Barstow and San Bernardino County.

Schools in the Coolwater-Lugo area are shown on Figure 4.14-2, *Schools and Libraries*.

4.14.1.4 Hospitals

San Bernardino County operates eight public health clinics and additional medical facilities and services, such as private/for-profit services and municipal facilities. The hospitals closest to the Desert View Substation sites are Desert Valley Hospital and St. Mary Medical Center. Both are approximately 10.0 miles from the Alternative Desert View Substation site (see Figure 4.14-1). Desert Valley Hospital, located in the City of Victorville at 16850 Bear Valley Road, is an 83-bed acute-care hospital that offers surgical services, senior services, and cardio-neuro diagnostics. Desert Valley Hospital does not maintain an emergency room (Desert Valley Hospital 2012). St. Mary Medical Center, located at 18300 Highway 18 in the Town of Apple Valley, offers emergency services. The new Barstow Community Hospital, located at 820 E. Mountain View Street, opened on October 13, 2012, replacing the hospital across the street. The Barstow Community Hospital is a 30-bed acute-care facility with in-patient and out-patient services, surgical services, and an emergency room (Barstow Community Hospital 2013).

It is located approximately 2.4 miles north of Alternative Transmission Line Route Segment 9.

4.14.1.5 Library Services

San Bernardino County operates a system of 33 libraries and a bookmobile. Hesperia

Branch Library is located at 9650 7th Avenue in Hesperia, approximately 2.5 miles northwest of the Proposed Transmission Line Route Segment 7 (San Bernardino County 2012). The Apple Valley Newton T. Bass Branch Library is located in the Town of Apple Valley at 14901 Dale Evans Parkway, approximately 7.0 miles northwest of Proposed Desert View Substation (San Bernardino County 2012).

Libraries in the Coolwater-Lugo area are shown on Figure 4.14-2, *Schools and Libraries.*

4.14.2 Regulatory Setting

4.14.1.1 Federal Regulatory Setting

U.S. Bureau of Land Management

The U.S. Bureau of Land Management ("BLM") has a fire program that works with local jurisdictions and communities to protect people, property, and resources against wildland fires. Specific legislation that applies to the BLM-managed lands include the Federal Land Policy and Management Act of 1976, as amended (43 U.S. Code 1701 et seq.), and Title 43, Part 9210, Subpart 9212, Section 9212.0-6 and the Energy Policy Act of 2005 (Public Law 109-58), related to wildland fires (BLM 2013).

4.14.1.2 State Regulatory Setting

California Fire Code

The California Fire Code is Part 9 of 12 parts of the official adoptions, amendment, and repeal of building regulations to the California Code of Regulations, Title 24, also called the California Building Standards Code. This part adopts the 2009 International Fire Code of the International Code Council with necessary California amendments.

The Fire Code establishes the minimum requirements to safeguard public health, safety and welfare against the hazard of fire, explosion, and dangerous conditions in new and existing structures and premises and to provide assistance during emergency operations (State of California 2013).

4.14.2.1 Local Regulatory Setting

San Bernardino County

Fire protection policies and regulations governing San Bernardino County include County Ordinances No. 870 and 4022, California Public Resources Code Section 4290,

the Uniform Fire Code, and the Uniform Building Code. The County of San Bernardino has adopted the California Building Code and the International Building Code with respect to overall and/or specific building code issues.

City of Barstow

The City of Barstow has adopted the California Fire Code, 2007 Edition (Part 9, Title 24, California Code of Regulations), which incorporates and amends the International Fire Code, 2006 Edition, as the fire code of the City. The Code provides regulations intended to protect life and property from fire, hazardous materials, and explosion. The Fire Code is Chapter 16.04 of the Barstow Municipal Code (City of Barstow 2013).

City of Hesperia

The City of Hesperia has adopted the 2010 California Fire Code (Part 9, Title 24, California Code of Regulations) as the fire code for the City. Fire protection policies and regulations of the Code have been adopted for purpose of protecting life and property (City of Hesperia 2013; State of California 2013).

Town of Apple Valley

The Town of Apple Valley adopted the 2010 California Fire Code (Part 9, Title 24, California Code of Regulations) as the fire code for the Town. Fire protection policies and regulations of the Code have been adopted for purpose of protecting life and property (Town of Apple Valley 2013; State of California 2013).

4.14.3 Significance Criteria

4.14.1.3 CEQA Significance Criteria

The significance criteria for assessing the impacts to public services come from the California Environmental Quality Act ("CEQA") Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection, police protection, schools, parks, or other public facilities

4.14.1.4 NEPA Analysis

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27).

4.14.4 Impact Analysis

The assessment was based on the potential impact of construction and operation of the Proposed Project on public services. Impacts were evaluated in an area defined to be the police, fire, school, hospital, and library service areas that contain the Proposed Project facilities. Impacts from construction and operation of the Alternative Project are discussed in Section 4.14.6, *Alternative Project*.

As discussed in Chapter 3, *Project Description*, either the Proposed Project or Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. There would be no differences in public services under the IBO and FBO scenarios; therefore, the following impact assessment applies to both scenarios. Full build out of either the Proposed or Alternative Desert View Substation would occur in the disturbance footprint established during the IBO construction; no additional lands would be needed for the FBO, and less employment would occur during FBO than for IBO. No additional impacts on public services would occur.

4.14.4.1 CEQA Impact Assessment

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection, police protection, schools, parks, or other public facilities?

Construction Impacts

The short-term construction activities would not require the expansion of fire protection services in San Bernardino County. SCE would clear vegetation from the work areas before staging construction equipment, minimizing the probability of fire during construction. It is not anticipated that the Proposed Project would adversely affect the use or operation of any public services or facilities in the immediate area, including schools, fire and police protection services, emergency services, hospitals, or other services. Although the need for emergency services may arise during the construction phase of the Proposed Project, such a need would not substantially affect the provision of existing emergency services or require the provision of service beyond existing capacities. Construction is not anticipated to affect response times because any lane or road closures, if necessary, would be temporary and would be coordinated with local jurisdictions. Traffic control would be implemented as needed, in accordance with the California Joint Utility Traffic Control Manual.

Construction of the Proposed Project would not generate the need for new or additional public services because it would not result in construction of residential or other land uses that would directly or indirectly induce population growth in the area. Refer also to Chapter 6.0, *Other CEQA Considerations*, for additional discussion of growth-inducing

impacts. Therefore, less than significant impacts on public services are anticipated during construction of the Proposed Project.

Operation Impacts

It is not anticipated that operation of the Proposed Project would adversely affect the use or operation of any public services or facilities in the immediate area, including schools, fire and police protection services, emergency services, hospitals, or other services. While it is possible that the need for emergency services may arise during operation of the Proposed Project, such a need would not substantially affect the provision of existing emergency services or require the provision of service beyond existing capacities. Operation of the Proposed Project is not expected to impact emergency response times. Operation of the Proposed Project, including O&M and emergency work, would typically involve few vehicle trips and any lane or road closures, if necessary, would be temporary and would be coordinated with local jurisdictions. As during construction, traffic control would be implemented as needed, in accordance with the California Joint Utility Traffic Control Manual.

The Proposed Project is designed in response to the existing and projected electrical demand in the area and would not directly induce population growth or create a need for additional public services. Operation of the Proposed Project is not expected to have substantial growth-inducing impacts (see Section 6.0, *Other CEQA Considerations,* for additional discussion), and would therefore not create a need for new schools, hospitals, or other public services. As a result, less than significant impacts on public services are anticipated during the operation of the Proposed Project. Impacts related to parks in the Coolwater-Lugo area are evaluated in Section 4.15, *Recreation*.

4.14.4.2 NEPA Impact Assessment

Based on the analysis performed, it is anticipated that the Project would not result in significant effects under NEPA.

4.14.5 Applicant Proposed Measures

No potentially significant impacts on public services are expected from the Proposed Project; therefore no applicant proposed measures related to public services are identified.

4.14.6 Alternative Project

As described in Section 3.14, *Project Alternatives*, either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Route, but not both. A separate impact analysis is provided for these two scenarios.

4.14.6.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation, the Alternative Transmission Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6, and the Apple Valley to Desert View and Gale to Pisgah telecommunication routes.

The Alternative Desert View Substation and Alternative Transmission Line Route have a setting similar to that of the Proposed Project and are similar in scope. As a result, impacts on public services would be similar to those identified for the Proposed Project. Therefore, less than significant impacts are anticipated during the construction and operation of the Alternative Project with Segment 9.

4.14.6.2 Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, the Alternative Transmission Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and the Apple Valley to Desert View and Gale to Pisgah telecommunication routes.

There would be no difference in impacts on public services between using Segment 9 and using Segment 10; therefore, less than significant impacts are anticipated for the construction and operation of the Alternative Project with Segment 10.

4.14.7 References

Apple Valley Unified School District. (2013). Apple Valley Unified School District Web page. Retrieved from http://www.avusd.org/our-schools-1.

Barstow Community Hospital. (2013). About Us. Retrieved from http://www.barstowhospital.com/Pages/Home.aspx.

City of Barstow. (2012). City of Barstow Police Department Web page. Retrieved fromhttp://www.barstowca.org/index.php/city-organization/city-departments/police

City of Barstow. (2013). City of Barstow Fire Code. Retrieved from http://library.municode.com/index.aspx?clientId=16205

City of Hesperia. (2012). City of Hesperia Police Department Web page. Retrieved from http://www.cityofhesperia.us/index.aspx?NID=306

City of Hesperia. (2013). City of Hesperia Building & Safety. Retrieved from http://www.cityofhesperia.us/index.aspx?nid=92

Desert Valley Hospital. (2012). Desert Valley Hospital Web page. Retrieved from http://www.dvmc.com/About-Us/Fact-Sheet.aspx

Hesperia Unified School District. (2012). School district map Web page. Retrieved fromhttp://hesperia.org/dist/

San Bernardino County. (2012). Library Web page. Retrieved from http://www.sbcounty.gov/library/home

San Bernardino County Superintendent of Schools. (2012). District Sites and Information. Retrieved from http://www.sbcss.k12.ca.us/distSite.php

State of California. (2013). Building Standards Commission. Retrieved from http://www.bsc.ca.gov/pubs/codeson.aspx

Town of Apple Valley. (2013). Town of Apple Valley Police Department Web page. Retrieved from http://www.applevalley.org/Index.aspx?page=156

Town of Apple Valley Fire Protection District. (2012). Apple Valley Fire Protection District Web page. Retrieved from http://www.applevalleyfd.com/default.asp

U.S. Bureau of Land Management (BLM). (2013). Laws, Regulations, Policies, Court Decisions. Retrieved from http://www.blm.gov/wo/st/en/info/regulations.html

This page is intentionally blank.

4.15 Recreation

This section describes existing recreation resources in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). It analyzes potential impacts on the identified recreation resources associated with construction and operation of the Proposed Project and the Alternative Project.

4.15.1 Environmental Setting

This discussion describes the existing conditions and the public and private recreation resources in the Coolwater-Lugo area. For this section, information was derived directly from maps; the interpretation of aerial photographs; and secondary sources, including agency plans and other related documents.

4.15.1.1 BLM Recreational Lands

The Coolwater-Lugo area includes U.S. Bureau of Land Management ("BLM") lands (Figure 4.15-1, *Parks and Recreational Open Space*). The Coolwater-Lugo area is in the BLM Barstow field region, which covers an area from the northern boundary of Joshua Tree National Park to the southern boundary of Fort Irwin, and from the eastern boundary of San Bernardino National Forest to north of Death Valley Junction, California, extending to the California/Nevada state line. The desert in this area is vast (about 3 million acres) and has many unique features. Elevations vary from near sea level (north of Baker, California) to more than 6,000 feet (in the Ord Mountains south of Barstow). There are many scenic locations with rough mountains, dry lake beds, and winding canyons (BLM 2012a).

BLM recreation areas in the Coolwater-Lugo area include the Stoddard Valley Off-Highway Vehicle ("OHV") Area (Figure 4.15-1, *Parks and Recreational Open Space*). The Stoddard Valley OHV Area offers a diverse landscape for OHV driving and recreation. It is characterized by steep and rocky mountains, rolling hills, open valleys, and sandy washes. The triangular-shaped riding and driving area is bounded by Interstate 15 ("I-15") to the west and State Route 247 ("SR-247") to the east, south of the City of Barstow. Most visitors access the area from the west, off of I-15 at the Outlet Center Drive exit (Sidewinder Road) or at the Hodge Road exit to the south on I-15 (Figure 4.15-1, *Parks and Recreational Open Space*).

Most area visitors ride motorcycles or all-terrain vehicles, or tour the area in four-wheel-drive vehicles. The easily accessed areas off Sidewinder Road (Outlet Center Drive exit on I-15) are used extensively for OHV free play and for permitted competitive racing events. There are many opportunities for hiking, rock scrambling, rock hounding, and wildlife watching (BLM 2012b).

4.15.1.2 State Recreation Areas

The nearest State Recreation Area ("SRA") to the Coolwater-Lugo area is the Silverwood Lake SRA, located approximately 5.0 miles south of the Alternative Transmission Line

Route Segment 6 (Figure 4.15-1, *Parks and Recreational Open Space*). The Silverwood Lake SRA is managed by California Department of Parks and Recreation and includes the largest reservoir in San Bernardino County, surrounded by 2,400 acres of recreation land, which includes a stretch of the Pacific Crest Trail.

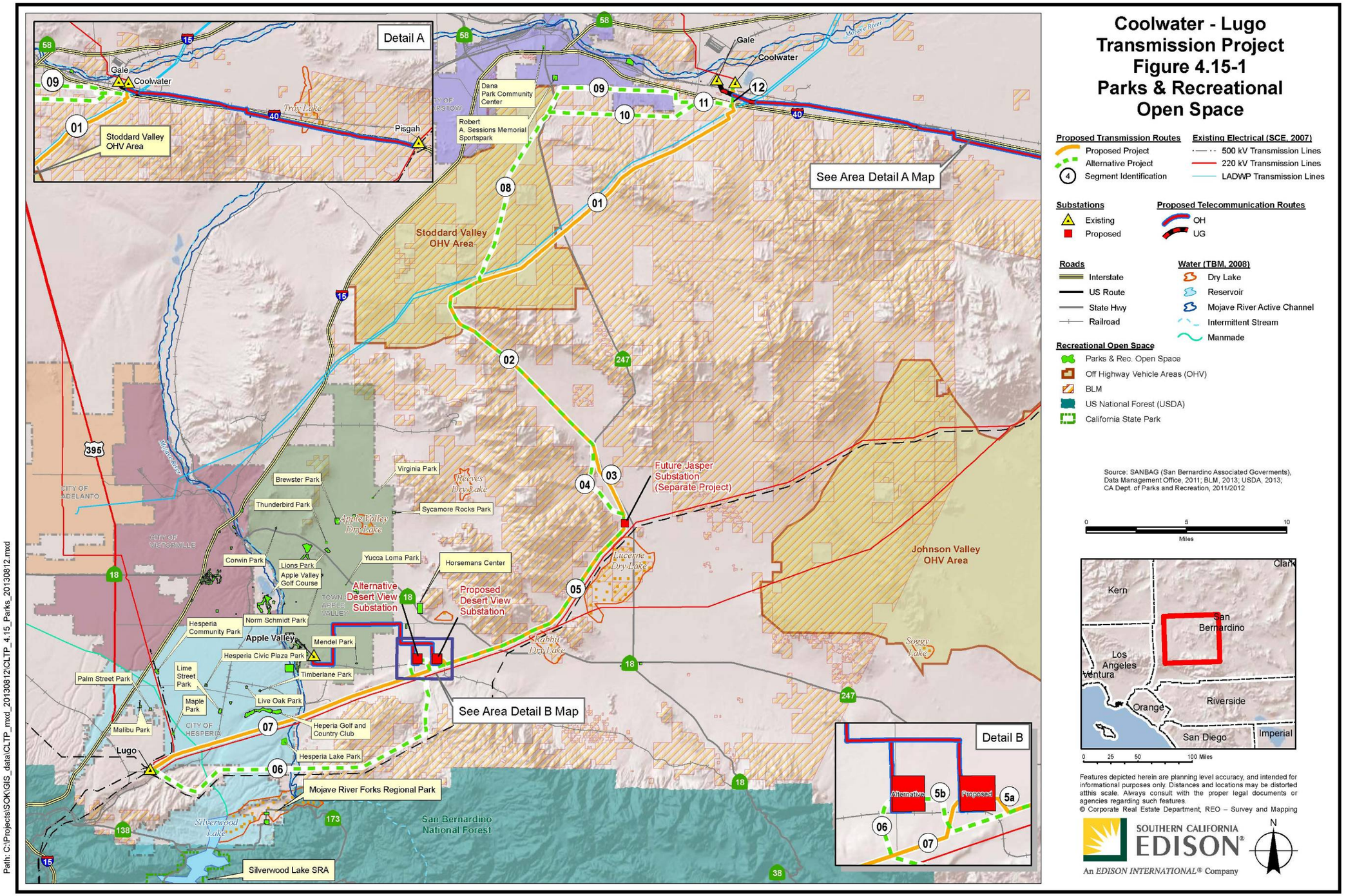
4.15.1.3 County Regional Parks

San Bernardino County maintains nine regional parks. One regional park is located in the Coolwater-Lugo area, the Mojave River Forks Regional Park. This park is located approximately 2.0 miles south of the Alternative Transmission Line Route Segment 6 (Figure 4.15-1, *Parks and Recreational Open Space*). It includes 50 recreational camping areas and offers recreational opportunities for hiking, horseback riding, and fishing (San Bernardino County 2012).

4.15.1.4 City Parks

The city parks nearest to Coolwater-Lugo are Mendel Park in the Town of Apple Valley, Hesperia Lake Park in the City of Hesperia, and Robert A. Sessions Memorial Sportspark in the City of Barstow. Mendel Park is located north of Proposed Transmission Line Route Segment 7 and south and east of the Apple Valley to Desert View Telecommunications Route at 21860 Tussing Ranch Road, Apple Valley. It is a neighborhood park with a playground, picnic area and facilities, and ball fields (Town of Apple Valley 2012). Located between Alternative Transmission Line Segment 6 and Proposed Transmission Line Route Segment 7 is Hesperia Lake Park at 7500 Arrowhead Lake Road. Hesperia Lake Park is a recreational facility that includes the Hesperia Lake Equestrian Camp, a general store, fishing, and camping facilities (City of Hesperia 2012). The Robert A. Sessions Memorial Sportspark is located north of Alternative Transmission Line Route Segment 9 at 2800 Mayor Katy Parkway, City of Barstow. The facility includes lighted ball fields, soccer fields, volleyball courts, batting cages, and basketball courts (City of Barstow 2012). Parks and recreation facilities are shown in Figure 4.15-1, *Parks and Recreational Open Space*.

Please refer to Table 4.15-1, *City Parks in the Vicinity of Coolwater-Lugo*, for a listing of the parks and recreational facilities in the Town of Apple Valley and Cities of Hesperia and Barstow.



Coolwater - Lugo Transmission Project Figure 4.15-1 Parks & Recreational Open Space

Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- Railroad

Water (TBM, 2008)
- Dry Lake
- Reservoir
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Recreational Open Space
- Parks & Rec. Open Space
- Off Highway Vehicle Areas (OHV)
- BLM
- US National Forest (USDA)
- California State Park

Source: SANBAG (San Bernardino Associated Goverments), Data Management Office, 2011; BLM, 2013; USDA, 2013; CA Dept. of Parks and Recreation, 2011/2012

0 5 10 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.
© Corporate Real Estate Department, REO – Survey and Mapping

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: C:\Projects\SOK\GIS_data\CLTP_mxd_20130812\CLTP_4.15_Parks_20130812.mxd

This page is intentionally blank.

Table 4.15-1 City Parks in the Vicinity of Coolwater-Lugo

Facility	Distance from Nearest Coolwater-Lugo Component (miles)
Town of Apple Valley	
Brewster Park	8.4
Civic Center Park	3.6
Corwin Park	9.2
Horseman's Center	1.0
Lenny Brewster Sport Park	5.0
Lion's Park	7.2
Mendel Park	1.4
Norm Schmidt Park	6.1
Sycamore Rocks Park	7.9
Thunderbird Park	7.6
Virginia Park	8.9
Yucca Loma Park	5.3
City of Hesperia	
Hesperia Civic Plaza Park	2.7
Hesperia Community Park	4.1
Hesperia Lake Park	0.7
Lime Street Park	1.4
Live Oak Park	2.1
Malibu Park	2.7
Maple Park	0.9
Palm Street Park	2.4
Timberlane Park	1.7
City of Barstow	
Dana Park Community Center	2.0
Robert A. Sessions Memorial Sportspark	0.3

Sources: Town of Apple Valley, 2012; City of Hesperia, 2012; City of Barstow, 2012

4.15.1.5 Other Recreational Areas

Two public golf courses are located in the vicinity of the Coolwater-Lugo area (Figure 4.15-1, *Parks and Recreational Open Space*). Apple Valley Golf Course, an 18-hole golf course located approximately 3.2 miles north of the Proposed Apple Valley to Desert View Telecommunications Route, in the Town of Apple Valley, includes banquet, restaurant, and clubhouse facilities. Hesperia Golf & Country Club, an 18-hole golf course located approximately 0.8 mile northeast of Proposed Transmission Line Route Segment 7 in the City of Hesperia, includes banquet, restaurant, and clubhouse facilities.

4.15.2 Regulatory Setting

4.15.2.1 Federal Regulatory Setting

Public lands typically have recreational value and offer opportunities for recreational activity. Southern California Edison ("SCE") has considered the following Federal management plans as part of the current recreational review process.

California Desert Conservation Area Plan of 1980, as amended

The Proposed Project crosses BLM lands designated in the California Desert Conservation Area ("CDCA") Plan. The Recreation Element of the CDCA Plan includes guidelines and requirements for recreational activities such as maintaining opportunities for recreational activities, minimizing land use conflicts, accommodating visitors, and increasing public awareness of sensitive desert resources in the CDCA Planning Area (BLM 1980).

West Mojave Plan

The West Mojave Plan ("WMP"), established in 2006, is composed of a Federal component that amends the CDCA Plan of 1980, as well as a habitat conservation plan ("HCP") component that covers State and local government actions (BLM 2006). The planning area covers 9.4 million acres in the western portion of the Mojave Desert in southern California, covering parts of San Bernardino, Los Angeles, Kern, and Inyo counties. The plan applies to the 3.2 million acres of public lands and 2.9 million acres of private lands in the planning area and is consistent with the resource management plans adopted by each of the region's five military bases and with the desert tortoise recovery plan.

