3.3 Air Quality

3.3.1 Introduction

This section describes effects on air quality that would be caused by implementation of the TRTP. The following discussion addresses existing environmental conditions in the affected area, identifies and analyzes environmental impacts for a range of Project alternatives, and recommends measures to reduce or avoid adverse impacts anticipated from Project construction and operation. In addition, existing laws and regulations relevant to air quality are described. In some cases, compliance with these existing laws and regulations would serve to reduce or avoid certain impacts that might otherwise occur with the implementation of the Project.

Please refer to Appendix C (Air Pollutant Emissions Calculations) for more detailed information air quality emissions calculations, including all assumptions for the Project.

Scoping Issues Addressed

During the scoping period for the EIR/EIS (August-October 2007), a series of scoping meetings were conducted with the public and government agencies, and written comments were received by agencies and the public that identified issues and concerns. The following issues related to air quality that were raised during scoping are addressed in this section:

- The Project may have substantial adverse impact on County of Los Angeles park facilities and recreation services during construction. Certain park patrons are sensitive to the effects of air pollutants including children, elderly, athletes, and person with pre-existing respiratory problems. Mitigation should address minimizing construction vehicle and equipment emissions, idling time and scheduling construction during off-peak times of park use.
- Use SCAQMD CEQA Handbook when preparing the air quality analysis. Identify any potential adverse air quality impacts that could occur from all phases of the Project and all air pollutant sources related to the Project. Both construction and operations should be calculated. Air quality impacts from indirect sources or sources that generate or attract vehicular trips should be included in the analysis. Quantify PM2.5 emission and compare the results to the recommended PM2.5 significance thresholds. In addition to analyzing regional air quality impacts calculate localized air quality impacts and compare results to localized significance thresholds (LSTs). LSTs can be used as a second indication of air quality impacts. Mobile source health risk assessment may also be needed. All feasible mitigation measures shall be identified to minimize or eliminate significant adverse air quality impacts.

Summary and Comparison of Alternatives

Table 3.3-1 on the following page presents some key factors related to air quality for each alternative, including a summary of the direct and indirect effects of the TRTP alternatives on air quality. These impacts are further described in Sections 3.3.5 through 3.3.10.

Table 3.3-1. Summary Comparison of Environmental Issues/Impacts – Air Quality

Environmental Issues / Impacts	Alternative 1 (No Project/Action)	Alternative 2 (SCE's Proposed Project)	Alternative 3 (West Lancaster)	Alternative 4 (Chino Hills Routes)	Alternative 5 (Partial Underground)	Alternative 6 (Max. Helicopter in ANF)	Alternative 7 (66-kV Subtransmission)
Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds	The impacts of new power plants and new T/Ls could add air pollutants contributing to existing nonattainment conditions or violations of ambient air quality standards, if they occur in areas of substantial existing pollution.	SCAQMD – NOx, VOC, CO, PM10 and PM2.5 thresholds exceeded. AVAQMD – NOx, VOC, CO, and PM10 thresholds exceeded. KCAPCD – PM10 threshold exceeded.	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2 with magnitudes of exceedances higher in SCAQMD.	Same as Alternative 2	Same as Alternative 2
Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds	Same as Alternative 2; however, the difference in net emissions of criteria pollutants is unknown.	No exceedances of emission thresholds. Indirect impacts of enabling renewable energy use would be beneficial.	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2
The Project would not conform to Federal General Conformity Rules	New transmission lines on federal lands may exceed thresholds and require a General Conformity analysis.	Project would exceed SoCAB NOx thresholds. General Conformity analysis required.	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	General Conformity analysis required. Magnitude of SoCAB NOx threshold exceedance substantially higher than Alternative 2.	Same as Alternative 2
The Project would not conform to Angeles National Forest air quality strategies	A project similar to the TRTP which crosses the ANF with appropriate mitigation would conform with ANF air quality strategies.	With appropriate mitigation the Project would conform with ANF air quality strategies.	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2
Emissions would contribute to climate change	Same as Alternative 2; however, the difference in net greenhouse gas (GHG) emissions is unknown.	Indirect impacts of enabling renewable energy use are beneficial and greater than the direct emissions from construction and operation of the Project.	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