The goal of the plan is to conserve and protect the desert tortoise and nearly 100 other sensitive plants and animals, as well as the ecosystems on which they depend. At the same time, the plan provides developers of public and private projects with a streamlined program for compliance with the California and Federal Endangered Species Acts. The WMP incorporates recreational activities, including OHV use, in the planning area.

4.15.2.2 State Regulatory Setting

No recreation-related state regulations apply to Coolwater-Lugo.

4.15.2.3 Local Regulatory Setting

The California Public Utilities Commission ("CPUC") has sole exclusive state jurisdiction over the siting and design of Coolwater-Lugo because the CPUC regulates and authorizes the construction of investor-owned public utility facilities. Such projects are exempt from local land use and zoning regulations and permitting in accordance with General Order No. 131-D, which is applicable to all components of a project, including but not limited to the transmission lines, substations, staging yards, and marshaling yards.

However, Section XIV.B requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain a nondiscretionary local permit." As part of its environmental review process, SCE considers local and state land use plans and policies and local land use priorities and concerns.

SCE considered the following local land use and zoning plans as part of the current recreation review process.

County of San Bernardino General Plan

San Bernardino County consists of three distinct geographic regions: the valley, the mountains, and the desert (San Bernardino County 2013). The *County of San Bernardino 2007 General Plan* (San Bernardino County 2013) addresses the distinctions between the three geographic regions while being mindful of the need to have unified goals and policies that would address county-wide issues and opportunities. Most of the policies within the General Plan address the County in its entirety and are referred to as county-wide policies. County-wide policies are presented under each element of the General Plan.

The following Open Space Element county-wide policies are relevant to the Proposed Project's recreational considerations:

- OS 1.6. The Regional Parks Department shall continue to identify and acquire future sites suitable for siting new regional park land to keep pace with public need.

- OS 2.1. Provide a regional trail system, plus rest areas, to furnish continuous interconnecting trails that serve major populated areas of the County and existing and proposed recreation facilities through the regional trail system. The purpose of the County regional trails system will be to provide major backbone linkages to which community trails might connect. The provision and management of community and local trails will not be the responsibility of the regional trail system.

- OS 2.3. Locate trail routes to highlight the County's recreational and educational experiences, including natural, scenic, cultural, and historic features.

- OS 2.8. Where feasible, link local equestrian trails and hiking paths with other regional trails or routes.

- OS 2.14. To expand recreational opportunities in the County, the County will utilize small parcels adjacent to flood control facilities for equestrian, pedestrian and biking staging areas. The County Department for Real Estate Services will contact the Regional Parks Department or other County open space agency prior to disposing of any surplus lands.

- OS 3.5. Coordinate with the Federal and state agencies regarding opportunities for leasing public lands for regional park, open space, and trail purposes.

- OS 4.4. To preserve and protect recreational facilities in the County, utilize public funding mechanism wherever possible to protect and acquire regional park lands.

The following Open Space Element Desert Region policies are relevant to the Proposed Project's recreational considerations:

- D/OS 2.1. Establish programs for Off-Highway Vehicle use education.
- D/OS 2.2. Work with the BLM, National Park Service, law enforcement agencies and adjacent communities to improve management of off-highway vehicle use by establishing programs for off-highway vehicle use education.
- D/OS 2.3. The County shall, in cooperation with the San Bernardino National Forest, ensure that Off-Road Vehicle (OHV) use within the plan area and in the surrounding region is restricted to designated trails.
- D/OS 2.4. Utilize signage to designate appropriate OHV trails or access areas and to notify where OHV use is prohibited.

City of Hesperia General Plan 2010

The following City of Hesperia Open Space Element policies are relevant to the Proposed Project (City of Hesperia 2010):

GOAL OS-2:

"Identify and preserve natural open space in order to protect sensitive environments and preserve amenities such as washes, bluffs, Joshua tree forests, or juniper woodlands. Open space areas should be contiguous or connected through trails to provide accessibility for hikers and equestrians as well as wildlife."

Relevant polices based on Goal OS-2:

- Coordinate efforts with other public and private agencies regarding potential trail systems, recreational facilities and recreational programs.
- Identify and assess lands in the City that are suitable for preservation for the purposes of passive or active recreation.

GOAL OS-5:

"Continue to work with the Hesperia Recreation and Park District to create and maintain a diverse park system that includes parks, community facilities, natural open space areas, and trails for residents to enjoy."

Relevant polices based on Goal OS-5:

- Provide parks and recreation facilities at a rate of five (5) acres per 1,000 residents.

- Develop a high-quality network of parks and recreation facilities that meets the needs of all residents, including children, young adults, seniors, families and disabled individuals.

- Develop adaptable recreation facilities that have multi-use capabilities that can change with demand and population.

- Coordinate with other agencies and jurisdictions in a joint effort to provide recreational facilities in the City.

- Implement the private and common recreational amenity standards for new residential development in the Main Street and Freeway Corridor Specific Plan. For areas not in the specific plan, develop a policy to require private and common recreational amenities for new residential developments. Recreational amenities may be reduced or not required if located within 330 feet of a recreational public facility.

GOAL OS-6:

"Provide connectivity among natural open space areas, parks, and regional trails and open spaces with a trails system that allows hiking, bicycling, and equestrian uses."

Relevant policies based on Goal OS-6:

- Provide an interconnecting plan in conjunction with surrounding agencies to provide regional trails.

- Continue to maintain and provide access to open space areas and recreational facilities.

- Provide a comprehensive network trails plan that connects residents to open space areas, recreational facilities, and areas of interest.

- Connect open space areas along the eastern side of Interstate 15.

City of Barstow General Plan

The entire portion of Coolwater-Lugo that would occur within the city limits of Barstow would be on the Marine Corps Logistic Base Barstow. City plans do not apply to properties under military control.

Town of Apple Valley General Plan

The following Town of Apple Valley Parks and Recreation Element policies are relevant to the Proposed Project (Town of Apple Valley 2009).

GOAL 1:

"The maintenance and expansion of a well-connected network of high quality parks that provides all segments of the community with a wide range of recreational opportunities."

Relevant policies based on Goal 1:

- Update the Master Parks and Recreation Facilities Plan so that the immediate and future needs of the community can be met in ways that complement the natural environment.
- The Parks Master Plan shall be updated every five years to address the maintenance and expansion of existing parks and facilities, as well as identifying proposed and potential parks.
- Ensure that a wide range of recreational opportunities that serve all segments of the community are included in parks master planning updates.
- Population concentration and community/neighborhood needs will be considered in the design and distribution of park and recreational facilities.
- Recreational facilities, programs and activities must be comprehensive and inclusive, providing a wide range of recreational opportunities for all population segments, including the disabled.

4.15.3 Significance Criteria

4.15.3.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to recreational resources come from the California Environmental Quality Act ("CEQA") Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated
- Include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment

4.15.3.2 NEPA Analysis

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.2).

4.15.4 Impact Analysis

The assessment was based on the potential impact of implementing the Proposed Project on public and private recreation facilities. The Proposed Project's consistency with applicable management plans and general plans was also considered in the assessment. Impacts were evaluated in an area defined to be within a radius of approximately 5.0 miles of the Proposed Project facilities. Impacts from implementing the Alternative Project are discussed in Section 4.15.6, *Alternative Project*.

As discussed in Chapter 3, *Project Description*, either the Proposed Project or Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. There would be no differences in potential impacts on recreation under the IBO and FBO scenarios; therefore, the following impact assessment applies to both scenarios for Desert View Substation. Full build out of either the Proposed or Alternative Desert View Substation would occur in the disturbance footprint established during the IBO of Desert View Substation construction; therefore, no disturbance of additional lands would be needed for the FBO of Desert View Substation.

4.15.4.1 CEQA Impact Assessment

Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Construction Impacts

Construction workers would work at several locations within and along the Proposed Project area and could use nearby recreational facilities. Because of the temporary nature of construction, the construction personnel would not be relocating with their families to the vicinity of the Proposed Project, so the use of recreation facilities in the area would not increase. Recreational facilities in the vicinity of the Proposed Project may see an increase in use, but because of the small number of construction workers in each specific construction area, this increase would not result in substantial physical deterioration of any recreational facilities in the region or the acceleration of the physical deterioration of those facilities. Additionally, work in the Stoddard Valley OHV area would largely occur in locations not typically used by the public. Therefore, less than significant impacts are anticipated during the construction of the Proposed Project.

Operation Impacts

The proposed Desert View Substation would be unstaffed and would function as a remotely controlled substation. Routine inspections and maintenance of the Proposed Project would be required during its operation. Although intermittent inspections and maintenance would occur as part of the Proposed Project, operation of the Proposed Project would not increase the population in the area, and there would not be a substantial physical deterioration of any recreational facilities in the region or acceleration of the physical deterioration of those facilities; therefore, it would not increase the use of

existing recreational facilities. Therefore, less than significant impacts are anticipated during the operation of the Proposed Project.

Would the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

Construction Impacts

The Proposed Project would not involve any new construction or expansion of recreational facilities; therefore, no impacts are anticipated during the construction of the Proposed Project.

Operation Impacts

The proposed Desert View Substation would be unstaffed and would function as a remotely controlled substation. Routine inspections and maintenance of the Proposed Project would be required during its operation. Although intermittent inspections and maintenance would occur as part of the Proposed Project, it would not include or require construction of new recreation facilities or the expansion of existing facilities; therefore, no impacts are anticipated during the operation of the Proposed Project.

4.15.4.2 NEPA Impact Assessment

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (40 CFR 1508.27).

The term "Proposed Action" as used in NEPA regulations and analysis is the Proposed Project, and the Proposed Action is referred to in this NEPA analysis as the Proposed Project.

Construction Impacts

Construction of the transmission line and associated access roads could temporarily disrupt access to some portions of the Stoddard Valley OHV Area.

Proposed Transmission Line Segment 1 would cross through the southeastern portion of the Stoddard Valley OHV Area, parallel to the existing Los Angeles Department of Water and Power transmission corridor. The southeastern corner of the Stoddard Valley OHV Area could potentially be affected; however, construction activities would be temporary. Most visitors access the OHV area from I-15 on the west side of the OHV area. SCE would notify the BLM regarding any construction activities within the Stoddard Valley OHV Area. Construction of the Proposed Project would not reduce the number of potential Special Recreation Permits. Construction activities would be temporary and localized; therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

The proposed Desert View Substation would be unstaffed and would function as a remotely controlled substation. Routine inspections and maintenance of the Proposed Project would be required during its operation. Although intermittent inspections and maintenance would occur as part of the Proposed Project, operation and maintenance activities would not disrupt access to existing recreational facilities in the region nor would they reduce the number of Special Recreation Permits; therefore, less than significant impacts are anticipated to occur during operation of the Proposed Project.

4.15.5 Applicant Proposed Measures

No potentially significant impacts related to recreation are anticipated to result from construction and operation of the Proposed Project. Therefore, no applicant proposed measures related to recreation have been identified.

4.15.6 Alternative Project

As described in Section 3.14, *Project Alternatives*, either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Route, but not both. A separate impact analysis is provided for these two scenarios.

4.15.6.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation, the Alternative Transmission Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6, and the Alternative Apple Valley to Desert View and Gale to Pisgah telecommunications routes.

The potential construction and operation impacts on recreational opportunities of the Alternative Project would be similar to those associated with the Proposed Project, with the exception of Alternative Transmission Line Segments 8 and 9. Alternative Transmission Line Segment 8 would traverse the Stoddard Valley OHV Area for approximately 9.0 miles in a new right-of-way ("ROW") where there are currently no overhead utility structures or other aboveground infrastructure. Alternative Transmission Line Segment 9 would traverse less than a mile of the Stoddard Valley OHV Area adjacent to the eastern boundary of the OHV area. Installation of towers on Alternative Transmission Line Segment 8 and Segment 9 where there are currently no existing overhead utilities may require additional effort on the part of OHV area event planners who would have to take into account new structures in an area where no similar facilities currently exist. Therefore, impacts on OHV activity from the Alternative Project may be greater than would occur under the Proposed Project. However, impacts are still anticipated to be less than significant during construction and operation of the Alternative Project with Segment 9.

4.15.6.2 Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, the Alternative Transmission Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and the Alternative Apple Valley to Desert View and Gale to Pisgah telecommunications routes.

Segment 10 traverses approximately one-tenth of a mile of the Stoddard Valley OHV Area near the eastern boundary of the OHV area. Therefore, impacts on recreation under the Alternative Project with Segment 10 would be less than those described for the Alternative Project with Segment 9. Less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 10.

4.15.7 References

California Department of Parks and Recreation. 2010.

City of Barstow. 2012. Parks and Recreation Web page. Retrieved from http://www.barstowca.org/index.php/visitors/parks

City of Hesperia. 2010. *Hesperia General Plan 2010*.

City of Hesperia. 2012. Recreation and Park District facility guide. Retrieved from http://www.hesperiaparks.com/wp-content/uploads/2012/04/parks-and-facility-map.pdf

San Bernardino County. 2013. *San Bernardino County 2007 General Plan*. Adopted March 13, 2007.

San Bernardino County. 2012. Regional Parks Web page. Retrieved from http://www.county-parks.com/

State Parks. *See* California Department of Parks and Recreation.

Town of Apple Valley. 2009. Town of Apple Valley General Plan.

Town of Apple Valley. 2012. Parks and Facilities Web page. Retrieved from http://www.applevalley.org/index.aspx?page=843

U.S. Bureau of Land Management (BLM). 1980. The California Desert Conservation Area Plan.

U.S. Bureau of Land Management (BLM). 2012a. Field Offices Web page. Retrieved from http://www.blm.gov/ca/st/en/fo.html

U.S. Bureau of Land Management (BLM). 2012b. Recreation Web page. Retrieved from http://www.blm.gov/ca/st/en/fo.html

4.16 Transportation and Traffic

This section describes the existing transportation and traffic conditions in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). It analyzes the potential impacts on the identified transportation and traffic conditions associated with the construction and operation of the Proposed Project and Alternative Project.

4.16.1 Environmental Setting

The environmental setting section describes the existing conditions for transportation and traffic in the Coolwater-Lugo area. The regional transportation system is comprised of interstate highways, state highways and local roads from the City of Barstow to the north and the City of Hesperia to the south within San Bernardino County.

4.16.1.1 Regional Transportation System

Interstate 15 ("I-15"), I-40, State Route 18 ("SR-18"), SR-247, and SR-58 provide regional access to the area.

I-15 is a six-lane freeway that traverses in a northeast-southwest direction northwest of the Coolwater-Lugo area. To the north, I-15 connects with I-40. SR-247 is a two-lane north-south highway, which traverses the southern portions of Barstow and connects with SR-18 in Lucerne Valley. SR-18 is a four-lane east-west highway that extends from Victorville east to Lucerne Valley, traversing through the Town of Apple Valley.

Local Transportation System

The Proposed Project is predominately linear in nature and as a result, construction activities would occur at various locations over a large geographic area. In order to analyze potential peak construction and operation traffic volumes in the vicinity of a single location, as discussed in Section 4.16.4, *Impact Analysis*, the Desert View Substation is used as the basis for a worst-case analysis.

This discussion of the local transportation and traffic setting focuses on the major roadways and intersections in the area of the Proposed Project that would likely be used to access project components from the potential material staging yards. Construction of the Proposed and Alternative Transmission Lines and Telecommunication Routes would generally occur along existing rural roads or Southern California Edison ("SCE") access roads not commonly used for commuter travel. The traffic analysis does analyze locations where construction of the Proposed and Alternative Project would cross major highways or roadways. Nominal use of additional secondary roads within the Project Study Area would occur but these are not included for the purpose of this analysis. Analysis locations were selected based on the anticipated regional and local travel patterns to and from the Project Study Area during both construction and operation of the Project components. The travel patterns and roads selected represent the most direct routes that provide access to the Project Study Area.

The local transportation system in the vicinity of the Proposed and Alternative Desert View Substation sites consists primarily of a rural north-south/east-west system of dirt roadways bordered by large-lot residential properties in unincorporated San Bernardino County east of the City of Hesperia. The main roadways expected to be used by construction workers commuting to the substation sites are Milpas Drive and Desert View Road. The majority of construction traffic would access Milpas Drive via SR-18.

The intersection of Milpas Drive and Desert View Road, located southeast of the Proposed and Alternative Substation sites, is a four-way non-signalized intersection. This intersection would be the primary access point for traffic accessing the Proposed and Alternative Substation sites.

The typical transmission access road consists of a network of unpaved and paved roads accessed from public and private roads located on public, private, and government lands. These access roads consist of a network of through roads and spur roads, which are used to access transmission facilities. Access to the transmission line right-of-way ("ROW") for construction activities and future operations and maintenance activities associated with Coolwater-Lugo would be accomplished by utilizing this network of roads.

The Desert View Substation Study Area and Transmission Line Route and Telecommunication Routes Study Area consist of the following roadways that were selected based on both proximity to construction area and where the transmission line would cross roadways. This list does not include all roads that may be used during construction and operation of Coolwater-Lugo.

- **SR-18:** SR-18 provides east-west regional access to the Desert View Substation Study Area. Within this Study Area, SR-18 is a four-lane undivided highway and provides access to the Proposed and Alternative Desert View Substation sites via Milpas Drive. Within the Study Area, the SR-18 carries approximately 8,700 ADT (Caltrans' Traffic Data Branch 2011). SR-18 provides access to Proposed and Alternative Transmission Line Segment 5 and Alternative Transmission Line Segment 6. Segment 5 would cross SR-18 between High Road and Milpas Street.

- **Milpas Drive:** Milpas Drive serves as the primary access route to the Proposed and Alternative Desert View Substation sites. Milpas Drive is a paved, north-south collector road and intersects with SR-18 via a two-way stop-controlled intersection.

- **Desert View Road**: Desert View Road provides east-west local access to the Desert View Substation Study Area. Desert View Road is a two-lane, unpaved dirt collector road that intersects with Milpas Drive.

- **Wren Street**: Wren Street serves as a minor east-west local access to the Desert View Substation. Wren Street is a two-way, unpaved dirt collector road that intersects Milpas Drive on the east and Japatul Road to the west.

- **Japatul Road**: Japatul Road is a secondary access route to the Proposed and Alternative Desert View Substation sites. Japatul Road is a north-south, unpaved two-way dirt collector road located west of the Proposed and Alternative Desert View Substation sites.

- **Bear Valley Road**: Bear Valley Road is located north of the Proposed and Alternative Desert View Substation sites and provides regional east-west access to the Study Area. Bear Valley Road within the Study Area is a two-lane major arterial and intersects with SR-18 and Japatul Road. Bear Valley between Japatul and the SR-18 had approximately 8,500 average daily traffic ("ADT").

- **National Trails Highway:** National Trails Highway provides east-west regional access to Segment 12 of the Transmission Line Route. Within this Study Area, National Trails Highway is a two-lane undivided highway. Proposed Transmission Line Route Segment 12 would cross National Trails Highway between Ghost Town Road and Minneola Road. The Proposed Gale to Pisgah Telecommunication Route would proceed east from the existing Coolwater Substation to the Pisgah Substation, crossing the National Trails Highway near Newberry Springs.

- **I-40:** I-40 provides east-west regional access to Proposed and Alternative Transmission Line Segment 12 of the Transmission Line Route. Within this Study Area, I-40 is a four-lane divided highway. Segment 12 would cross I-40 between Ghost Town Road and Minneola Road. The Proposed Gale to Pisgah Telecommunication Route would cross I-40 at Newberry Springs.

- **Dale Evans Parkway:** Dale Evans Parkway is a two-lane, divided roadway in the vicinity of Segment 5 of the Telecommunications Line Route. The Proposed Telecommunications Line Route would cross Dale Evans Parkway between Waalew Road and Thunderbird Road, north of SR-18.

- **Barstow Road/SR-247:** Barstow Road is a north-south, two-lane undivided roadway within the Study Area. Proposed Transmission Line Segment 1 would cross Barstow Road and Proposed Transmission Line Segment 3 would be routed along the west side of Barstow Road. Alternative Transmission Line Segments 9 and 10 would cross Barstow Road.

- **Haynes Road:** Haynes Road provides east-west local access to the north end of the Proposed and Alternative Transmission Line Segment 5 and to the south end of Proposed Transmission Line Segment 3 and Alternative Transmission Line Segment 4. Haynes Road is a two-lane paved collector road that intersects with Barstow Road.

- **Joshua Road:** Joshua Road is a north-south, two-lane unpaved roadway within the Study Area. The Proposed Transmission Line Route Segment 5 would cross Joshua Road within the vicinity of its intersection with the SR-18.

- **Canyon View Road:** Canyon View Road is a north-south, two-lane unpaved roadway near the south end of Segment 5. Segment 5 of the Proposed Transmission Line Route would cross Canyon View Road in the vicinity of Desert View Road.

- **Ranchero Road:** Ranchero Road is an east-west, two-lane undivided highway in the City of Hesperia. Segment 7 of the Proposed Transmission Line Route would cross Ranchero Road west of I Avenue. Ranchero Road provides regional access to the Study Area via its interchange with the I-15 and also provides local access within the Study Area.

- **Arrowhead Lake Road:** Arrowhead Lake Road is a two-lane, north-south divided highway that provides local access to the Study Area. Segment 7 of the Proposed Transmission Line Route would cross Arrowhead Lake Road near Danbury Road.

- **Danbury Road:** Danbury Road is a local two-lane, undivided east-west collector road within the Study Area. Segment 7 of the Proposed Transmission Line Route would cross Danbury Road between I Avenue and Arrowhead Lake Road.

- **I Avenue:** I Avenue is a two-lane, undivided north-south roadway that provides both regional and local access to the Study Area. I Avenue intersects with Bear Valley Road to the north and Ranchero Road to the south. Segment 7 of the Proposed Transmission Line Route would cross I Avenue near Ranchero Road.

- **Peach Avenue:** Peach Avenue is a two-lane, undivided north-south local collector road just east of Segment 7. Segment 7 of the Proposed Transmission Line Route would cross Peach Avenue between Danbury Road and Ranchero Road.

- **A Street:** A Street is a four-lane, undivided north-south highway that provides regional access to Segment 12 of the Proposed Transmission Line Route with its intersection with the I-40 and National Trails Highway.

- **Santa Fe Street:** Santa Fe Street is a local east-west two-lane undivided collector road in the vicinity of Segment 12. Segment 12 of the Proposed Transmission Line Route would cross Santa Fe Street just north of National Trails Highway.

- **Camp Rock Road:** Rock Road is a two-lane, undivided north-south local collector road in the vicinity of Segment 12. Segment 12 of the Proposed Transmission Line Route would cross Rock Road just north of the I-40.

- **Pendleton Road:** Pendleton Road is a two-lane, undivided east-west local collector road just south of I-40. Segment 12 of the Proposed Transmission Line Route would cross Pendleton Road near Newberry Springs.

Traffic volume data (ADT) from 2011 for SR-18 was available from Caltrans' Traffic Data Branch. In order to determine existing 2012 volumes, an ambient growth rate was

applied to the 2011 volumes. The growth rate was calculated by identifying the growth between available 2011 and 2010 data. Traffic volume data from 2008 for Bear Valley Road was available from the Town of Apple Valley General Plan Circulation Element. The growth rate identified previously was applied to determine existing 2012 volumes. The resulting volumes are shown in Table 4.16-1, below.

No traffic volume information was available for Milpas Drive. Milpas Drive is primarily used as a local access route to the scattered large-lot rural residential homes in the vicinity. Due to the scattered, large-lot rural residential character of the area around Milpas Drive, low traffic volumes are anticipated on a daily basis. Similarly, no traffic volume data was available for the unpaved roads (Desert View Road, Wren Street, and Japatul Road) which also provide local access to sporadic residential homes throughout the area.

Traffic volumes for the roadways within the Proposed Transmission and Telecommunications Line Routes were obtained from multiple sources, as shown in Table 4.16-1 below, ranging from 2007 to 2011. In order to reflect 2012 conditions, an ambient growth rate was applied to the count data. The growth rate was calculated by comparing volumes between 2007 and 2008. Roadways that did not have available traffic count data were primarily unpaved dirt roads that provided local access to scattered residential homes, and were anticipated to carry nominal traffic volumes. These roadways are shown in Figure 4.16-1, *Transportation*, and are listed on Table 4.16-1, *Existing Traffic Volumes for Desert View Substation and Transmission & Telecommunication Routes Project Study Areas.*

Table 4.16-1 Existing Traffic Volumes for Desert View Substation and Transmission & Telecommunication Routes Project Study Areas

Roadway Segment	Year[1]	ADT[2]	Source
SR-18	2011	8,700	Caltrans' Traffic Data Branch
Milpas Drive	N/A	N/A	N/A
Desert View Road	N/A	N/A	N/A
Wren Street	N/A	N/A	N/A
Japatul Road	N/A	N/A	N/A
Bear Valley Road	2007	8,500	City of Hesperia General Plan
National Trails Highway	2008	5,650	Barstow General Plan Circulation Element
I-40	2011	18,000	Caltrans' Traffic Data Branch
Dale Evans Parkway	2008	3,500	Apple Valley Circulation Element

Table 4.16-1 Existing Traffic Volumes for Desert View Substation and Transmission & Telecommunication Routes Project Study Areas

Roadway Segment	Year[1]	ADT[2]	Source
Barstow Road/SR-247	2011	1,900	Caltrans' Traffic Data Branch
Haynes Road	N/A	N/A	N/A
Joshua Road	N/A	N/A	N/A
Canyon View Road	N/A	N/A	N/A
Ranchero Road	2007	4,001	City of Hesperia General Plan
Arrowhead Lake Road	2007	2,617	City of Hesperia General Plan
Danbury Road	N/A	N/A	N/A
I Avenue	2007	2,395	City of Hesperia General Plan
Peach Avenue	2007	425	City of Hesperia General Plan
A Street	N/A	N/A	N/A
Santa Fe Street	N/A	N/A	N/A
Rock Road	2008	<20	Barstow General Plan Circulation
Pendleton Road	2008	<100	Barstow General Plan Circulation

Notes:
[1] Available existing count data was adjusted where applicable to reflect current (2012) conditions. Growth rates were based on area-wide growth factors from the Barstow, Hesperia and Apple Valley General Plan Circulation Elements.

[2] Average daily traffic

Truck Routes

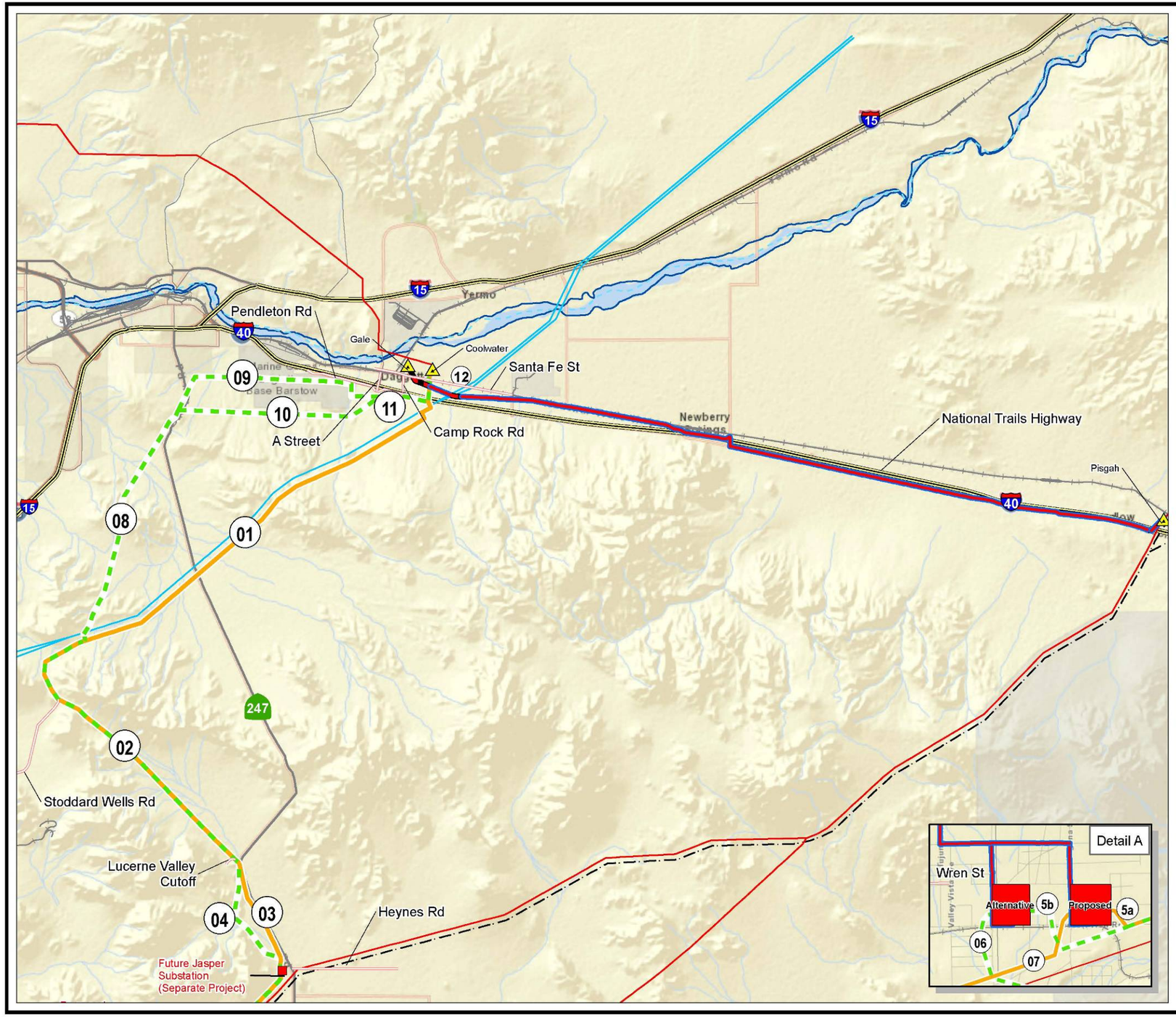
Truck routes in California allow a single trailer with a 53-foot maximum length and double trailers with a maximum of 28.5 feet for each trailer. Within the area of the Coolwater-Lugo, the I-15, I-40, SR-18, and SR-247 are designated truck routes (Caltrans 2012).

Bikeways and Trails

Bikeways in the vicinity of the Coolwater-Lugo area were identified from the San Bernardino County Non-Motorized Transportation Plan (2011). Arrowhead Lake Road, from south of Rocksprings Road to SR-173, has a designated bike lane with street markings near the Pacific Crest Trail. It is located near Alternative Transmission Line Segments 6 and Proposed Transmission Line Segment 7. In addition, Main Street and Rocksprings Road, located north of Segment 7, also have dedicated bike lanes.

Coolwater - Lugo Transmission Project
Figure 4.16-1
Transportation

Page 1 of 2



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- Railroad

Water (TBM, 2008)
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Source: AECOM, 2013; Esri, 2013

0 4 8 Miles

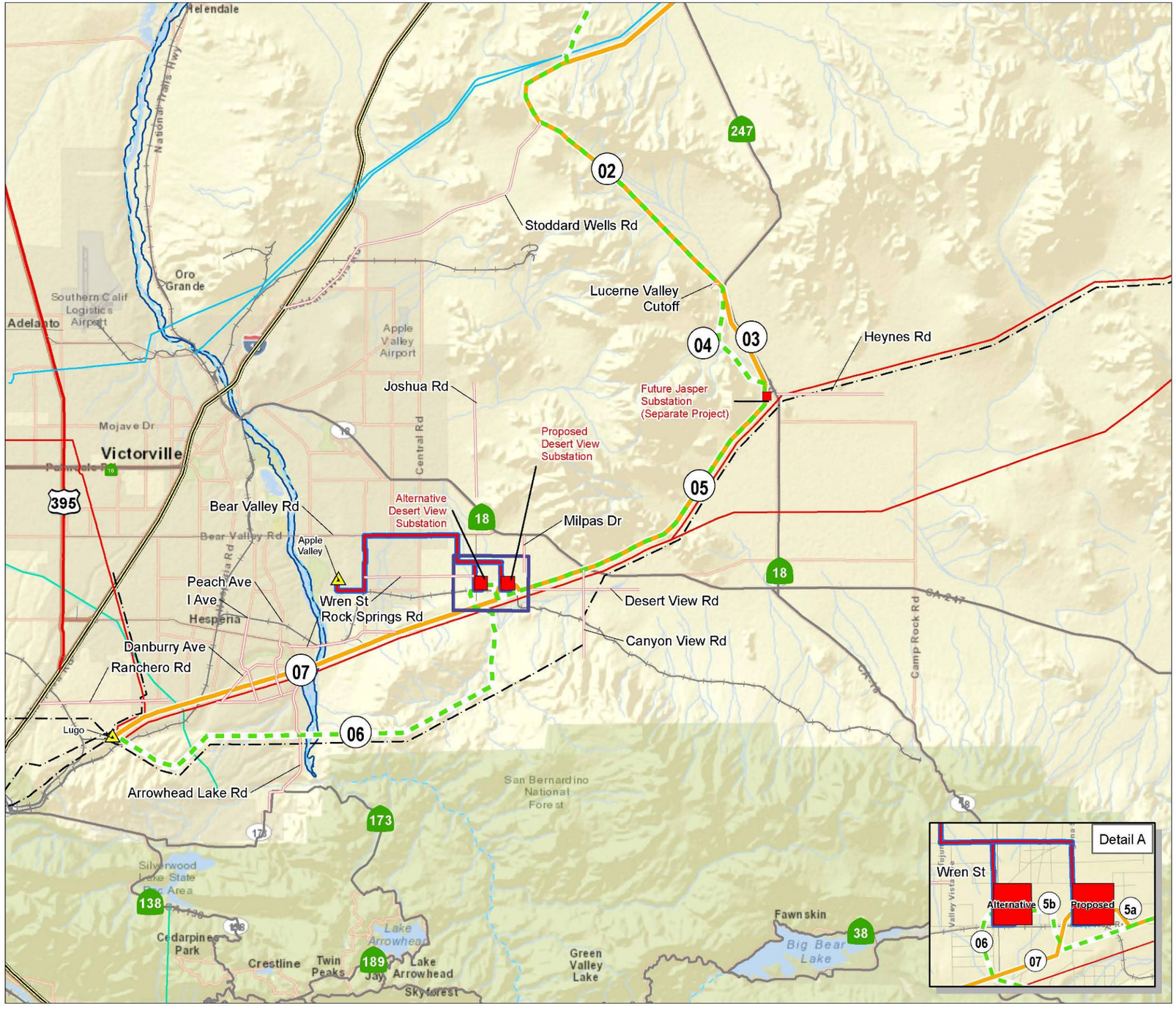
Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Coolwater - Lugo Transmission Project Figure 4.16-1 Transportation

Page 2 of 2



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- Railroad

Water (TBM, 2008)
- Mojave River Active Channel
- Intermittent Stream
- Manmade

Source: AECOM, 2013; Esri, 2013

0 4 8 Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.

SOUTHERN CALIFORNIA EDISON®

An EDISON INTERNATIONAL® Company

N

Fixed Bus Routes

Public transportation in the Coolwater-Lugo area is provided by the Victor Valley Transit Authority ("VVTA"), the regional public transit operator for San Bernardino County, Adelanto, Apple Valley, Hesperia, and Victorville. VVTA service in Hesperia is primarily oriented in the east-west direction, connecting Hesperia to the adjacent communities of Apple Valley and Lucerne Valley to the east, and Adelanto and Victorville to the west. A north-south connection between Victorville and Barstow is provided on I-15. Currently, VVTA provides service on 18 fixed routes in the region.

Service within the vicinity of Coolwater-Lugo occurs on VVTA Route 23, Apple Valley – Lucerne Valley, that runs north of the substation sites along Bear Valley Road and SR 18 between SR-247 to the east and Central Road to the west (VVTA 2012).

Passenger Rail Service

The Amtrak Southwest Chief passenger train regularly passes through the vicinity of the Coolwater-Lugo area on the Burlington Northern and Santa Fe main railroad line. The train route travels from Los Angeles, California, to Chicago, Illinois. The nearest Amtrak station is located in the City of Victorville, about 10 miles north from the nearest part of Coolwater-Lugo, Transmission Line Route Segment 7. The station includes a Park and Ride, facilitating use of Amtrak by commuters (City of Hesperia 2010). For purposes of this analysis, existing passenger rail service would not be affected due to the long distance from any of the Coolwater-Lugo components.

Nearest Airport Land Use Compatibility Plan

The nearest Airport Land Use Compatibility Plan ("ALUCP") in effect for operating facilities includes Hesperia Airport. The Hesperia Airport (privately owned) is a general aviation airport located approximately 3 miles to the east of the Lugo Substation and approximately 0.2 mile south of Proposed Transmission Line Segment 7. The Hesperia Airport is used for local and transient general aviation; it is not used by commercial airlines (AirNav 2012). Two additional airports, Rabbit Ranch Airport and Barstow-Daggett Airport, are in the Coolwater-Lugo area. The Rabbit Ranch Airport does not have an ALUCP. It is privately owned and is approximately 6 miles northeast of the Proposed Desert View Substation and approximately 0.7 mile east of Proposed and Alternative Transmission Line Segment 5. Barstow-Daggett Airport has an ALUCP and is publicly owned by San Bernardino County and is located approximately 3.5 miles east of the Coolwater Switchyard and 0.3 mile north of the Gale to Pisgah Telecommunication Route.

4.16.2 Regulatory Setting

4.16.2.1 Federal Regulatory Setting

Federal Aviation Act

The Federal Aviation Act created the Federal Aviation Agency, which later became the Federal Aviation Administration ("FAA"). The FAA has established notification requirements for construction within the vicinity of airports (Title 14 Code of Federal Regulations Section 77.13[a][1]). The FAA has also established limits on the height of objects that could obstruct air navigation (Title 14 Code of Federal Regulations Section 77.25). These limits depend on the distance and direction of the object to the airport runways. These requirements are also discussed in Section 4.8, *Hazards and Hazardous Materials*.

4.16.2.2 State Regulatory Setting

California Vehicle Code

The California Department of Transportation ("Caltrans") manages State highways in California. Caltrans has the discretionary authority to issue special permits for the movement of vehicles/loads exceeding statutory limitations on the size, weight, and loading of vehicles contained in Division 15 of the California Vehicle Code, and to issue encroachment permits for the use of California State highways for purposes other than normal transportation.

4.16.2.3 Local Regulatory Setting

The California Public Utilities Commission ("CPUC") has sole exclusive State jurisdiction over the siting and design of Coolwater-Lugo, because the CPUC regulates and authorizes the construction of investor-owned public utility facilities. Such projects are exempt from local land use and zoning regulations and permitting in accordance with General Order Number 131-D, which is applicable to all components of a project, including but not limited to transmission lines, substations, staging yards, and marshaling yards. However, Section XIV.B requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain a nondiscretionary local permit." As part of its environmental review process, SCE considers local and State land use plans, and policies, and local land use priorities and concerns.

San Bernardino Associated Governments

San Bernardino Associated Governments ("SANBAG") is the council of governments and transportation planning agency for San Bernardino County. SANBAG is responsible for cooperative regional planning and furthering an efficient multi-modal transportation system countywide.

As the County Transportation Commission, SANBAG supports freeway construction projects, regional and local road improvements, train and bus transportation, railroad crossings, call boxes, ridesharing, congestion management efforts and long-term planning studies. As the County's Transportation Authority, SANBAG prepared the Congestion Management Program ("CMP") for San Bernardino County 2007 Update. The CMP defines a network of state highways and arterials, level of service standards and related procedures, a process for mitigation of the impacts of new development on the transportation system, and technical justification for the approach. The policies and technical information contained in this document are subject to ongoing review, with updates required every two years, at a minimum. A major update to the CMP is anticipated in fall 2013.

San Bernardino County, Town of Apple Valley, and Cities of Hesperia and Barstow General Plans

Within the vicinity of Coolwater-Lugo, the *County of San Bernardino 2007 General Plan* Circulation Element (2013), the *Town of Apple Valley General Plan* Circulation Element (2009), and the *City of Hesperia General Plan 2010* Circulation Element (2010) establish regional transportation objectives, policies, and implementation measures for various modes of transportation.

San Bernardino County requires that roadways maintain target levels of service ("LOS") consistent with those set forth in the San Bernardino CMP System LOS Element (San Bernardino Associated Governments 2007). In particular, San Bernardino County requires that roadways maintain target LOS C along all county-maintained roads and conventional highways.

Analysis of existing roadway segments in the City of Hesperia follow standards set forth in the *City of Hesperia General Plan 2010* Circulation Element, which also requires a minimum of LOS C on all roadways. The Town of Apple Valley uses LOS C as the standard for acceptable roadway conditions.

Transmission line Segment 9 lies partly within the City of Barstow, but the entire portion of the segment within the city limits is also on the Marine Corps Logistics Base ("MCLB") Barstow. All activities on the MCLB Barstow are under the jurisdiction of the U.S. Department of the Defense (see Section 4.10, *Land Use*). Therefore, the *City of Barstow General Plan* Circulation Element is not applicable to Coolwater-Lugo.

The efficiency of a roadway can be determined by assessing the roadway's capacity, LOS, and ADT volume. Roadway capacity is defined as the number of vehicles that may pass over a section of roadway in a given time period under prevailing conditions. The LOS typically describes the capacity of a roadway and the degree to which it is being utilized. LOS is a qualitative measurement and describes the operational characteristics within a traffic stream considering speed, travel time, driving comfort, safety and traffic interruptions. LOS is described as a range of alphabetical connotations, "A" through "F," which are used to characterize roadway operating conditions. LOS A represents the best, free-flow conditions, and LOS F indicates the worst conditions, and system failure. LOS

is also expressed as volume-to-capacity ("V/C") ratios, or vehicle demand divided by the roadway capacity. As the ratio approaches 1.00, roadway operations approach LOS F.

4.16.3 Significance Criteria

4.16.3.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to transportation and traffic were based on the California Environmental Quality Act ("CEQA") Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit

- Conflict with an applicable congestion management program, including, but not limited to LOS standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways

- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks

- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)

- Result in inadequate emergency access

- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities

4.16.3.2 NEPA Analysis

Unlike CEQA, NEPA does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity. (Title 40 Code of Federal Regulations 1508.27).

4.16.4 Impact Analysis

The assessment is based on the potential impact of the Proposed Project on transportation and traffic. The traffic that would be generated by construction and operation of the Proposed Project was compared to the existing traffic conditions. The impact assessment

was conducted to identify the type and extent of impacts on transportation and traffic that may be caused by the Proposed Project. Impacts were evaluated in a transportation and traffic study area that is described below. Potential impacts from the Alternative Project are discussed in Section 4.2.6, *Alternative Project*.

As discussed in Chapter 3, *Project Description*, either the Proposed Project or Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. There would be no differences in potential impacts to transportation and traffic under the IBO and FBO scenarios, and therefore the Impact Assessment below is applicable to both scenarios.

4.16.4.1 CEQA Impact Assessment

Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Construction Impacts

Construction traffic to and from the Proposed Desert View Substation would include crews and equipment for grading, construction of perimeter wall, civil activities, electrical installations, asphalting, material delivery and surveying. During IBO of the substation, SCE anticipates an average of 15 construction personnel working on any given day. However, should all construction activities occur simultaneously (dependent upon local jurisdiction permitting, material availability, and scheduling), there could be up to 89 construction personnel at the site.

Construction traffic to and from the Proposed Transmission and Telecommunication Routes could include crews and equipment for activities such as survey, site preparation, materials yard, ROW clearing, new access/spur roads and associated civil work, structure removal/installation, stringing activities, shoo-fly work, footings removal/installation, conductor transfer and removal, wood pole removal, restoration, and haul-offs. SCE estimates that approximately a maximum of 600 construction personnel working on any given day. Where possible, construction activities would occur simultaneously (dependent upon local jurisdiction permitting, material availability, and scheduling).

To provide a conservative analysis for the Proposed Desert View Substation and Proposed Transmission and Telecommunication Routes, it was assumed that all 600 construction personnel would work concurrently on various activities throughout the Project Study Area over the course of a 30-month period. Assuming one arriving trip and one departing trip per day, this workforce is estimated to add approximately 1,200 ADT throughout the Study Area. The approximately 1,200 trips would be comprised of passenger cars, work trucks, water trucks and trips associated with material deliveries and haul-offs. This ADT estimate is conservative, and would adequately account for some

construction vehicles (e.g., water trucks) making multiple trips per day. However, to provide a conservative analysis here which may change as construction plans are refined, it was assumed that all 1,200 ADT would utilize each of the Desert View Substation and Transmission Line and Telecommunications Routes Study Area roadway segments, although alternative routes may be available.

During construction of Coolwater-Lugo, crews would primarily utilize existing public roads, and existing transmission access roads. New access roads would be constructed to current SCE practices for safety during construction, and operations and maintenance. Rehabilitation and/or upgrades to existing access roads may also be required to facilitate construction access and to support operation and maintenance activities.

A generalized daily LOS analysis was conducted for each Study Area roadway to determine existing conditions. The LOS analysis was used to evaluate congestion and delay for the roadway segment.

Per San Bernardino County guidelines, relationships between the traffic volume, capacity and LOS are shown below:

- Volume is 0-60 percent of capacity: LOS A
- Volume is 61-70 percent of capacity: LOS B
- Volume is 71-80 percent of capacity: LOS C
- Volume is 81-90 percent of capacity: LOS D
- Volume is 91-100 percent of capacity: LOS E
- Volume is over 100 percent of capacity: LOS F

The capacity of each Study Area roadway segment was referenced from the City of Hesperia's General Plan Circulation Element. This capacity of each segment was compared with the existing traffic volume to determine LOS (and corresponding V/C ratio). As shown Tables 4.16-2, *Existing Traffic Volumes and LOS*, and 4.16-3, *Existing plus Construction Traffic Volumes and LOS*, all Desert View Substation and Transmission Line and Telecommunications Routes Study Area roadways currently operate at acceptable LOS B or better. The addition of 1,200 ADT to the existing daily traffic volumes on the Desert View Substation and Transmission Line and Telecommunications Line Routes Study Area roadways would not change the LOS (in terms of V/C ratios) that the roadway is currently experiencing, with the exception of the SR-18 at Milpas Drive and Bear Valley Road at the SR-18.

Table 4.16-2 Existing Traffic Volumes and LOS

Roadway Segment	Year	ADT[1]	Capacity[2]	V/C[3]	LOS
SR-18 at Milpas Drive	2011	9,550	17,300	54%	A
Bear Valley Rd at SR-18	2008	8,650	12,700	68%	B
National Trails Highway near Ghost Town Road	2008	5,650	12,700	44%	A
National Trails Highway near Newberry Springs	2008	5,900	12,700	46%	A
I-40 near Ghost Town Road	2011	18,000	40,500	44%	A
I-40 near Newberry Springs	2011	13,000	40,500	32%	A
Dale Evan Parkway south of SR-18	2008	3,500	12,700	27%	A
SR-247/Barstow Road south of I-40	2011	1,900	12,700	15%	A
SR-18 between Milpas Road and High Road	2011	8,700	17,300	50%	A
Ranchero Road near I Avenue	2007	4,200	12,700	33%	A
Arrowhead Lake Road at Danbury Road	2007	2,800	12,700	22%	A
I Avenue at Ranchero Road	2007	2,600	12,700	20%	A
Peach Avenue at Ranchero Road	2007	625	12,700	5%	A
Camp Rock Road	2008	30	12,700	10%	A
Pendleton Road	2008	110	12,700	10%	A

Notes:
[1] Average daily traffic obtained from Caltrans' Traffic Data Branch (2011) and Town of Apple Valley General Plan Circulation Element
[2] Capacity referenced from City of Hesperia General Plan Circulation Element
[3] V/C = volume-to-capacity ratio reported as the percentage.
Growth rate applied to estimate current year 2012 conditions.

Table 4.16-3 Existing Plus Construction Traffic Volumes and LOS

Roadway Segment	Year	ADT[1]	Capacity[2]	V/C[3]	LOS
SR-18 at Milpas Drive	2011	10,750	17,300	62%	B
Bear Valley Rd at SR-18	2008	9,850	12,700	78%	C
National Trails Highway near Ghost Town Road	2008	6,850	12,700	59%	A
National Trails Highway near Newberry Springs	2008	7,100	12,700	56%	A

Table 4.16-3 Existing Plus Construction Traffic Volumes and LOS

Roadway Segment	Year	ADT[1]	Capacity[2]	V/C[3]	LOS
I-40 near Ghost Town Road	2011	19,200	40,500	47%	A
I-40 near Newberry Springs	2011	14,200	40,500	35%	A
Dale Evan Parkway south of SR-18	2008	4,700	12,700	37%	A
SR-247/Barstow Road south of SR-40	2011	3,100	12,700	24%	A
SR-18 between Milpas Road and High Road	2011	9,900	17,300	57%	A
Ranchero Road near I Avenue	2007	5,400	12,700	43%	A
Arrowhead Lake Road at Danbury Road	2007	4,000	12,700	31%	A
I Avenue at Ranchero Road	2007	3,800	12,700	30%	A
Peach Avenue at Ranchero Road	2007	1,825	12,700	14%	A
Camp Rock Road	2008	1,230	12,700	10%	A
Pendleton Road	2008	1,310	12,700	10%	A

Notes:
[1] Average daily traffic obtained from Caltrans' Traffic Data Branch (2011) and Town of Apple Valley General Plan Circulation Element
[2] Capacity referenced from City of Hesperia General Plan Circulation Element
[3] V/C = volume-to-capacity ratio
Growth rate applied to estimate current year 2012 conditions.

Addition of the full construction traffic to the SR-18 would reduce the LOS from acceptable LOS A to the acceptable LOS B. Similarly, addition of construction traffic to Bear Valley Road would reduce the LOS from acceptable LOS B to acceptable LOS C. It is anticipated, however, that only a small portion (approximately 10 percent) of the full 1,200 construction trips would utilize these routes. Furthermore, the reduction in LOS would still fall within acceptable LOS criteria (LOS C or better).

In addition, construction activities completed within public street rights-of-way would require the use of a traffic control service, and all lane closures would be conducted in accordance with any required permit conditions. These traffic control measures would be consistent with those published in the CJUTCM Manual *California Joint Utility Traffic Control Manual* (California Inter-Utility Coordinating Committee 2010). Since any closures due to construction of the Proposed Desert View Substation or the Proposed Transmission Line and Telecommunications Routes would be isolated, temporary, short in duration, and coordinated with other agencies, traffic would not be significantly disrupted.

For FBO of the substation, construction activity would not exceed the activity that would occur for IBO. Impacts to traffic and transportation from FBO construction would not exceed those that would occur under IBO.

Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Operation of the Proposed Desert View Substation would consist of routine maintenance and emergency work. There would be no impact to existing traffic load or capacity of the street system from operation of the Proposed Project. Because the substation would be unstaffed, trips to the substation are expected to occur three to four times a month for routine maintenance and inspection. These activities would not result in a substantial increase in traffic.

Operation of the Proposed Transmission Line Route and Telecommunication Route would consist of routine maintenance and emergency work. Proposed Transmission Line Segment 7 and Proposed and Alternative Transmission Line Segment 5 would both be located in ROW where existing facilities are present and currently operating. Therefore, for these segments, there would be no change in potential impacts as a result of operation of the Proposed Project.

There would be no impact to existing traffic load or capacity of the street system from operation of the Proposed Project. SCE would inspect the transmission, subtransmission, telecommunication, and/or distribution facilities a minimum of once per year via ground and/or aerial observation, but these inspections may occur more frequently based on system reliability. Maintenance would occur as needed. These activities would not result in a substantial increase in traffic. SCE would obtain permits as required from the appropriate agencies. Maintenance activities within public street rights-of-way and all lane and/or sidewalk closures would be conducted in accordance with any required permit conditions. Any traffic control measures would be consistent with those published in the CJUTCM Manual *California Joint Utility Traffic Control Manual.* (California Inter-Utility Coordinating Committee 2010). Since any closures due to maintenance of the Proposed Transmission Line Route would be isolated, temporary, short in duration, and coordinated with other agencies, vehicular and pedestrian traffic would not be significantly disrupted.

Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Construction Impacts

None of the roads or highways in the Project Study Area are designated as CMP facilities. Therefore, no impacts are anticipated during construction of the Proposed Project.

Operation Impacts

None of the roads or highways in the Project Study Area are designated CMP facilities. Therefore, no impacts are anticipated from operation of the Proposed Project.

Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

Construction Impacts

Construction of the Proposed Desert View Substation would not entail any aircraft operations and the construction of the substation structures would not interfere with aviation height requirements. The nearest airport to a substation structure, Rabbit Ranch Airport, is located approximately 6 miles northeast of the Proposed Desert View Substation site. There would be no change to air traffic patterns.

Under the Proposed Project, structures would be constructed in the vicinity of three airports. As discussed in Section 3.2.1.5, *FAA Notifications*, SCE would submit electronic notifications in accordance with FAA procedures, in advance of construction of any structures in proximity to Hesperia Airport (Alternative Segment 6 and Proposed Segment 7), Barstow-Daggett Airport (Proposed and Alternative Segment 12, Gale to Pisgah Telecommunication Route), and/or Rabbit Ranch Airport (Proposed and Alternative Segment 5). Notifications would be submitted for any new or relocated Proposed Project components within 20,000 feet of Hesperia Airport, Rabbit Ranch Airport, and Barstow-Daggett Airport. Notifications would also be submitted to the FAA for project locations if structure heights exceed 200 feet above ground level ("AGL") or if transmission conductors/overhead shield wires exceed 200 feet AGL in height. SCE would implement FAA recommendations into the design of the Proposed Project.

The structures associated with the Proposed Transmission Line and Telecommunication Routes are not are not expected to negatively affect aviation safety or air traffic patterns. The nearest airport to the Proposed Transmission Line and Telecommunication Routes, Hesperia Airport, is 0.2 mile south of the nearest point on Proposed Transmission Line Segment 7.

Based on the current level of project design, SCE anticipates that the alignment of the lines and terrain in the region would require FAA notification due to the height above

ground of the conductor or telecommunication cable between towers. SCE has filed documentation for the Proposed Project with the FAA for the portions of the Proposed Project in proximity to area airports (Hesperia Airport, Rabbit Ranch Airport, and Barstow-Daggett Airport). FAA response is incomplete at the time this Proponent's Environmental Assessment was being prepared. Pending FAA determinations, SCE would work to address potential mitigations if needed into the Proposed Project design during the final engineering phase. The number of structures requiring FAA notifications would be updated following completion of final engineering.

Helicopters could be used to support construction activities, and their area of operations would include locations in the vicinity of the Proposed Project components, as described in Chapter 3, *Project Description*, Section 3.2.3.11, *Helicopter Use*. While helicopter use may contribute to air traffic, these impacts are anticipated to be less than significant due to the concentration of helicopter use at and around the Proposed Project components, and with limited activities in the vicinity of the existing area airports.

It is not anticipated that construction of the Proposed Project in this area would result in any additional impacts above and beyond those posed by existing structures.

Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Operation of the Proposed Desert View Substation would not entail any aircraft operations and the structures associated with the Proposed Desert View Substation would not interfere with aviation height requirements. Operation of the Proposed Desert View Substation would not interfere with aviation safety or air traffic patterns. SCE would inspect the transmission, subtransmission, telecommunication, and/or distribution facilities a minimum of once per year via ground and/or aerial observation, but these inspections may occur more frequently based on system reliability.

The Proposed Transmission Line and Telecommunication Routes are not expected to negatively affect aviation safety or air traffic patterns. It is not anticipated that the operation of the Proposed Project in this area would result in any additional impacts above and beyond those posed by existing structures. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Construction Impacts

There are no design features of the Proposed Project that would increase hazards or create an incompatible use with transportation or traffic. New or upgraded access roads for the Proposed Project would be designed to safely accommodate truck traffic, equipment deliveries, and construction vehicles. Therefore, less than significant impacts are anticipated during the construction of the Proposed Project.

Operation Impacts

Operation of the Proposed Project would not introduce any new design features that would increase hazards or create an incompatible use with transportation or traffic. Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project result in inadequate emergency access?

Construction Impacts

As discussed in Section 3.6, *Hazardous Materials*, if any work related to the Proposed Project were to potentially limit emergency access, permits would be obtained and plans would be implemented to ensure safety and avoid the closure of any emergency access route. In the event of a temporary roadway or lane closure, SCE would coordinate with local jurisdictions to minimize impacts to emergency access and evacuation routes. Furthermore, the results of the LOS analysis indicate that the addition of construction traffic to existing street traffic would not cause any additional delays to any emergency response vehicles.

Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Routine inspections and maintenance would be required during operation and maintenance of the Proposed Project. The Proposed Desert View Substation would be unstaffed, and trips to the substation are expected to occur three to four times a month for routine maintenance and inspection. SCE would inspect the transmission, subtransmission, telecommunication, and/or distribution facilities a minimum of once per year via ground and/or aerial observation, but these inspections may occur more frequently based on system reliability. Maintenance would occur as needed. A network of unpaved and paved roads accessed from public and private roads would be used for these activities. Although intermittent inspections and maintenance would occur as part of the Proposed Project, road use during operation would be substantially less than during construction. It would not result in a substantial increase in traffic relative to existing load and capacity of the street system.

Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Construction Impacts

The Proposed Project is not anticipated to be in conflict with any local or regional policies, plans, or programs supporting alternative transportation, including public transit, bicycle, or pedestrian facilities. For the Proposed Desert View Substation, no such facilities exist on or adjacent to the site. The Proposed Transmission Line Route and Telecommunication Routes cross some existing roadways with sidewalks. As discussed above, construction activities completed within public street rights-of-way would require the use of a traffic control service, and all lane and/or sidewalk closures would be conducted in accordance with any required permit conditions. These traffic control measures would be consistent with those published in the *California Joint Utility Traffic Control Manual* (California Inter-Utility Coordinating Committee 2010). Since any closures due to construction of the Proposed Project would be isolated, temporary, short in duration, and coordinated with applicable agencies, vehicular traffic as well as public transit, bicycle, and pedestrian systems would not be significantly disrupted.

The Proposed Project would not conflict with any local or regional policies, plans, or programs supporting alternative transportation, including public transit, bicycle, or pedestrian facilities. Therefore, less than significant impacts are anticipated during construction of the Proposed Project.

Operation Impacts

Operation of the Proposed Desert View Substation would not be in conflict with any local or regional policies, plans, or programs supporting alternative transportation, including public transit, bicycle, or pedestrian facilities. No such facilities are located on or adjacent to the Proposed Substation site. The substation would be unstaffed. Trips to the substation are expected to occur three to four times a month for routine maintenance and inspection. These activities would not conflict with any public transit, bicycle, or pedestrian facilities.

The Proposed Transmission Line Route and Telecommunication Routes cross some existing roadways with sidewalks. However, operation of the Proposed Transmission Line and Telecommunication Routes would not be in conflict with any local or regional policies, plans, or programs supporting alternative transportation, including public transit, bicycle, or pedestrian facilities. Operation of the Proposed Transmission Line and Telecommunication Routes would consist of routine maintenance and emergency repair. These activities would not conflict with any public transit, bicycle, or pedestrian facilities.

Therefore, less than significant impacts are anticipated during operation of the Proposed Project.

4.16.4.2 NEPA Impact Assessment

Based on the analysis performed, it is anticipated that the Project would not result in significant effects under the National Environmental Policy Act ("NEPA").

4.16.5 Applicant Proposed Measures

No potentially significant impacts related to transportation and traffic are anticipated from the Proposed Project; therefore, no applicant proposed measures related to transportation and traffic are identified.

4.16.6 Alternative Project

As described in Section 3.14, *Project Alternatives,* either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Line Route, but not both. A separate impact analysis is provided for these two scenarios.

4.16.6.1 Alternative Project with Segment 9

The Alternative Project with Segment 9 includes the Alternative Desert View Substation, the Alternative Transmission Line Route with segments 12, 11, 9, 8, 2, 4, 5, 5B, and 6, and the Apple Valley to Desert View and Gale to Pisgah telecommunication routes.

The Alternative Desert View Substation has similar physical and geographic characteristics to the Proposed Desert View Substation. Construction and operations traffic would access the Alternative Substation via the same roads as would be used for the Proposed Substation. Construction and operation impacts of the Alternative Substation would be similar to those identified for the Proposed Substation.

The Alternative Transmission Line Route with Segment 9 has similar physical and geographic characteristics to the Proposed Transmission Line Route. Construction and operation impacts of the Alternative Transmission Line Route with Segment 9 would be similar to those identified for the Proposed Transmission Line Route.

The number and location of structures requiring FAA notification would potentially differ from what would be required for the Proposed Project as a result of the use of Alternative Transmission Line Segment 6 instead of Segment 7. The number of structures requiring FAA notifications would be updated following completion of final engineering.

Therefore, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 9.

4.16.6.2 Alternative Project with Segment 10

The Alternative Project with Segment 10 includes the Alternative Desert View Substation, the Alternative Transmission Line Route with segments 12, 11, 10, 8, 2, 4, 5, 5B, and 6, and the Apple Valley to Desert View and Gale to Pisgah telecommunication routes.

The Alternative Desert View Substation and Alternative Transmission Line Route with Segment 10 have a similar setting to that of the Proposed Project and the Alternative Project with Segment 9. There is no significant difference in potential impacts to transportation and traffic between construction and operation of Segment 9 or Segment 10. As a result, impacts to transportation and traffic would be similar to those of the Alternative Project with Segment 9. Therefore, less than significant impacts are anticipated during construction and operation of the Alternative Project with Segment 10.

4.16.7 References

AirNav.com. (2012). Hesperia Airport page. Retrieved from http://www.airnav.com/airport/L26.

California Department of Transportation (Caltrans). (2012). Truck network map. Retrieved from http://www.dot.ca.gov/hq/traffops/trucks/truckmap/.

California Department of Transportation (Caltrans). (2011). Traffic Data Branch Retrieved from http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/

City of Hesperia. (2010). General Plan Circulation Element – Recommend Circulation Master Plan. Retrieved from http://www.cityofhesperia.us/DocumentCenter/Home/View/1615

Town of Apple Valley (2009). General Plan Circulation Element. Retrieved from http://applevalley.org/Index.aspx?page=687

California Joint Utility Traffic Control Manual by the California Joint Utility Traffic Control Committee (2010). Temporary Traffic Control. Retrieved from https://www.sce.com/nrc/aboutsce/regulatory/distributionmanuals/tcm.pdf

City of Barstow (1997). General Plan Circulation Element - Figure VI.1.3: Existing Daily Traffic Volumes and Figure VI.1.10: Year 2020 Traffic Volumes. Retrieved from http://www.barstowca.org/index.php/publications-planning

San Bernardino Associated Governments (2007). Congestion Management Program. Retrieved from http://www.sanbag.ca.gov/planning2/congestion-mgmt.html

County of San Bernardino. (2007). General Plan Circulation Element – Policies and Objectives. Retrieved from http://www.co.sanbernardino.ca.us/landuseservices/Background%20Reports/Circulation/Circ%20and%20Infra%20BR-Revised%202-21-06.pdf.

County of San Bernardino. (2011). Non-Motorized Transportation Plan. Retrieved from http://www.sanbag.ca.gov/planning/Non-MotorizedTransportationPlan_03-11.pdf.

Victor Valley Transit Authority (VVTA). (2012). Route 23. 2012. Routes & Schedules. Retrieved from http://www.vvta.org/local.html.

This page is intentionally blank.

4.17 Utilities and Service Systems

This section describes the existing utilities and service systems in the Coolwater-Lugo Transmission Project ("Coolwater-Lugo") area. It analyzes the potential impacts on the identified utilities and service systems associated with constructing and operating the Proposed Project and Alternative Project.

4.17.1 Environmental Setting

This discussion describes the existing conditions for utilities and service systems (water and wastewater, solid waste, electricity and natural gas, and flood control) in the Coolwater-Lugo area. The Coolwater-Lugo area is in unincorporated San Bernardino County, the Town of Apple Valley, and the Cities of Barstow and Hesperia.

4.17.1.1 Water and Wastewater

The principal water agency in the Coolwater-Lugo area is the Mojave Water Agency ("MWA"). MWA imports water through participation in the State Water Project via supply from the California Aqueduct and manages groundwater storage within its boundaries (MWA 2012).

The primary providers for drinking water and sewage collection, treatment, and disposal services in the Coolwater-Lugo area are the local jurisdictions. The water purveyors in the project area include but are not limited to the following:

- Hesperia Water District, 9700 Seventh Avenue, Hesperia – provides water and wastewater utilities to residents of the City of Hesperia.
- Mariana Ranchos County Water District, 9600 Manzanita Street, Apple Valley
- Apple Valley Ranchos Water Company, 21760 Ottawa Road, Apple Valley – provides water and wastewater services to the Town of Apple Valley and portions of Victorville.
- Daggett Community Services District, 33703 Second Street, Daggett
- County Service Area 70 J, 12402 Industrial Boulevard, Victorville
- Golden State Water Company Apple Valley South System, 13608 Hitt Road, Apple Valley – provides water and wastewater services to the City of Barstow, as well as portions of the Town of Apple Valley and unincorporated San Bernardino County.
- Golden State Water Company Desert View System, 13608 Hitt Road, Apple Valley
- Apple Valley Heights County Water District, 9429 Cerra Vista, Apple Valley

4.17.1.2 Solid Waste

The County of San Bernardino Solid Waste Management Division provides waste and recycling services to San Bernardino County and operates five regional landfills, nine transfer stations, and two community collection centers. Trash collection in the unincorporated areas of San Bernardino County is provided by private haulers (San Bernardino Count, 2012a).

The Barstow Sanitary Landfill, located at 32553 Barstow Road (also referred to as State Route 247 ("SR-247"), in unincorporated San Bernardino County, is located approximately 6.0 miles north of the Proposed Transmission Line Segment 1 and just east of and across SR-247 from Alternative Transmission Line Segment 8. The landfill property consists of approximately 645 acres, of which approximately 331 acres are currently used for waste disposal activities. The landfill has a maximum capacity of approximately 80,354,500 cubic yards and is expected to reach capacity in 2071 (CalRecycle 2012).

The Victorville Landfill, located at 18600 Stoddard Wells Road in the City of Victorville, west of Interstate 15, services the Town of Apple Valley in addition to the City of Victorville. The landfill is operated by the County contractor, Burrtec Waste Industries, Inc., which provides solid waste collection to the Town of Apple Valley and other jurisdictions in San Bernardino County (Burrtec 2013; San Bernardino County 2013). The Victorville Landfill has a maximum capacity of approximately 83,200,000 cubic yards and is expected to reach capacity in 2047.

Additionally, the area is served by Soil Safe – Adelanto, which is a Thermal Desorption facility located at 13238 Hibiscus Road in the City of Adelanto. Soil Safe – Adelanto provides soil recycling and land reclamation services, including site sampling and analysis, delineation, soil characterization, and grid mapping. Soil Safe handles recycling of soils contaminated with petroleum products and heavy metals through the micro encapsulation process and thermal desorption technologies. This facility has a maximum capacity of approximately 400,000 tons.

4.17.1.3 Electricity and Natural Gas

San Bernardino County is served by several major utilities that provide electricity and natural gas. Southern California Edison ("SCE") is the principal provider of electricity in the Coolwater-Lugo project area. Southwest Gas Corporation is the principal provider of natural gas in the area. Two large-diameter pipelines transport gas from supply points to the gas distribution system, in the Coolwater-Lugo area. One pipeline is located near the junction of Proposed Transmission Line Route Segment 1 and Segment 2, approximately 3.5 miles from the intersection of Lucerne Valley Cutoff and Stoddard Wells Road. The other pipeline generally runs parallel to Proposed and Alternative Transmission Line Route Segment 5 and Proposed Transmission Line Route Segment 7 between the area of future Jasper Substation (separate project) and the existing Lugo Substation (SoCalGas 2012).

Additional natural gas providers include Kern River Gas Transmission Company ("Kern River") and Kinder Morgan. Kern River operates an interstate natural gas pipeline extending from the oil and gas producing fields of southwestern Wyoming through Utah and Nevada to the San Joaquin Valley near Bakersfield, California. Kern River's system totals 1,717 miles of 36- and 42-inch-diameter underground steel pipe. Kern River utilizes 12 automated compressor stations spread across four states; one of the compressor stations is located in Daggett. The pipeline currently has a design capacity of 2.17 billion cubic feet per day (Kern River 2013).

Kinder Morgan's 10,200-mile El Paso Natural Gas pipeline system transports natural gas from the San Juan, Permian, and Anadarko basins to California, its single largest market. The 500-mile Mohave Pipeline connects with the Kern River in California. The compressor station is located in Daggett north of the project area (Kinder Morgan, 2013).

4.17.1.4 Flood Control

Regional flood control planning is under the jurisdiction of the San Bernardino County Flood Control District ("SBCFCD"). SBCFCD provides flood protection on major streams, water conservation, and storm drain construction, and is responsible for implementing the Drainage Area Management Plan. The cities in San Bernardino County implement construction and maintenance of local storm drains that feed into the County's area-wide system (San Bernardino County 2012b).

4.17.2 Regulatory Setting

See Section 4.9, *Hydrology and Water Quality*, for a detailed discussion of regulations related to water quality and stormwater discharge.

4.17.2.1 Federal Regulatory Setting

No federal regulations related to utilities and service systems would apply to Coolwater-Lugo.

4.17.2.2 State Regulatory Setting

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act ("IWMA") of 1989 (Public Resources Code ["PRC"], Division 30), enacted through Assembly Bill 939 and modified by subsequent legislation, requires all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of waste disposed by 2000 (PRC Section 41780). The state determines compliance with this mandate to "divert" 50 percent of generated waste, which includes both disposed and diverted waste (PRC Section 41780.2).

4.17.2.3 Local Regulatory Setting

The California Public Utilities Commission ("CPUC") has sole exclusive State jurisdiction over the siting and design of Coolwater-Lugo because the CPUC regulates and authorizes the construction of investor-owned public utility facilities. Such projects are exempt from local land use and zoning regulations and permitting in accordance with General Order ("G.O.") No. 131-D, which is applicable to all components of the Project including but not limited to the transmission lines, substations, staging yards, and marshaling yards. However, Section XIV.B requires "the utility to communicate with, and obtain the input of, local authorities regarding land-use matters and obtain a nondiscretionary local permit." As part of its environmental review process, SCE considers local and State land use plans and policies and local land use priorities and concerns.

San Bernardino Countywide Integrated Waste Management Plan

California counties are required by the IWMA to implement a Countywide Integrated Waste Management Plan ("CIWMP"), which is a guidance document for attaining the reduction mandate. The CIWMP consists of a Countywide Siting Element and a Countywide Summary Plan, as well as a Source Reduction and Recycling Element, a Household Hazardous Waste Element, and a Non-Disposal Facility Element. Individual jurisdictions in the County are responsible for their own integrated solid waste management planning, implementation, monitoring, public information, budgeting, and enforcement (San Bernardino County 2013). The objectives of the Countywide Siting Element are:

- Divert 50 percent of all solid waste on and after January 1, 2000, through source reduction, recycling, and composting activities.
- Develop reduction, recovery, and reuse goals for recyclable materials and focus programs on materials that make up a large portion of the waste stream.
- Coordinate or combine similar programs in neighboring jurisdictions to achieve economies of scale and potentially reduce costs to ratepayers.
- Enhance waste collection service by including recycling programs.
- Eliminate ordinances and other barriers that discourage recycling and composting.
- Explore incentives to encourage source reduction and recycling.

Although its customers divert solid waste through curbside recycling, the unincorporated areas of the County achieved a reported diversion rate of 49 percent in 2007. Therefore, the County implemented its Comprehensive Disposal Site Diversion Program at County facilities to improve diversion by addressing self-hauled residential and commercial waste (San Bernardino County 2013).

4.17.3 Significance Criteria

4.17.3.1 CEQA Significance Criteria

The significance criteria for assessing the impacts to utilities and service systems come from the California Environmental Quality Act ("CEQA") Environmental Checklist. According to the CEQA Checklist, a project causes a potentially significant impact if it would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board ("RWQCB")
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments
- Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs
- Comply with Federal, State, and local statutes and regulations related to solid waste

4.17.3.2 NEPA Analysis

Unlike CEQA, the National Environmental Policy Act ("NEPA") does not have specific significance criteria. However, the NEPA regulations contain guidance regarding significance analysis. Specifically, consideration of "significance" involves an analysis of both context and intensity (Title 40 Code of Federal Regulations 1508.27).

4.17.4 Impact Analysis

The assessment was based on the potential impact of implementing the Proposed Project on utilities and service systems. The impact assessment was conducted to identify the type and extent of impacts on utilities and service systems that may be affected by implementing the Proposed Project. Impacts were evaluated in an area defined as the service area of the utilities and service systems that contain the components of the

Proposed Project. Impacts from implementing the Alternative Project are discussed in Section 4.17.6, *Alternative Project*.

As discussed in Chapter 3, *Project Description*, either the Proposed Project or the Alternative Project would include an initial build out ("IBO") and full build out ("FBO") of Desert View Substation. For utilities and service systems, the primary differences would be related to replacing the temporary self-contained restroom facility that would be installed as part of IBO at the Proposed and Alternative Desert View Substation with a permanent facility under FBO. This impact is discussed under the impact assessment. Otherwise, there would be no differences under the IBO and FBO scenarios; therefore, except as noted, the following impact assessment applies to both scenarios.

4.17.4.1 CEQA Impact Assessment

Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Construction Impacts

Construction of the Proposed Project would not generate substantial amounts of wastewater. A self-contained restroom would be installed during IBO at Desert View Substation and portable toilets would be provided for on-site use by construction workers along the Coolwater-Lugo alignments. The self-contained and portable toilets would be maintained by a licensed sanitation contractor. Toilets during construction would be used in accordance with applicable sanitation regulations established by the Occupational Safety and Health Administration, which generally requires one portable toilet for every 10 workers. The licensed contractor would dispose of the waste at an off-site location and in compliance with standards established by the RWQCB.

During excavation activities, dewatering may be necessary. Discharge of any water would follow the RWQCB requirements, as discussed in Section 4.9, *Hydrology and Water Quality*. Construction of the Proposed Project would not involve discharging concentrated wastewater or large volumes of wastewater to a wastewater treatment facility that would exceed treatment requirements set forth by the RWQCB. As a result, a less than significant impact on the project area wastewater treatment plants' treatment requirements is anticipated during construction of the Proposed Project.

Operation Impacts

Long-term operation and maintenance of the Proposed Project would not generate substantial amounts of wastewater. At IBO, the Proposed Desert View Substation would be equipped with a self-contained restroom within the substation perimeter enclosure. It would be maintained by a qualified service company. At FBO a new, permanent restroom would be installed inside the Test & Maintenance Building and/or the Control Building. A sewer system may be provided by future sewer line construction, or a new septic system would be installed and permitted by San Bernardino County. When in operation, the substation would be unstaffed and remotely operated and would not require

dedicated, full-time personnel. Routine maintenance would require workers to visit the Proposed Project facilities throughout the year. Therefore, minimal wastewater would be generated, and operating the Proposed Project would not result in discharge of concentrated wastewater or large volumes of wastewater to a wastewater treatment facility that would exceed treatment requirements set forth by the RWQCB. A less than significant impact is anticipated during operation of the Proposed Project.

Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Construction Impacts

Water would be used during construction of the Proposed Project to control dust on access roads and at work areas. Because this water would be dispersed on-site and would either evaporate or be absorbed into the ground, no wastewater generation is anticipated. During the Proposed Project construction, a self-contained restroom would be installed at Desert View Substation and portable toilets would be provided for use by construction personnel and would be maintained by a licensed sanitation contractor. Therefore, construction of the Proposed Project would not result in discharge of large volumes of wastewater and would not require the expansion of water or wastewater treatment facilities serving the area. No impacts are anticipated during construction of the Proposed Project.

Operation Impacts

As discussed, long-term operation and maintenance of the Proposed Project would not generate substantial amounts of wastewater. At IBO, the Proposed Desert View Substation would be equipped with a self-contained restroom within the substation perimeter enclosure that would be maintained by a qualified service company. At FBO a new, permanent restroom would be installed inside the Test & Maintenance Building and/or the Control Building. At FBO, sewer may be provided by future sewer line construction or a new septic system would be installed and permitted by San Bernardino County. When in operation, the substation would be unstaffed and remotely operated and would not require dedicated, full-time personnel. Routine maintenance would require workers to visit the Proposed Project throughout the year.

SCE would develop an appropriate landscaping plan consistent with San Bernardino County standards, including the Model Water Efficient Landscape Ordinance (Assembly Bill 1881) at the Proposed Desert View Substation facilities (e.g., revegetative groundcover or landscape screening, as appropriate). Water usage would be limited to irrigation for establishment of any appropriate landscaping. The use of water for irrigation would be minimal, and water would be obtained from local sources, as identified in Section 4.17.1, *Environmental Setting*. Because minimal water would be used, and minimal wastewater would be generated, operation of the Proposed Project would not result in discharge of concentrated wastewater or large volumes of wastewater to a wastewater treatment facility that would require the expansion of water or

wastewater treatment facilities serving the area; therefore, no impacts are anticipated during operation of the Proposed Project.

Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Construction Impacts

Grading work at the Proposed Desert View Substation site could include a retention or detention basin located within the substation perimeter for on-site stormwater filtration before drainage. Grading at the substation would drain at a minimum of 1 percent to channels outside of the substation. Drainage channels would route water from the south to the north side of the substation, and water would be released through water spreaders. See Section 4.9, *Hydrology and Water Quality*, for further discussion of drainage patterns and flooding.

Drainage patterns would remain similar to existing conditions. In addition, drainage would be designed to prevent ponding and erosive water flows that could cause damage to the structure footings. Sites would be graded such that water would run toward the direction of the natural drainage. Applicable plans would be prepared and submitted to San Bernardino County for approval before construction. Although implementing the Proposed Project would include design of on-site grading and drainage features at Proposed Desert View Substation, construction of these facilities would be in accordance with applicable regulations. Therefore, a less than significant impact is anticipated during construction of the Proposed Project.

Operation Impacts

Activities associated with operation and maintenance of the Proposed Project would be conducted within new access roads, existing roads, and disturbed areas. As discussed in Section 4.9, *Hydrology and Water Quality*, on-site drainage patterns established for the construction of the Proposed Project would generally remain unchanged with long-term operation and maintenance of the Proposed Project; therefore, a less than significant impact is anticipated during operation of the Proposed Project.

Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Construction Impacts

During construction, migration of fugitive dust from the construction sites would be limited by control measures set forth by the Mojave Desert Air Quality Management District. Water trucks would disperse water onto areas where grading or routine movement of construction vehicles occurs. Water would be used to minimize dust. The demand for water would be temporary and short term, and would be generated only during the construction phase. SCE anticipates that water needs for construction of the Proposed Project would be able to be served from the various water resources listed

above in the Environmental Setting under section 4.17.1.1, *Water and Wastewater*, and within existing entitlements. Therefore, a less than significant impact is anticipated during construction of the Proposed Project.

Operation Impacts

For the Proposed Desert View Substation, SCE would develop an appropriate landscaping plan consistent with San Bernardino County standards, including the Model Water Efficient Landscape Ordinance (Assembly Bill 1881) at the Proposed Desert View Substation facilities (e.g., revegetative groundcover or landscape screening, as appropriate). Water usage would be limited to irrigation for establishment of any appropriate landscaping. The use of water for irrigation would be minimal, and water would be obtained from local sources, as identified in Section 4.17.1, *Environmental Setting*. In addition, at FBO of Desert View Substation, a permanent restroom would be installed and sewer may be provided by future sewer line construction or a new septic system would be installed and permitted by San Bernardino County. Water would be supplied either from a new on-site well or from a local system via water tank truck. When in operation, the substation would be unstaffed and remotely operated and would not require dedicated, full-time personnel. Operations and maintenance of the transmission and telecommunication components of the Proposed Project are anticipated to require minimal amounts of water that are expected to be available through existing SCE and local sources. Therefore, a less than significant impact is anticipated during operation of the Proposed Project.

Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Construction Impacts

As previously discussed, construction of the Proposed Project would not generate significant amounts of wastewater. A self-contained restroom would be installed at Proposed Desert View Substation and portable toilets would be provided for on-site use by construction workers and would be maintained by a licensed sanitation contractor. Minimal wastewater would be generated, and constructing the Proposed Project would not result in discharge of concentrated wastewater or large volumes of wastewater to a wastewater treatment provider. SCE would work with SCE-approved vendors and subcontractors for the handling of wastewater. Therefore, a less than significant impact is anticipated during construction of the Proposed Project.

Operation Impacts

As previously discussed, long-term operation and maintenance of the Proposed Project would not generate significant amounts of wastewater. At FBO, a new permanent restroom would be installed inside the Test & Maintenance Building and/or Control Building, and sewer may be provided by future sewer line construction or a new septic system would be installed and permitted by San Bernardino County. The facility would

not be served by a wastewater treatment provider. When in operation, the substation would be unstaffed and remotely operated and would not require dedicated, full-time personnel. Routine maintenance would require workers to visit the Proposed Project facilities throughout the year. Minimal wastewater would be generated, and operation and maintenance of the Proposed Project would not result in discharge of concentrated wastewater or large volumes of wastewater to a wastewater treatment provider that would exceed the provider's existing commitments. Therefore, a less than significant impact is anticipated during operation of the Proposed Project.

Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Construction Impacts

The Proposed Project would be serviced by the Barstow Sanitary Landfill located approximately 6.0 miles north of the Proposed Transmission Line Route Segment 1, and the Victorville Landfill located approximately 2.8 miles north of the Proposed Transmission Line Route Segment 7. The Soil Safe – Adelanto contaminated soil recycling facility is located approximately 13.4 miles northwest of the Proposed Transmission Line Route Segment 7. Construction of the Proposed Project would result in the generation of various waste materials, including wood, metal, soil, vegetation, and sanitation waste (from portable toilets). Sanitation waste (i.e., human-generated waste) would be disposed of in accordance with sanitation waste management practices. The Proposed Project includes the removal of existing transmission lines, including portions of the Lugo-Pisgah No. 1 and No. 2 lines, and dismantling of the temporary shoo-fly after Segment 7 has been completed. Material from existing infrastructure that would be removed, such as steel, concrete, and debris, would be temporarily stored in the staging yard as the material awaits salvage, recycling, or disposal. Any soil excavated for the Proposed Project could be distributed at each structure site or construction area, used to backfill excavations, or used for access roads near or within the rights-of-way. Soil excavated for the Proposed Project would be either used as fill or disposed of off-site at an appropriately licensed facility. Although waste from construction activities would be sent to one or more landfills in the area, the amount is not anticipated to be enough to affect the permitted capacity of a landfill. Construction of the Proposed Project would be served by a landfill with capacity sufficient to accommodate the project's solid waste disposal needs. Currently, the remaining capacity of the Barstow Sanitary Landfill is approximately 49 percent, and the remaining capacity of the Victorville Sanitary Landfill is approximately 98 percent. Therefore, a less than significant impact is anticipated during construction of the Proposed Project.

Operation Impacts

Operation of the Proposed Project would consist of routine maintenance of and emergency work at the facilities, and these activities would not generate solid waste in an amount that would affect the permitted capacity of landfills in the area. Operation of the Proposed Project could be served by local landfills (Barstow Sanitary Landfill and Victorville Sanitary Landfill) with capacity sufficient to accommodate the project's solid

waste disposal needs. Throughout the life of the project, should any landfill be closed or at capacity, SCE would utilize another SCE-approved waste disposal facility. Additionally, SCE will reuse and recycle materials to the extent possible. Therefore, a less than significant impact is anticipated during operation of the Proposed Project.

Would the project comply with federal, state, and local statutes and regulations related to solid waste?

Construction Impacts

As previously discussed, solid waste produced during construction would be disposed of at a nearby licensed landfill. Management and disposal of solid waste would comply with all applicable federal, state, and local statutes and regulations. Thus, the Proposed Project would not violate any solid waste statutes or regulations. Therefore, no impact is anticipated during construction of the Proposed Project.

Operation Impacts

Management and disposal of all solid waste products associated with operation and maintenance activities would comply with all applicable statutes and regulations. Therefore, no impact is anticipated during operation of the Proposed Project.

4.17.4.2 NEPA Impact Assessment

Based on the analysis performed, it is anticipated that the Proposed Project would not result in significant effects under NEPA.

4.17.5 Applicant Proposed Measures

Because no potentially significant impacts related to utilities and service systems would result from construction and operation of the Proposed Project, no applicant proposed measures related to utilities and service systems are identified.

4.17.6 Alternative Project

As described in Section 3.14, *Project Alternatives,* either Segment 9 or Segment 10 would be used as part of the Alternative Transmission Route, but not both. Separate impact analyses are provided for these two scenarios.

4.17.6.1 Alternative Project with Segment 9

The Alternative Desert View Substation and Alternative Transmission Line Route with Segment 9 have a setting similar to that of the Proposed Project and are similar in scope. As a result, impacts on utilities and service systems would be similar to those of the Proposed Project. Under the Alternative Project, Segment 8 rather than Segment 1would cross under the Los Angeles Department of Water and Power (“LADWP”) transmission lines. Impacts from crossing the LADWP lines would be similar under the Alternative and Proposed Projects. Also, only a portion of the Lugo-Pisgah No.1 Transmission Line

would be dismantled under the Alternative Project, whereas under the Proposed Project, a portion of both the Lugo-Pisgah No.1 and No. 2 transmission lines would be dismantled. Construction and subsequent removal of the shoo-fly would also not occur under the Alternative Project. Therefore, less solid waste would be generated from these dismantling activities. In addition, most transmission line materials that would be removed would be reused or recycled, and no significant difference in waste generation would be expected. Therefore, a less than significant impact is anticipated during construction and operation of the Alternative Project with Segment 9.

4.17.6.2 Alternative Project with Segment 10

There would be no significant difference in impacts on utilities and public services between the Alternative Project with Segment 9 and the Alternative Project with Segment 10; therefore, a less than significant impact is anticipated during the construction and operation of the Alternative Project with Segment 10.

4.17.7 References

Burrtec. (2013). We Will Take Care of It. Retrieved from http://www.burrtec.com/home

California Department of Resources Recycling and Recovery (CalRecycle). (2012). California Waste Stream Profiles: Facilities Website. Retrieved from http://www.calrecycle.ca.gov/SWFacilities/Directory/36-AA-0046/Detail/

CalRecycle. (2013a). Facility/Site Summary Details: Victorville Sanitary Landfill (36-AA-0045) Website. Retrieved from http://www.calrecycle.ca.gov/SWFacilities/Directory/36-AA-0045/Detail/

CalRecycle. (2013b). Facility/Site Summary Details: Soil Safe of California, Inc. (36-AA-0422) Website. Retrieved from http://www.calrecycle.ca.gov/SWFacilities/Directory/36-AA-0422/Detail/

Mojave Water Agency (MWA). (2012). MWA Web page. Retrieved from http://www.mojavewater.org/general-info.html

San Bernardino County. (2012a). Department of Public Works Web page. Retrieved from http://www.sbcounty.gov/dpw/solidwaste/default.asp

San Bernardino County. (2012b). Flood Control District Web page. Retrieved from http://www.sbcounty.gov/dpw/floodcontrol/default.asp

San Bernardino County. (2013). Department of Public Works, Solid Waste Management Division, Countywide Integrated Waste Management Plan 2007 Five-Year Review Final. Adopted March 13, 2007; Effective April 12, 2007; and Amended June 18, 2013.

SoilSafe. (2013). SoilSafe Webpage. Retrieved from http://www.soilsafe.com/facilities/adelanto

Southern California Gas Company (SoCalGas). (2012). Gas Transmission and High Pressure Distribution Pipeline Interactive Map – San Bernardino. Retrieved from http://www.socalgas.com/safety/pipeline-maps/san-bernardino.shtml

This page is intentionally blank.

5.0 COMPARISON OF ALTERNATIVES

This section compares the environmental impacts of the construction and operation of the Proposed Project with the construction and operation of the Alternative Project. The California Environmental Quality Act ("CEQA") Guidelines (Section 15126.6[d]) require that an environmental impact report include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Proposed Project. Section 1502.14(b) of the Council on Environmental Quality regulations requires "substantial treatment of each alternative considered in detail including the proposed action."

In order to accomplish this analysis, project objectives that both the Proposed Project and Alternative Project would satisfy must be established. These objectives guide in developing a range of reasonable alternatives to the Project, or to the location of the Project, which would feasibly attain most of the basic objectives. All of the alternatives for the Coolwater-Lugo Transmission Project ("Coolwater-Lugo") evaluated in the Proponent's Environmental Assessment, with the exception of the No Project Alternative, satisfy the project objectives.

The project objectives, developed in Section 1.3, are as follows:

1. Facilitate Southern California Edison ("SCE") and other California utilities achievement of California's Renewable Portfolio Standards in an expedited manner;

2. Provide transmission facilities identified as necessary for the full delivery of a 250-megawatt renewable generation project located in the Barstow area, and future generation resources in the Barstow, Inyokern, Kramer, Lucerne Valley/future Jasper Substation, Appley Valley, and Owens Valley areas;

3. Comply with all applicable reliability planning criteria required by the California Independent System Operator, the North American Electric Reliability Corporation, and the Western Electric Coordinating Council;

4. Support California's Greenhouse Gas Reduction Program;

5. Support Bureau of Land Management ("BLM") compliance with the Federal Renewable Energy Mandate;

6. Provide transmission facilities in a timely manner that would facilitate the interconnection of California Renewable Energy Small Tariff and Rule 21 projects;

7. Provide transmission facilities that facilitate the Department of Defense meeting their Energy Mandate of producing or procuring 25 percent of their total energy

from renewable energy sources beginning in 2025 as outlined under the National Defense Authorization Act of 2010;[1]

8. Address transmission capacity concerns from the City of Ridgecrest;

9. License a new multipurpose 500/220/115/12 kilovolt ("kV") Desert View Substation southeast of the Town of Apple Valley to facilitate load serving, reliability, and future generation interconnections;[2]

10. Construct facilities in an orderly, rational, and cost-effective manner to maintain reliable electric service and by minimizing service interruptions during construction;

11. Minimize potential environmental impacts through selection of transmission routes and substation site locations, including maximizing the use of existing transmission corridors in order to minimize potential effects on previously undisturbed land and resources[3], and where existing right-of-ways ("ROWs") are not available, utilize the shortest route that minimizes potential environmental impacts;

12. Meet project needs in a cost-effective and timely manner; and,

13. Design and construct the Project in conformance with SCE's current engineering, design, and construction standards for substation, transmission, subtransmission, and distribution system projects.

Table 5-1, *Comparison of Alternatives*, compares the Proposed Project, Alternative Project with Segment 9, and Alternative Project with Segment 10, by CEQA resource category. Table 5-1 is at the end of this section.

[1] See http://www.govenergy.com/2010/Files/Presentations/Renewables/2010_GovEnergy_Tindal.pdf

[2] The proposed Desert View Substation would be initially constructed with only the facilities needed to support the transmission line from Coolwater to Lugo. Similar to SCE's Antelope Substation and Windhub Substation, SCE is seeking to license the full build out of Desert View Substation, which would include 500/220/115/12 kV facilities needed for anticipated load serving in the Town of Apple Valley, reliability, and future generation interconnection purposes.

[3] See Garamendi Principles (Senate Bill 2431, Stats. 1988, Ch. 1457) regarding State transmission siting policies, including; 1) encourage the use of existing rights-of-way by upgrading existing transmission facilities where technically and economically justifiable; 2) when construction of new transmission lines is required, encourage expansion of existing right-of-way, when technically and economically feasible; 3) provide for the creation of new rights-of-way when justified by environmental, technical, or economic reasons as determined by the appropriate licensing agency; 4) where there is a need to construct additional transmission capacity seek agreement among all interested utilities on the efficient use of that capacity.

5.1 Substation and Transmission Line Site Evaluation Methodology

SCE defined a Project Study Area for the transmission component of Coolwater-Lugo, and defined a portion of the Project Study Area as the Substation Study Area.

The Project Study Area was developed based on the need to add new transmission capacity in areas that would facilitate relieving the transmission bottleneck between existing Kramer and Lugo substations, while also facilitating the interconnection of renewable generation projects requesting interconnection at future Jasper Substation (separate project)[1] and in the greater Lucerne Valley area. The resulting Project Study Area extends from SCE's existing Coolwater Generating Station 220 kV Switchyard ("Coolwater Switchyard") in the north, which would be the starting point for a new transmission export path for Kramer area generation, south to an existing SCE 500 kV and 220 kV transmission corridor, and ultimately to SCE's existing Lugo Substation in the southwest of the Project Study Area. The eastern and western extents of the Project Study Area were defined considering both natural and man-made boundaries, as well as the geographic extent within which a new transmission line would be electrically feasible (See Figure 2.1-A, *Coolwater-Lugo Transmission Project Siting Study Areas Map*).

Additional project needs discussed in Chapter 1 include facilitating reliability improvements at existing Lugo Substation, providing future load serving capability for the Town of Apple Valley, and facilitating future generation interconnection requests in areas between Apple Valley and Lucerne Valley. A 500/220/115/12 kV multi-purpose substation is proposed to meet these needs, known as the Desert View Substation. The proposed Desert View Substation would be initially constructed with only the facilities needed to support the transmission line from Coolwater to Lugo; however, SCE is seeking to license the full build out of Desert View Substation, which would include 500/220/115/12 kV facilities needed for anticipated load serving in the Town of Apple Valley, reliability, and future generation interconnection purposes. SCE identified a Substation Study Area for siting the Desert View Substation. The Substation Study Area location took into account the need for the proposed multi-purpose substation to be sited centrally between the Lucerne Valley area and existing Lugo Substation; to be close to the existing SCE transmission corridor that would be used to electrically connect the new substation; and to be close to the existing SCE subtransmission lines out of SCE's Victor Substation serving the Town of Apple Valley to support future load growth. The Substation Study Area is shown in Figure 2.1-A, *Coolwater-Lugo Transmission Project Siting Study Areas Map*.

Once the Project Study Area and Substation Study Area boundaries were determined, SCE evaluated these areas and identified opportunities, concerns, and constraints for siting the transmission route alternatives and substation site alternatives, respectively. This process involved analyses by SCE subject matter experts of GIS data, community

[1] The future Jasper Substation would be triggered by a generation interconnection project and would be processed under a separate Permit to Construct ("PTC") Application to the CPUC.

plans, existing facilities, and input gathered from external stakeholders. As part of this process, SCE met with the California Public Utilities Commission, BLM, environmental non-governmental organizations, and local community members at publicly-noticed workshops.

SCE used this information to identify potential areas within the Study Area boundaries for possible substation site and transmission route alternatives. Site and route locations were identified that substantially met project objectives described in Chapter 1 and that avoided areas of technical and environmental constraint. In particular, SCE tried to minimize locations in areas of steep topography with limited or no existing access roads; areas designated as critical habitat where no existing infrastructure or access was present; locations designated as areas of critical environmental concern; locations resulting in new infrastructure in pristine viewsheds; and, locations that would require new ROWs adjacent to sensitive receptors where no existing ROWs or infrastructure is present.

5.2 Alternatives Comparison Summary

The Alternative Project consists of the Alternative Desert View Substation and one of two potential Alternative Transmission Line Route configurations, as described in Chapter 2, *Project Alternatives.* The Alternative Transmission Route is coupled with the Alternative Desert View Substation for purposes of this analysis.

The Alternative Transmission Route would be approximately 73 miles in length (with Segment 9) or approximately 72 miles (with Segment 10), depending on the preferred design. Each of the Alternative Transmission Line Route configurations would extend approximately 9 miles longer than the Proposed Transmission Line Route.

The Alternative Transmission Line Route consists of one segment of single-circuit and double-circuit 500 kV construction (Segment 6), and eight segments of double-circuit, 220 kV construction (Segments 12, 11, 10/9, 8, 5, 5b, 4, and 2). Either Segment 9 or Segment 10 would be constructed as part of the Alternative Transmission Route, but not both. Segments 12, 5, and 2 would be common with the Proposed Transmission Line Route.

Alternative Transmission Line Segment 6 would connect to the alternative Desert View Substation and existing Lugo Substation. The Alternative Desert View Substation is also included as a component of the Alternative Project.

Both the Alternative Project and the Proposed Project would also consist of the following fiber optic routes:

- A 29-mile long Fiber-Optic Cable (the Gale to Pisgah Telecommunications Route)
- An 11-mile long Fiber-Optic Cable (the Apple Valley Substation to Desert View Telecommunication Route)

5.2.1 Description of the Alternative Transmission Line Route Segments

Alternative Transmission Line Segment 6 would originate at the western side of the Alternative Desert View Substation and would extend generally south to the existing SCE 500 kV transmission corridor (Eldorado-Lugo 500 kV and Lugo-Mohave 500 kV transmission lines). Segment 6 would then parallel the existing transmission lines westerly on the north side of the corridor to the existing Lugo Substation. Segment 6 would also include one smaller sub-segment, into the southwest side of the Alternative Desert View Substation from the existing Lugo-Pisgah No. 1 and No. 2 line ROW, approximately 0.6 mile, which would be removed after build out of the 500 kV portion of Desert View Substation. Segment 6, including the subsegment, would be approximately 20.4 miles in length, within new ROW.

Alternative Transmission Line Segment 12 (1.4 miles in length) would be the same as the Proposed Transmission Line Segment 12.

Alternative Transmission Line Segment 11 would originate at a point just south of Interstate 40 ("I-40") and proceed west until it reaches a point south of the intersection of I-40 and Daggett-Yermo Road. Segment 11 would be approximately 1.8 miles in length.

Alternative Transmission Line Segment 9 would originate at a point south of the intersection of I-40 and Daggett-Yermo Road and would extend generally west parallel to an existing SCE 115 kV line, and would then turn north and parallel the eastern boundary of the Marine Corps Logistics Base ("MCLB") Barstow for approximately 0.5 mile where it would then continue west through the MCLB property. Segment 9 would then turn southwest for 0.5 mile from State Route ("SR")-247 until crossing SR-247. Segment 9 would then turn south along the west side of SR-247 to a point just west of SR-247 near the Barstow Sanitary Landfill.

Alternative Transmission Line Segment 9 would be approximately 8.7 miles in length, within a new ROW. Segment 10 was developed as an alternative to Segment 9 as an option that would avoid crossing MCLB Barstow property. Either Segment 9 or Segment 10 could be used as part of the Alternative 220 kV Transmission Route, but not both.

Alternative Transmission Line Segment 10 would originate at a point south of the intersection of I-40 and Daggett-Yermo Road and would extend generally southwest for approximately 1.3 miles. The alternative 220 kV transmission facilities would then turn west for 6.4 miles following the southern boundary of the MCLB Barstow to a point just west of SR-247 near the Barstow Sanitary Landfill. Alternative Transmission Line Segment 10 would be approximately 7.7 miles in length, within new ROW.

Alternative Transmission Line Segment 8 would originate at a point just west of SR-247 near the Barstow Sanitary Landfill and would extend generally southwest across open land until reaching Stoddard Wells Road, and would then follow Stoddard Wells Road to the Los Angeles Department of Water and Power ("LADWP") transmission corridor. SCE is proposing to cross under the LADWP transmission corridor at this location, just

west of Stoddard Wells Road. Segment 8 would be approximately 10.1 miles in length within a new ROW.

Alternative Transmission Line Segment 2 (11.7 miles in length) would be the same as the Proposed Transmission Line Segment 2.

Alternative Transmission Line Segment 4 would originate at the intersection of Lucerne Valley Cutoff Road and SR-247 and would extend generally south following SR-247 and terminate just northwest of the intersection of SR-247 and Haynes Roads. Segment 4 would be approximately 4.4 miles in length within a new ROW.

Alternative Transmission Line Segment 5 (12.9 miles in length) would be the same as the Proposed Transmission Line Segment 5.

Alternative Transmission Line Segment 5B would originate just west of the intersection of Desert View Road and Milpas Drive in an existing SCE ROW, and would extend southwest within the existing ROW to a point just west of the intersection of Laguna Seca Drive and Powerline Road. From this point, Segment 5B would proceed generally northwest to terminate in the east side of the Alternative Desert View Substation. Segment 5B would be approximately 2.0 miles in length. The portion of Segment 5B located in an existing SCE ROW would replace a portion of the existing Lugo-Pisgah No. 1 220 kV transmission line proposed for removal. The portion of Segment 5B from the existing ROW northwest to the east side of Alternative Desert View Substation would be in new ROW.

5.2.2 Description of the Alternative Desert View Substation

The enclosed area of the Alternative Desert View Substation would encompass approximately 4 fewer acres (approximately 82 total acres) than the Proposed Desert View Substation (approximately 86 total acres). Substation components for the Alternative Desert View Substation would be the same as described for the Proposed Desert View Substation. Access routes and ground-surface improvements would also be unique variables to the Alternative Desert View Substation and are considered in the comparison of projects below.

At initial build out, access to the Alternative Desert View Substation would be provided via the existing Wren Street, accessed via the existing Milpas Drive. SCE would pave an asphalt concrete access road on Wren Street up to approximately 24 feet in width and approximately 1.61 miles (or 8,500 feet) in length, with 2-foot shoulders, to the substation driveway. The asphalt concrete-paved driveway would extend from the edge of the access road ROW to the substation gate. The driveway would be approximately 40 feet in width and 1,090 feet in length. Secondary access would be provided via the substation's south entrance located on Desert View Road, which would have an aggregate base surface. At full build out, the secondary access from the substation's south entrance would be asphalt concrete paved.

5.3 Summary of Environmental Impacts Related to the Proposed Project and Alternative Project

As described above, Segments 12, 5, and 2 would be common with the Proposed Transmission Line Route, as would the Gale to Pisgah Telecommunications Route and the Apple Valley to Desert View Telecommunication Route. Significant, unavoidable impacts for Aesthetics and Air Quality resulting from implementation of the Alternative Project would be the same as the Proposed Project for these three segments. Construction of the Proposed Project would result in slightly fewer impacts for Hazards and Hazardous Materials, Agriculture and Forestry, and Recreation, compared to the Alternative Project, although in both cases, impacts are considered less than significant. Noise impacts, while considered less than significant for the Proposed and Alternative Project, would be slightly less for the Alternative Project, due to fewer sensitive receptors along the Alternative Project Segment 6. Construction of the Proposed Project would result in similar but slightly greater environmental impacts for Utilities and Service Systems, as the Proposed Project would potentially generate more solid waste from the dismantling of the Lugo-Pisgah No. 1 and No. 2 transmission lines. Table 5-1, *Comparison of Alternatives*, compares the Proposed Project and Alternative Project by CEQA resource category.

5.3.1 Construction Impacts

The following discussion describes the resource areas and construction impacts where the Alternative Project would differ from the Proposed Project.

As presented in Table 5-1, *Comparison of Alternatives*, construction of the Alternative Project would have the same significant, unavoidable impacts as the Proposed Project; however, it would have one fewer KOP with a significant unavoidable impact for Aesthetics. The Proposed Project includes KOP 9 on Segment 3 with a significant unavoidable impact. Alternative Segment 4 (alternative to Proposed Segment 3) while resulting in less potential aesthetic impact would pass through a portion of the Bendire's Thrasher Area of Critical Environmental Concern, and would be more difficult to construct due to more mountainous terrain. Construction of the Alternative Project would overall result in similar but slightly greater environmental impacts for the following resource areas: Agriculture and Forestry Resources, Air Quality, Greenhouse Gases, Hazards and Hazardous Materials, and Recreation. With the exception of significant and unavoidable impacts to aesthetics and air quality, the impacts to these resource areas would be less than significant, although they would be greater than those associated with the Proposed Project.

Construction of the Alternative Project would not result in a substantially greater level of environmental impacts, compared to the Proposed Project, for any resource area. Impacts are presented in Table 5-1, *Comparison of Alternatives*.

5.3.2 Operation Impacts

Operation of the Alternative Project would result in similar but slightly greater environmental impacts for the following resource areas: Agriculture and Forestry Resources, Hazards and Hazardous Materials, and Recreation. However, the impacts to these resource areas would be less than significant.

Impacts are presented in Table 5-1, *Comparison of Alternatives*.

Table 5-1 Comparison of Alternatives

Resource Section	Proposed Project		Alternative Project with Segment 9		Alternative Project with Segment 10	
	Construction	**Operation**	**Construction**	**Operation**	**Construction**	**Operation**
Aesthetics	Significant and unavoidable impact to the existing visual character or quality of the site and its surroundings is anticipated from the Proposed Project due to the construction of Segment 2 and Segment 3.	Less than significant	Slightly less than the Proposed Project, but with the same significant, unavoidable impacts to Key Observation Point ("KOP") 6 due to the construction of Segment 2.	Similar to the Proposed Project	Slightly less than the Proposed Project but with significant, unavoidable impacts to KOP 6 due to the construction of Segment 2.	Similar to the Proposed Project
Agriculture and Forestry Resources	No impacts are anticipated during construction or operation		Impacts are anticipated to be greater than the Proposed Project. Alternative Transmission Segment 6 traverses three Williamson Act contract parcels in unincorporated San Bernardino County. Based on review of aerial maps, none of the parcels is in active agricultural use. Impacts are anticipated to be less than significant.		Impacts are anticipated to be greater than the Proposed Project. Alternative Transmission Segment 6 traverses three Williamson Act contract parcels in unincorporated San Bernardino County. Based on review of aerial maps, none of the parcels is in active agricultural use. Impacts are anticipated to be less than significant.	
Air Quality	Significant and unavoidable impacts are anticipated during construction of the Proposed Project. Construction of the Proposed Project is anticipated to exceed Mojave Desert Air Quality Management District annual significance thresholds for NOx, PM_{10}, and $PM_{2.5}$.	Less than significant	Impacts are anticipated to be greater than the Proposed Project. Segment 9 requires the installation of more LSTs than Segment 10 or the Proposed Project, and there are high emissions associated with LSTs installation. Impacts would remain significant and unavoidable.	Similar to the Proposed Project	Impacts are anticipated to be greater than the Proposed Project. Impacts would remain significant and unavoidable.	Similar to the Proposed Project
Biological Resources	Less than significant for construction and operation.		Similar to the Proposed Project		Similar to the Proposed Project	
Cultural Resources	Less than significant for construction and operation.		Similar to the Proposed Project		Similar to the Proposed Project	
Geology and Soils	Less than significant for construction and operation.		Similar to the Proposed Project		Similar to the Proposed Project	
Greenhouse Gas Emissions	Less than significant for construction and operation.		Impacts are anticipated to be greater than the Proposed Project. Segment 9 requires the installation of more LSTs than Segment 10 or the Proposed Project, and there are high emissions associated with LSTs installation. However, impacts are still anticipated to be less than significant.	Similar to the Proposed Project	Impacts are anticipated to be greater than the Proposed Project. However, impacts are still anticipated to be less than significant.	Similar to the Proposed Project

Resource Section	Proposed Project		Alternative Project with Segment 9		Alternative Project with Segment 10	
	Construction	**Operation**	**Construction**	**Operation**	**Construction**	**Operation**
Hazards and Hazardous Materials	Less than significant for construction and operation.		Impacts are anticipated to be greater than the Proposed Project. However, the following scenarios may be of consideration for potential impacts: Alternative Project with Segment 9 would traverse the existing MCLB Barstow Rifle Range, an active Superfund site with potential of soil and shallow groundwater contamination. The area of concern is at least 150 linear feet from Segment 9, and therefore not currently considered to be a potential impact. Additionally, as discussed in Section 4.8.1, approximately 6.1 miles at the eastern end of Segment 6 is classified by CAL FIRE as very high fire hazard areas, and approximately 10.3 miles of the western end of Segment 6 is classified as high fire hazard areas. In comparison, none of the Proposed Project components would be located in a very high fire hazard area, and more of the Alternative Project would be located in a high fire hazard area than would the Proposed Project (10.3 miles compared to 7.8 miles). Impacts are still anticipated to be less than significant during construction and operation.		Impacts are anticipated to be greater than the Proposed Project. However, the following scenario may be of consideration for potential impacts: As discussed in Section 4.8.1, approximately 6.1 miles at the eastern end of Segment 6 is classified by CAL FIRE as very high fire hazard areas, and approximately 10.3 miles of the western end of Segment 6 is classified as high fire hazard areas. In comparison, none of the Proposed Project components would be located in a very high fire hazard area, and more of the Alternative Project would be located in a high fire hazard area than would the Proposed Project (10.3 miles compared to 7.8 miles). Impacts are still anticipated to be less than significant during construction and operation.	
Hydrology and Water Quality	Less than significant for construction and operation.		Similar to the Proposed Project		Similar to the Proposed Project	
Land Use and Planning	Less than significant for construction and operation.		Similar to the Proposed Project		Similar to the Proposed Project	
Mineral Resources	No impacts are anticipated during construction and operation.		Similar impacts to the proposed project are anticipated.		Similar impacts to the proposed project are anticipated.	
Noise	Less than significant for construction and operation.		Impacts are anticipated to be less than the Proposed Project. Alternative Transmission Line Segment 6 would be used instead of Proposed Transmission Line Segment 7; Segment 6 would affect fewer sensitive receptors than Segment 7. Impacts are anticipated to be less than significant during construction and operation.		Impacts are anticipated to be less than the Proposed Project. Alternative Transmission Line Segment 6 would be used instead of Proposed Transmission Line Segment 7; Segment 6 would affect fewer sensitive receptors than Segment 7. Impacts are anticipated to be less than significant during construction and operation.	
Socioeconomics, Population and Housing	Less than significant during construction and operation.		Similar to the Proposed Project		Similar to the Proposed Project	
Public Services	Less than significant during construction and operation.		Similar to the Proposed Project		Similar to the Proposed Project	
Recreation	Less than significant during construction and operation.		Impacts are anticipated to be greater than the Proposed Project. Additional impacts on off-highway vehicle (“OHV”) activity are anticipated from the Alternative Project due to new structures associated with Segment 8 in an OHV recreational area where no similar facilities currently exist; however, impacts would remain less than significant during construction and operation.		Impacts are anticipated to be greater than the Proposed Project. Additional impacts on OHV activity are anticipated from the Alternative Project due to new structures associated with Segment 8 in an OHV recreational area where no similar facilities currently exist; however, impacts would remain less than significant during construction and operation.	

Resource Section	Proposed Project		Alternative Project with Segment 9		Alternative Project with Segment 10	
	Construction	**Operation**	**Construction**	**Operation**	**Construction**	**Operation**
Transportation and Traffic	Less than significant during construction and operation.		Similar to the Proposed Project; however, the number and location of structures requiring Federal Aviation Administration ("FAA") notification would potentially differ from what would be required for the Proposed Project as a result of the use of Alternative Transmission Line Segment 6 instead of Segment 7. However, impacts would remain less than significant during construction.	Similar to the Proposed Project.	Similar to the Proposed Project; however, the number and location of structures requiring FAA notification would potentially differ from what would be required for the Proposed Project as a result of the use of Alternative Transmission Line Segment 6 instead of Segment 7. However, impacts would remain less than significant during construction.	Similar to the Proposed Project
Utilities and Service Systems	Less than significant during construction and operation.		Similar to the Proposed Project overall, with potentially less solid waste generation, as the Lugo-Pisgah No. 1 and No. 2 transmission lines would not be dismantled. However, impacts would remain less than significant during construction.	Similar to the Proposed Project	Similar to the Proposed Project overall, with potentially less solid waste generation, as the Lugo-Pisgah No. 1 and No. 2 transmission lines would not be dismantled. However, impacts would remain less than significant during construction.	Similar to the Proposed Project

This page is intentionally blank.

6.0 OTHER CEQA CONSIDERATIONS

This section describes the cumulative projects in the area of the Coolwater-Lugo Transmission Project ("Coolwater-Lugo"). It analyzes the potential cumulative impacts associated with the construction and operation of the Proposed Project. This section also analyzes the growth-inducing impacts of the Proposed Project and summarizes the significant environmental effects of the Proposed Project. In addition, it analyzes the mandatory findings of significance for the Proposed Project.

6.1 Cumulative Impacts

The California Environmental Quality Act ("CEQA") requires lead agencies to consider the cumulative impacts of proposals under their review. Section 15355 of the CEQA Guidelines defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact "consists of an impact that is created as a result of the combination of the project evaluated in the Environmental Impact Report ("EIR") together with other projects causing related impacts" (Section 15130(a)(1)). According to the Council on Environmental Quality regulations (Title 40 Code of Federal Regulations Part 1508.7), a cumulative impact, "is the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions." The cumulative impacts analysis "would examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects" (Section 15130[b][3]).

Section 15130(a)(3) states that an environmental document may determine that a project's contribution to a significant cumulative impact would be rendered less than cumulatively considerable, and thus not significant, if a project is required to implement or fund its fair share of mitigation measure(s) designed to alleviate the cumulative impact.

In conducting a cumulative impacts analysis, impacts are referenced to the temporal span and spatial areas in which the Proposed Project would cause impacts. Additionally, a discussion of cumulative impacts must include either: (1) a list of past, present, and reasonably foreseeable future projects, including, if necessary, those outside the lead agency's control; or (2) a summary of projections contained in an adopted general plan or related planning document, or in a prior certified EIR, which described or evaluated regional or area-wide conditions contributing to the cumulative impact, provided that such documents are referenced and made available for public inspection at a specified location (Section 15130(b)(1)). "Reasonably foreseeable future projects" includes approved projects that have not yet been constructed; projects that are currently under construction; projects requiring an agency approval for an application that has been received at the time a Notice of Preparation is released; and projects that have been budgeted, planned, or included as a later phase of a previously approved project (Section 15130[b][1][B][2]).

The list of cumulative projects was established by contacting jurisdictions, government agencies, and utilities in the vicinity of the Proposed Project to obtain a list of "past, present, and reasonably foreseeable future projects." Jurisdictions, government agencies, and utilities contacted include the following: San Bernardino County; Bureau of Land Management ("BLM") Barstow Field Office; California Department of Transportation District 8; San Bernardino Associated Governments; California Energy Commission; the cities of Hesperia, Victorville, Barstow, and Town of Apple Valley; and Southern California Edison ("SCE"). Construction of the Proposed Project is anticipated to commence in late 2015 with an expected operation date of 2018. Based on this information, the timeline established for consideration of cumulative projects and determination of cumulative impacts is 2015 through 2019, one year beyond the planned operation date of the Proposed Project. "Past and present" projects include those projects that may be completed, approved and under construction, or approved but not yet under construction, between 2015 and 2019. "Reasonably foreseeable" projects include those that may be under permitting review between 2015 and 2019. The following criteria were used to identify projects for consideration in the analysis:

- Located within 5 miles from Coolwater-Lugo (with the exception of large energy, solar, mining, or utility projects, which were included if located within 25 miles of the project)

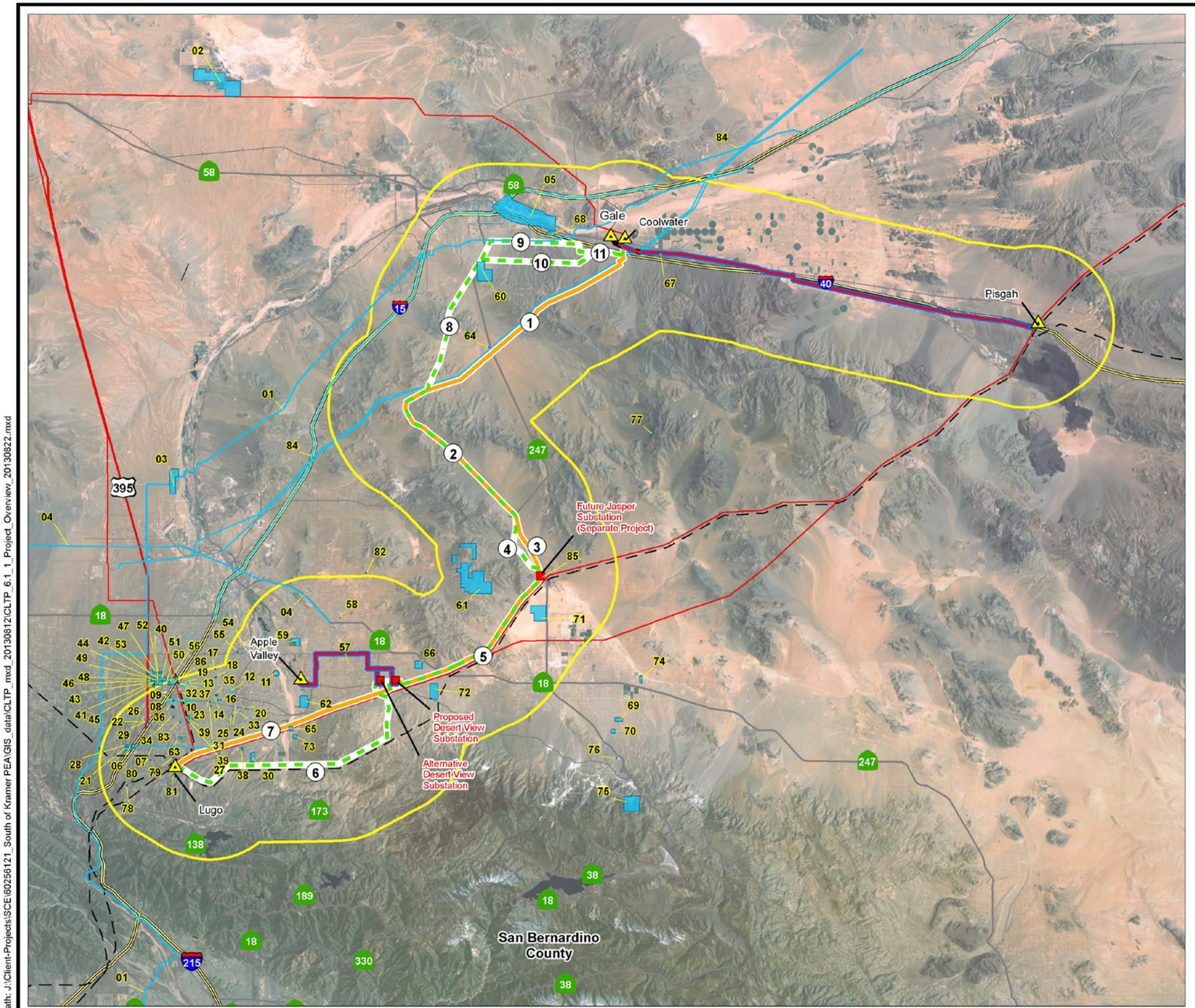
- Permits associated with grading, building, development, or the environment, excluding permits with no associated project such as event permits, alcohol-license permits, etc.

- Past, present, and reasonably foreseeable future projects, that do not have an expiration or completion date before January 2015

It should be noted that some older projects that had an inactive or on hold status were included if the applicable jurisdiction confirmed that these projects could become active between 2015 and 2019.

The cumulative projects list represents planned or approved projects within a 5 mile buffer from Coolwater-Lugo. These developments are shown on Figure 6.1-1, *Cumulative Projects in the Vicinity of the Coolwater-Lugo Transmission Project*. Appendix G includes Figures G, which shows the cumulative projects in more detail. Also, Table G-1 of the same Appendix lists the cumulative projects in the vicinity of the Proposed Project. More than 80 present and reasonably foreseeable future projects have been identified in the area surrounding the Proposed Project. These projects include wind and solar farms, utility, transportation, mining, residential, retail, and other infrastructure projects.

Coolwater - Lugo Transmission Project
Figure 6.1-1
Cumulative Projects in the Vicinity of the Coolwater-Lugo Transmission Project



Proposed Transmission Routes
- Proposed Project
- Alternative Project
- (4) Segment Identification

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

Substations
- Existing
- Proposed

Proposed Telecommunication Routes
- OH
- UG

Roads
- Interstate
- US Route
- State Hwy
- Railroad

Existing Electrical (SCE, 2007)
- 500 kV Transmission Lines
- 220 kV Transmission Lines
- LADWP Transmission Lines

- City
- Proposed Transmission Route 5 mile Buffer
- Cumulative Projects Line
- # Cumulative Projects Identification
- Bureau of Land Management

Source: BLM CDCA, 2013; USGS, 2011; AECOM 2013

0 6 12
Miles

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted atthis scale. Always consult with the proper legal documents or agencies regarding such features.
© Corporate Real Estate Department, REO – Survey and Mapping

SOUTHERN CALIFORNIA EDISON®
An EDISON INTERNATIONAL® Company

N

Path: J:\Client-Projects\SCE\60256121_South of Kramer PEA\GIS_data\CLTP_mxd_20130812\CLTP_6.1_1_Project_Overview_20130822.mxd

This page is intentionally blank.

The following section discusses the potential cumulative impacts of the Proposed Project for each environmental resource category.

Aesthetics. In accordance with the BLM's Visual Contrast Rating System presented in Section 4.1.4.2, *NEPA Impact Assessment*, the Proposed Project at Key Observation Point ("KOP") 6 would result in a substantial degradation of the existing visual character and quality of the site for road viewers along the Lucerne Valley Cutoff, due to the proximity of Proposed Transmission Line Segment 2 to the roadway and the absence of existing development. The Proposed Project at KOP 9 would also result in a substantial degradation of the existing visual character and quality of the site for road viewers along State Route 247 ("SR-247") due to the development of Proposed Transmission Line Segment 3. Therefore, a significant and unavoidable impact to the existing visual character or quality of the site and its surroundings is anticipated from construction of the Proposed Project. When considered in conjunction with other potential development in the vicinity of the Proposed Project (e.g., Barstow Sanitary Landfill Expansion, solar facility development, wind energy system development, and residential development), the visual character of the Proposed Project area would change over time if the Proposed Project and cumulative projects are implemented. Some of the cumulative projects were found to have significant and unavoidable aesthetic impacts related to introduction of night lighting and presence of project features (i.e., Barstow Sanitary Landfill Expansion and Granite Mountain Wind Energy Project). The Proposed Project, however, would have a less than significant impact related to a new source of substantial light or glare. The Proposed Project area is characterized by suburban residential development, open space public lands, and public utility infrastructures. The open space is interspersed with isolated homesteads. It is visually dominated by vast open desert and mountains. The Proposed Project would not be a dominant visual feature in combination with the cumulative projects; rather, they would blend into the visual concepts planned by San Bernardino County, Lucerne Valley, the Cities of Hesperia and Barstow, and the Town of Apple Valley. The degree of cumulative change to the existing visual environment could be dramatic, but the overall effect of the cumulative development would be subject to applicable area plans, general plans, and design standards. Therefore, the cumulative aesthetics impacts from construction of the Proposed Project and other projects have the potential to contribute to a cumulatively significant impact to aesthetics.

Agriculture and Forestry Resources. The Proposed Project would not be located on land designated as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. A small portion of land cultivated with alfalfa near the Proposed Project, along the Mojave River in the City of Hesperia, is designated as Prime Farmland and Farmland of Statewide Importance. However, construction of the Proposed Project would not change existing agricultural use or create additional impacts related to conversion of Farmland. Operation of the Proposed Project would not impact Prime Farmland, Unique Farmland, and Farmland of Statewide Importance. No impacts are anticipated during construction and operation of the Proposed Project; therefore, it is not anticipated to contribute to a cumulatively considerable impact related to agriculture and forestry resources.

Air Quality. The estimated maximum annual emission of oxides of nitrogen ("NOx"), particulate matter measuring less than 10 microns ("PM_{10}") and particulate matter

measuring less than 2.5 microns ("$PM_{2.5}$") during construction of the Proposed Project would exceed corresponding Mojave Air Quality Management District ("MDAQMD") annual significance thresholds.

When compared with the Federal General Conformity *de minimis* emissions applicable to the Mojave Desert Air Basin, the Proposed Project construction emissions would not exceed the *de minimis* level for volatile organic compounds ("VOC"), NOx and PM_{10}.

As the Proposed Project would exceed annual thresholds for NOx, PM_{10}, and $PM_{2.5}$ during construction, emissions from other cumulative projects that would be under construction or in operation concurrently with the Proposed Project's construction activities (2015 through 2019) may result in cumulatively considerable net increases in NOx, PM_{10}, and $PM_{2.5}$ emissions. Compliance with the regulatory requirements (discussed in Section 4.3, *Air Quality*), and implementation of Applicant Proposed Measure ("APM") AIR-1 and AIR-2 would reduce air quality impacts but not to a less than significant level. Therefore, the cumulative air quality impacts from construction of the Proposed Project and other projects have the potential to contribute to a cumulatively significant short-term, temporary air quality impact. These impacts would occur over the duration of construction and would be temporary.

Emissions generated during operation of the Proposed Project would be less than the MDAQMD significance thresholds. In addition, the total estimated annual emissions during operation of the Proposed Project would not exceed the General Conformity *de minimis* levels for VOC, NOx, or PM_{10}. Each of the projects listed in Table G-1, *Cumulative Projects in the Vicinity of the Coolwater-Lugo Transmission Project*, would be subject to separate environmental review, and they would be evaluated for consistency with applicable local and regional plans, policies, and regulations. Operation of the Proposed Project is not anticipated to contribute to a cumulatively considerable impact related to air quality.

Biological Resources. Cumulative biological impacts would be generally additive, and usually directly proportional to the amount of ground disturbed. Where designated corridors are used, access roads may serve more than one line and would therefore minimize ground disturbance and limit the amount of increased access in some areas. Increased access to areas may cause additional use of the Project Area by recreational vehicles, illegal dumping, and other human caused disturbance. The analysis contained in Section 4.4 presented an evaluation of the Proposed Project with regard to sensitive plant and wildlife species in the Project area. The analysis determined that the Proposed Project would result in a less than significant impact to sensitive plant and wildlife species in the Project area because majority large portion of the Project would utilize an existing transmission ROW or be adjacent to existing ROW with existing access roads, project facilities will be sited outside of biologically sensitive areas, and APMs (e.g., environmental training, biological monitors, preconstruction surveys, and species specific measures, etc.) would be in place during construction. In addition, areas of temporary disturbance would be restored after the completion of construction. Therefore, potential biological resource impacts associated with the construction and operation of the Proposed Project would not be cumulatively considerable.

All of the projects in the vicinity of Coolwater-Lugo, listed in Table G-1, would have to either comply with the requirements of the resource management plans or if these projects occur outside of the planning boundaries of such plans, have to independently comply with applicable State, Federal and local regulations concerning protected species and their habitats. This would facilitate the rendering of each project's impacts to biological resources to a level below significance. Biological resource impacts from construction and operation of the Proposed Project are not expected to be incremental nor cumulatively considerable. Therefore, the Proposed Project is not anticipated to have the potential to contribute to cumulatively significant biological resource impact.

Cultural Resources. Impacts to cultural resources are generally localized and site specific, and occur either directly through alteration, damage, or destruction of resources, or indirectly through alteration of a resource's historic setting. The analysis contained in Section 4.5, *Cultural Resources* presented an evaluation of the Proposed Project with regard to cultural resources in the Project area. The analysis determined that the Proposed Project would result in a less than significant impact to cultural resources with the implementation of APMs that would be in place prior to and during construction. These measures ensure that the Coolwater-Lugo project will not contribute to cumulative impacts to cultural resources in the general vicinity of the Proposed Project.

Most of the projects in the vicinity of Coolwater-Lugo, listed in Table G-1, have the potential to impact cultural resources. However, each of these projects would be required to comply with applicable State, Federal and local regulations concerning cultural resources. This would ensure that each project's impacts to cultural resources are rendered to a level below significance. Further, the Cultural Resources APMs for the Coolwater-Lugo project are designed to avoid or minimize impacts to cultural resources, including those found eligible for the NRHP and CRHR. Taken together, the incremental impacts from construction and operation of the Proposed Project are not anticipated to have the potential to contribute cumulatively to cultural resources impacts.

Cumulative impacts to paleontological resources involve the loss of non-renewable scientifically important fossils and associated data, and the incremental loss to science and society of these resources over time. Energy development projects, as well as commercial and residential development projects, have resulted in cumulative impacts affecting paleontological resources in the Apple Valley, Barstow, and Victorville areas. However, the implementation of paleontological mitigation measures during surface-disturbing projects has resulted in the salvage and permanent preservation of scientifically important paleontological resources that would otherwise have been destroyed. This has greatly reduced the scope of cumulative impacts of these projects on paleontological resources, and has resulted in the beneficial cumulative impact of making these fossils available for scientific research and education by placing them in museum collections. Cumulative paleontological impacts for the Proposed Project would be generally additive, and typically would be directly proportional to the amount of ground disturbed. Ground disturbing activities, including grading, excavation, trenching (including pads developed for drilling locations), and structure installation, are identified as the activities most likely to cause an adverse change in the significance of a paleontological resource or unique geologic feature. These activities would be conducted

only during construction. The greater the amount of disturbance to paleontologically sensitive geologic formations (rocks and sediments), the greater the likelihood of adverse impacts to scientifically significant paleontological resources.

The threshold for significant adverse impacts to paleontological resources is reached with the direct or indirect destruction of a unique paleontological resource or site, or unique geologic feature (e.g. fossils that are scientifically significant and the attendant loss of associated scientific information). This includes destruction as the result of surface and subsurface disturbance as well as unlawful vandalism and unauthorized collection of fossil remains. Implementation of the paleontological resources APMs for the Proposed Project, including collecting or avoiding scientifically significant fossils located on the ground surface and monitoring construction excavations in known fossil sites and in paleontologically sensitive geologic units rocks and sediments with the potential to contain subsurface fossils, would ensure that potential adverse impacts on paleontological resources within the project area are reduced to a less than significant level. Therefore, the paleontological resource impacts from construction of the Proposed Project would be incremental are not anticipated to have the potential to contribute to cumulatively significant impacts.

Geology and Soils. The geology and soil impacts associated with the Proposed Project would be localized, site specific and would consist of potential impacts from liquefaction, landslides, and ground failure, as well as disturbance of soil and the potential for erosion during construction activities. Further assessment of the soils located near the Mojave River and two dry lakes (Rabbit and Lucerne) would be performed as part of the engineering design. The Proposed Project structures would be designed consistent with the Institute of Electrical and Electronics Engineers 693, Recommended Practices for Seismic Design of Substations and the Transmission Route would be designed consistent with California Public Utilities Commission ("CPUC") General Order ("G.O.") 95. In addition, it should be noted that SCE's structural design basis for transmission lines is conservative and based on wind load, which is more restrictive than seismic hazard. Implementing Best Management Practices ("BMPs") in the Storm Water Pollution Prevention Plan ("SWPPP"), grading permit provisions, and Worker Environmental Awareness Program ("WEAP") would reduce these impacts to a less than significant level during construction and operation of the Proposed Project.

Geology and soil impacts are considered site specific; any development in the region would also be required to comply with current building codes and regulations. When considering the effects that could be cumulatively considerable, such as the loss of topsoil and erosion, potential impacts would be minimized by compliance with existing laws, regulations, and ordinances that require projects to obtain grading permits and to implement SWPPPs. Therefore, construction and operation of the Proposed Project is not anticipated to contribute to a cumulatively considerable impact related to geology and soils.

Greenhouse Gas Emissions. Construction and operation of the Proposed Project would not result in significant impacts from greenhouse gas ("GHG") emissions. Estimated annual construction GHG emissions and estimated annual operation GHG emissions are

below the MDAQMD significance threshold. Although operation of the other projects that were considered in the cumulative impact analysis may result in an increase in GHG emissions, the Proposed Project's contribution to cumulative impacts would not be considerable, since the Proposed Project's GHG emissions would be less than the MDAQMD's significance threshold. Additionally, part of the purpose of the Proposed Project is to facilitate the interconnection of renewable generation projects, which would be considered to contribute to a reduction in GHG emissions. Therefore, construction and operation of the Proposed Project is not anticipated to contribute to a cumulatively considerable impact related to GHG emissions.

Hazards and Hazardous Materials. No acutely hazardous materials would be used or stored on location during construction and operation of the Proposed Project. The Proposed Project would require the use of gasoline, diesel fuel, oil, solvents, and lubricants associated with vehicles, construction activities, and operation activities. All hazardous materials would be transported, used, and disposed of in accordance with applicable rules, regulations, and SCE-standard protocols designed to protect the environment, workers, and the public. Site-specific BMPs, a spill prevention, control and countermeasure plan, a site-specific construction SWPPP, and a WEAP would be implemented to reduce potential impacts from hazards and hazardous materials to a less than significant level.

The cumulative projects also could involve the storage, use, transport, and accidental release of hazardous materials. However, the Proposed Project and the cumulative projects would be required to comply with existing hazardous materials regulations (e.g., regulations administered by the U.S. Environmental Protection Agency, the California Environmental Protection Agency, and the California Department of Toxic Substances Control), and any considerations would be site specific. Therefore, construction and operation of the Proposed Project is not anticipated to contribute to a cumulatively considerable impact related to hazardous materials storage, use, transport, or accidental spills.

Hydrology and Water Quality. Hydrology and water quality impacts are generally site specific because each project site has a different set of physical considerations. Construction of the Proposed Project would result in temporary ground disturbance that could cause a temporary degradation of water quality. Since the construction of the Proposed Project would disturb a surface area greater than 1 acre, SCE would be required to obtain coverage under the Statewide Construction General Permit to discharge stormwater effluent from the construction sites. A SWPPP and associated BMPs would be implemented to minimize impacts on water quality from erosion and accidental spills, and other potential water quality impacts during construction. Therefore, less than significant impacts are anticipated from construction and operation of the Proposed Project on increasing stormwater runoff or erosion, depleting groundwater supplies, putting a greater number of people and structures within areas at risk of dam or levee inundation, or resulting in impacted water quality.

For cumulative effects on water quality associated with construction, any cumulative future projects on sites larger than 1 acre would be subject to a Construction General

Stormwater Permit, which would require development and implementation of SWPPPs. Additionally, these cumulative projects would be required to undergo environmental reviews that would identify project-specific potential impacts related to hydrology and water quality and mitigation measures to reduce these impacts. The cumulative projects would be required to implement construction BMPs similar to those for the Proposed Project. Compliance with Federal, State, and local regulations by cumulative projects, as required, would ensure that cumulative impacts would be reduced or avoided to the maximum extent possible. Therefore, construction and operation of the Proposed Project is not anticipated to contribute to a cumulatively considerable impact related to hydrology and water quality.

Land Use and Planning. The Proposed Project would be constructed primarily in existing SCE ROWs, or near or parallel to existing transmission lines, or on undeveloped desert land. Therefore, construction and operation of the Proposed Project would not physically divide an established community.

The CPUC's jurisdiction over electric power line projects and substations exempt the Proposed Project pursuant to G.O. No. 131-D from local land use regulations. However, the Proposed Project would not conflict with any applicable local environmental plans or policies, which were reviewed for informational purposes as part of the analysis.

The Proposed Project would be located within the planning areas for the California Desert Conservation Area ("CDCA"), the West Mojave Plan ("WMP") the Desert Renewable Energy Conservation Plan ("DRECP", under development), and the Apple Valley Multi-Species Habitat Conservation Plan (under development). SCE is a participating entity in the CDCA and the WMP, and from a land use and planning perspective, the Proposed Project would not conflict with or impact the CDCA, WMP, or other habitat conservation plan or natural community conservation plan. Additionally, the DRECP, expected to be adopted in 2014, considers high-voltage transmission facilities such as the Proposed Project to be "covered activities," eligible for participation in the DRECP permitting process. As a covered activity, construction and operation of the Proposed Project is not in conflict with the DRECP.

Each of the projects listed in Table G-1, *Cumulative Projects in the Vicinity of the Coolwater-Lugo Transmission Project*, would be subject to separate environmental review, and they would be evaluated for consistency with applicable local and regional plans, policies, and regulations. Construction and operation of the Proposed Project is not anticipated to contribute to a cumulatively considerable impact related to land use and planning.

Mineral Resources. Construction and operation of the Proposed Project would not result in a loss of availability of a known mineral resource that would be of value to the region and residents of the state. No impact would occur. Therefore, construction and operation of the Proposed Project is not anticipated to contribute to a cumulatively considerable impact related to mineral resources.

Noise. Temporary construction activities may have a significant noise impact in areas with sensitive receptors. SCE would implement APM NOI-1 to reduce potential noise impact to a less than significant level. Although the cumulative projects could generate noise during construction similar to the Proposed Project, construction noise would occur for a short period of time. Operation of the cumulative projects may result in an increase in ambient noise levels resulting from increased traffic from the development. However, the noise resulting from operation of the Proposed Project would be less than significant and would be generated by mechanical equipment, operation of the Proposed Project components, and routine, short-term inspection and maintenance of its facilities.

Each of the projects listed in Table G-1, *Cumulative Projects in the Vicinity of the Coolwater-Lugo Transmission Project*, would be subject to separate environmental review, and they would be evaluated for consistency with applicable local and regional plans, policies, and regulations. Construction and operation of the Proposed Project is not anticipated to contribute to cumulatively considerable impacts related to noise.

Socioeconomics and Population and Housing. Construction of the Proposed Project would employ approximately 600 workers during peak times of construction. Construction workers would be dispersed along the Proposed Project. Construction would be temporary (approximately 30 months) and; therefore, the Proposed Project would not induce substantial population growth in the area or within local jurisdictions. No permanent jobs are expected to be created by the Proposed Project. Four houses and approximately 12 people could be permanently displaced by the project; however, this is not considered a substantial number relative to the overall population and number of housing units in San Bernardino County.

The Proposed Project construction and operations are not anticipated to have impacts to socioeconomics or population and housing. Each of the projects listed in Table G-1, *Cumulative Projects in the Vicinity of the Coolwater-Lugo Transmission Project*, would be subject to separate environmental review, and they would be evaluated for consistency with applicable local and regional plans, policies, and regulations. Construction and operation of the Proposed Project is not anticipated to contribute to cumulatively considerable impacts to socioeconomics and population and housing.

Public Services. Construction of the Proposed Project would be temporary and short-term. Additionally, the Proposed Project would not generate the need for new or additional public services because it would not result in construction of residential or other land uses that would directly or indirectly induce population growth in the area. When in operation, the Proposed Project would be unstaffed and remotely operated and would not require dedicated, full-time personnel. The Proposed Project would not create a need for new schools, hospitals, or other public services.

Each of the projects listed in Table G-1, *Cumulative Projects in the Vicinity of the Coolwater-Lugo Tranmission Project*, would be subject to separate environmental review, and they would be evaluated for consistency with applicable local and regional plans, policies, and regulations. Construction and operation of the Proposed Project is not anticipated to contribute to a cumulatively considerable impact related to public services.

Recreation. During construction of the Proposed Project, recreational facilities in the vicinity of the Proposed Project may be used by construction workers. However, this increase would not result in substantial physical deterioration of any recreational facilities in the region or the acceleration of the physical deterioration of those facilities.

The Proposed Project would be unstaffed during operation. Although intermittent inspections and maintenance would occur as part of the Proposed Project, operation of the Proposed Project would not increase the population in the area and, therefore, would not be a substantial physical deterioration of those facilities in the region or acceleration of the physical deterioration of those facilities. Operation and maintenance of the Proposed Project would not require the construction or expansion of recreational facilities. Less than significant impacts are anticipated to occur during the operation of the Proposed Project.

Recreational facility use could increase incrementally with the cumulative projects listed in Table G-1 in Appendix G. Impacts to recreation caused by construction and operation of the cumulative projects would be addressed by the respective local agencies during each project's CEQA process. Construction and operation of the Proposed Project is not anticipated to contribute to a cumulatively considerable impact related to recreation.

Transportation and Traffic. Construction traffic to and from the Proposed Project would include crews and equipment. Crews would primarily utilize existing public roads and existing and new access roads. Rehabilitation and/or upgrades to existing access roads may also be required to facilitate construction access and to support operation and maintenance activities. The additional construction traffic from the Proposed Project to the existing daily traffic volumes on the roadways would not change the level of service ("LOS") (in terms of volume/capacity ratios) to unacceptable levels. In addition, construction activities completed within public street rights-of-way would utilize a traffic control service, and all lane closures would be conducted in accordance with any required permit conditions. Traffic control would be consistent with the *California Joint Utility Traffic Control Manual* ("CJUTCM"). Any closures due to construction of the Proposed Project would be isolated, temporary, short in duration, and coordinated with appropriate agencies. Therefore, less than significant impacts are anticipated during construction of the Proposed Project. The cumulative projects listed in Table G-1, *Cumulative Projects in the Vicinity of the Coolwater-Lugo Transmission Project*, could generate traffic during construction similar to the Proposed Project (such as road or lane closures); however, construction traffic would occur for a short period of time.

Operation of the cumulative projects may result in an increase in traffic. However, traffic associated with operation of the Proposed Project would generate negligible vehicle trips because the Proposed Project would be unstaffed and remotely operated and would not require dedicated, full-time personnel. These activities would not result in a substantial increase in traffic. There would be no significant impact to existing traffic load or capacity of the public street system from operation of the Proposed Project. Maintenance activities within public street rights-of-way and all lane and/or sidewalk closures would be conducted in accordance with any required permit conditions. Any traffic control measures would be consistent with those published in the CJUTCM Manual.

Each of the projects listed in Table G-1, *Cumulative Projects in the Vicinity of the Coolwater-Lugo Transmission Project*, would be subject to separate environmental review, and they would be evaluated for consistency with applicable local and regional plans, policies, and regulations. Construction and operation of the Proposed Project is not anticipated to contribute to a cumulatively considerable impact related to transportation and traffic.

Utilities and Service Systems. Construction and operation of the Proposed Project would not generate substantial amounts of wastewater. The waste generated during construction and operation would be sent to one or more SCE-approved landfills; however, the amount would not be enough to affect the permitted capacity of a landfill. In addition, SCE will reuse and recycle materials to the extent possible.

Any impacts on utilities and service systems caused by the construction and operation of the cumulative projects would be addressed by the respective and responsible local agencies during each project's CEQA process. Construction and operation of the Proposed Project is not anticipated to contribute to a cumulatively considerable impact related to utilities and service systems.

6.2 Growth-Inducing Impacts

Section 15126.2(d) of the CEQA Guidelines states that environmental documents "...discuss the ways in which the project could foster economic or population growth, or the construction of additional housing, either directly or indirectly in the surrounding environment..."

A project could be considered to have growth-inducing effects if it:

- Either directly or indirectly fosters economic or population growth or the construction of additional housing in the surrounding area
- Removes obstacles to population growth
- Requires the construction of new community facilities that could cause significant environmental effects
- Encourages and facilitates other activities that could significantly affect the environment, either individually or cumulatively

Would the project either directly or indirectly foster economic or population growth or the construction of additional housing in the surrounding area?

Construction Impacts

Construction activities for the Proposed Project are anticipated to occur for approximately 30 months from initial site development through energizing and testing. SCE anticipates approximately 600 construction personnel working on any given day on the Proposed Project. SCE anticipates that crews would work concurrently whenever

possible; however, the estimated deployment and number of crew members would vary depending on factors such as material availability, resource availability, and construction scheduling. It is anticipated that most of the construction workers for the Proposed Project would temporarily reside within the local area. The Proposed Project may require temporary accommodations for construction workers from outside the Proposed Project area during construction. However, this need is anticipated to be met by hotels and motels available in San Bernardino County and surrounding areas.

Construction of the Proposed Project would temporarily contribute to economic growth in the area through direct employment of local workers as well as the potential use of local hotels, restaurants, and other services to support any workers that may come from outside the commuting area. The Proposed Project would also contribute indirect economic benefits as wages, some material purchases, and other Project costs are circulated throughout the region. However, relative to the overall economy of the Project area, San Bernardino County, and the wider southern California region, Project-related direct and indirect economic growth would be temporary. Therefore, the Proposed Project would not require nor is it expected to foster additional population growth or housing development in the surrounding area.

Operation Impacts

The Proposed Project would be developed to provide additional transmission capacity to help alleviate the 220 kV transmission bottleneck between the existing Kramer and Lugo Substations, to facilitate the interconnection of renewable generation projects, to accommodate future load serving in the Town of Apple Valley, and to facilitate additional system reliability. The Proposed Project is not designed to induce growth in the community, either directly or indirectly. It would accommodate growth in the area that is planned or approved by local land use authorities, but it would not by itself induce growth. The Proposed Project would not include any new homes, so there would be no direct impact on population growth in the area. The Proposed Project is being built to increase transmission capacity, meet the electrical needs in the area, and facilitate the interconnection of renewable generation projects. The need for additional transmission capacity is driven by the amount of queued generation in the California Independent System Operator ("CAISO") queue. While the additional capacity created by the Proposed Project could facilitate renewable generation development in the area, these projects would not create substantial amounts of permanent jobs and would not have a significant effect on population or housing. Therefore, the Proposed Project would not induce substantial population growth in the area. Operation of the Proposed Project would not create new opportunities for local industry or commerce or impact population growth in the area beyond what is already planned in the San Bernardino County and local jurisdiction areas. After construction, the access roads would only be used for occasional maintenance operations and would not provide new roadside development or access opportunities for local industry or commerce in the area.

The Proposed Project would be unattended during operation. While it would require occasional routine maintenance, it would not require dedicated, full-time personnel. Therefore, operation of the Proposed Project would not directly or indirectly foster

economic growth or population growth or construction of additional housing in the surrounding area.

Would the project remove obstacles to population growth?

Construction Impacts

Construction of the Proposed Project would not affect the feasibility of development in the area, remove an obstacle to growth, or affect development restrictions administered by local agencies. The Proposed Project is located in an area well suited for renewable energy development, and the Proposed Project would facilitate development of queued renewable energy projects; however, renewable energy development or any lack thereof in the Project area is not a limitation or obstacle to population growth. Obstacles to population growth in the region served by the Proposed Project are primarily due to feasibility of development, economic constraints, permitting, and other development restrictions and regulations administered by local agencies. Therefore, construction of the Proposed Project would not result in the removal of any impediments to growth in the area.

Operation Impacts

Operation of the Proposed Project would not affect the feasibility of development in the area, remove an obstacle to growth, or affect development restrictions administered by local agencies. Obstacles to population growth in the region served by the Proposed Project are primarily due to feasibility of development, economic constraints, permitting and other development restrictions and regulations administered by local agencies. Therefore, operation of the Proposed Project would not result in the removal of any impediments to growth in the area.

Would the project require the construction of new community facilities that could cause significant environmental effects?

Construction Impacts

Construction of the Proposed Project would not generate the need for new or additional community facilities because it would not result in development of residential or other land uses that would directly or indirectly induce population growth in the area. The Proposed Project includes the construction of new access roads along the project alignment. The new access roads would not extend public services to an area presently not served by existing community facilities. Therefore, construction of the Proposed Project would not cause or require the creation of any new community facilities.

Operation Impacts

When in operation, the Proposed Project would be unstaffed and remotely operated and would not require dedicated, full-time personnel. Therefore, its operation would not significantly affect police and fire protection response times, emergency services,

hospitals, schools, and other services or create higher demand for these public services and community facilities.

The Proposed Project is designed in response to the existing and projected electrical demand in the area and would not directly induce growth or create a need for additional public services. Operation of the Proposed Project would have no growth-inducing impacts. Therefore, operation of the Proposed Project would not cause or require the creation of any new community facilities.

Would the project encourage or facilitate other activities that could significantly affect the environment, either individually or cumulatively?

Construction Impacts

The demand for transmission capacity is a result of, not a precursor to, development in the region. The Proposed Project is being proposed in response to existing demand for renewable generation interconnections and transmission capacity. Although the Proposed Project would increase the reliability with which electricity is made available, the objective of the Proposed Project is not to provide a new source of electricity, nor would it provide service/utility connections to off-site uses. Construction activities of the Proposed Project would not encourage nor facilitate other activities that could significantly affect the environment either individually or cumulatively. Additional information on cumulative impacts resulting from the Proposed Project is provided in Section 6.1, *Cumulative Impacts*. Therefore, construction of the Proposed Project would not encourage or facilitate other activities that could significantly affect the environment, either individually or cumulatively.

Operation Impacts

The demand for transmission capacity is a result of, not a precursor to, development in the region. Although the Proposed Project would increase the reliability with which electricity is made available and the transmission capacity available, the objective of the Proposed Project is not to provide a new source of electricity, nor would it provide service/utility connections to off-site uses. The operation of the Proposed Project would facilitate additional local area renewable generation development of projects in the CAISO queue limited by the additional 1,000 MW of transmission capacity added by the Proposed Project. These other generation projects could result in a potentially significant environmental impact. However, the timing of these projects is unknown and each would undergo its own environmental review. Additional information on cumulative impacts resulting from the Proposed Project is provided in Section 6.1, *Cumulative Impacts*. Therefore, operation of the Proposed Project is not anticipated to encourage or facilitate other activities that could significantly affect the environment, either individually or cumulatively.

6.3 Significant Environmental Effects of the Project

The CEQA Guidelines (Section 15126.2) requires a discussion of the overall significance of the environmental effects of the Proposed Project. This discussion is to distinguish between the direct and indirect effects of a project, and the short-term/long-term effects of a project. These potential significant environmental effects are summarized in Table 6.3-1, *Potential Significant Environmental Effects*. With the implementation of APMs, the majority of the potential significant environmental effects associated with the Proposed Project would be reduced to less than significant levels. However, impacts to Aesthetics and Air Quality would remain significant and unavoidable. Resource areas evaluated in Chapter 4, *Environmental Assessment* that were not determined to have significant environmental effects are not listed in the table.

Table 6.3-1 Potential Significant Environmental Effects

Resource	Description	Direct/Indirect	Short term/Long term
Aesthetics			
Visual Character and Visual Quality of the Project at Key Observation Point 6 and 9	Construction activities could impact the existing visual character and quality at Key Observation Point 6 and 9 for viewers from the road.	Direct	Short term: Construction activities associated with Proposed Transmission Line Segments 2 and 3 would impact the existing visual character and visual quality at KOP 6 and 9 for viewers from the road. The impact would be considered significant and unavoidable.
Air Quality			
Air Quality	Construction emissions of NOx, PM_{10}, and $PM_{2.5}$ would exceed the Mojave Desert Air Quality Management District's (MDAQMD) significance thresholds.	Direct	Short term: SCE would comply with applicable regulations; APM AIR-1 and AIR-2 would reduce regional air quality impacts. The impact would remain significant and unavoidable.

Table 6.3-1 Potential Significant Environmental Effects

Resource	Description	Direct/Indirect	Short term/Long term
Biological Resources			
Special Status Plant Populations	Construction activities could impact special status plants known to occur or observed within the Project Area.	Direct	Short term: Impacts to special-status plants would be less than significant with implementation of APM BIO-1 through APM BIO-3.
Special Status Wildlife	Construction activities could impact special status wildlife species known to occur or observed within the Project Area.	Direct	Short term: Impacts to special-status wildlife would be less than significant with implementation of APM BIO-1 through APM BIO-11.
Nesting Birds/Raptors	Construction activities could impact suitable nesting birds/raptors habitat due to noise and vibration.	Direct	Short term: Impacts to nesting birds/raptor habitat would be less than significant with implementation of APM BIO-1 through APM BIO-4.
Burrowing Owl	Construction activities could impact suitable foraging and breeding habitat for borrowing owls.	Direct	Short term: Impacts to borrowing owl habitat would be less than significant with implementation of APM BIO-1 through APM BIO-3, and APM BIO-5.
Desert Tortoise	Construction activities could impact desert tortoise burrow's or cause direct injury due to animal's slow rate of movement.	Direct	Short term: Impacts to desert tortoise would be less than significant with implementation of APM BIO-6 through APM BIO-10.
Arroyo Toad	Construction activities could impact suitable arroyo toad habitat.	Direct and Indirect	Short term: Impacts to arroyo toad would be less than significant with implementation of APM BIO-1 through APM BIO-3.

Table 6.3-1 Potential Significant Environmental Effects

Resource	Description	Direct/Indirect	Short term/Long term
Mohave Ground Squirrel	Construction activities could impact suitable Mohave ground squirrel habitat.	Direct	Short term: Impacts to Mohave ground squirrel would be less than significant with implementation of APM BIO-1 through APM BIO-3, and APM BIO-11.
Coast Horned Lizard and Mojave fringe-toed lizard	Construction activities could impact suitable Coast Horned Lizard and Mojave fringe-toed lizard habitat.	Direct	Short term: Impacts to Coast Horned Lizard and Mojave fringe-toed lizard would be less than significant with implementation of APM BIO-1 through APM BIO-3.
Cultural Resources			
Cultural Resources	Construction activities could impact significant cultural resources (those found eligible for listing in the NRHP or CRHR).	Direct	Short term: Impacts to cultural resources would be less than significant with implementation of APM CUL-1 and CUL-2.
Paleontological Resources	Construction activities could impact scientifically valuable fossils and other paleontologically important resources.	Direct	Short term: Impacts to paleontological resources would be less than significant with implementation of APM PAL-1.

6.4 Mandatory Findings of Significance

The Mandatory Findings of Significance are as follows:

Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Construction Impacts

Construction of the Proposed Project would not degrade the quality of the environment. The effects to biological resources are discussed in Section 4.4.5 *Biological Resources*

Impact Analysis. Construction of the Proposed Project would not substantially reduce the habitat of fish or wildlife species, cause fish or wildlife populations to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. The effects to cultural resources resulting from construction of the Proposed Project are discussed in Section 4.5.5, *Cultural Resources Impact Analysis*. Construction of the Proposed Project would not eliminate important examples of any major periods of California history or prehistory. Therefore, it is anticipated that construction of the Proposed Project would not impact the quality of the environment as described in the above criteria.

Operation Impacts

Operation of the Proposed Project would not degrade the quality of the environment. The effects to biological resources are discussed in Section 4.4.5 *Biological Resources Impact Analysis*. Operation of the Proposed Project would not substantially reduce the habitat of fish or wildlife species, cause fish or wildlife populations to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. The effects to cultural resources resulting from operation of the Proposed Project are discussed in Section 4.5.5, *Cultural Resources Impact Analysis*. Operation of the Proposed Project would not eliminate important examples of any major periods of California history or prehistory. Therefore, it is anticipated that operation of the Proposed Project would not impact the quality of the environment as described in the above criteria.

Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Construction Impacts

As discussed in Section 6.1, *Cumulative Impacts*, construction of the Proposed Project could have cumulatively considerable impacts to Air Quality and Aesthetics.

The estimated annual construction emissions of NOx, PM_{10} and $PM_{2.5}$ would exceed corresponding MDAQMD annual significance thresholds. Therefore, emissions from other cumulative projects that would be under construction or in operation concurrently with the Proposed Project's construction and post-construction activities (2015 through 2019) may result in cumulatively considerable net increases in emissions of NOx, PM_{10}, and $PM_{2.5}$. Compliance with applicable regulations and implementation of APM AIR-1 and AIR-2 would reduce air quality impacts, but not to a less than significant level. Therefore, the cumulative air quality impacts from construction of the Proposed Project and other projects have the potential to contribute to a cumulatively significant short-term, temporary air quality impact. These impacts would occur over the duration of construction and would be temporary.

In accordance with the BLM's Visual Contrast Rating System presented in Section 4.1.4.2, *NEPA Impact Assessment*, the Proposed Project at KOP 6 would result in a significant and unavoidable impact of the existing visual character of quality of the site due to the proximity of Segment 2 to the roadway and the absence of existing development. The Proposed Project at KOP 9 would also result in a substantial degradation of the existing visual character and quality of the site for road viewers along State Route 247 ("SR-247") due to the development of Segment 3. When considered in conjunction with other potential development in the vicinity of the Proposed Project, the visual character of the Proposed Project area would change over time if the Proposed Project and cumulative projects are implemented. Some of the cumulative projects were found to have significant and unavoidable aesthetic impacts related to introduction of night lighting and presence of project features (i.e., Barstow Sanitary Landfill Expansion and Granite Mountain Wind Energy Project). Therefore, the cumulative aesthetics impacts from construction of the Proposed Project and other projects have the potential to contribute to a cumulatively significant impact to aesthetics.

Operation Impacts

As described in Section 6.1, *Cumulative Impacts*, operation of the Proposed Project would not result in impacts that are individually limited, but cumulatively considerable.

Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Construction Impacts

Construction of the Proposed Project would result in substantial adverse air quality impacts that could cause direct substantial adverse effects on human beings. As described in Section 4.3, *Air Quality*, the estimated maximum annual emissions of NOx, PM_{10} and $PM_{2.5}$ during construction would exceed corresponding MDAQMD annual significance thresholds. Emissions of these pollutants during construction may contribute to air quality violations. Compliance with the regulatory requirements and implementation of APM AIR-1 and APM AIR-2, would reduce air quality impacts, but not to a less than significant level. Therefore, significant and unavoidable air quality impacts are anticipated from construction of the Proposed Project.

Operation Impacts

Operation of the Proposed Project is not anticipated to cause substantial adverse effects on human beings. The Proposed Project would provide additional transmission capacity, facilitate the interconnection of renewable generation projects, accommodate future load serving in the Town of Apple Valley, and facilitate additional system reliability. Access to a reliable source of electricity would directly enhance the lives of human beings by supporting the wide range of individual lifestyles that depend on the predictability of electrical service, and indirectly, by providing the region with reliable electrical service to allow local decision makers flexibility as to what types of development could occur in the region. Therefore, operation of the Proposed Project would not cause direct or indirect substantial adverse effects on human beings.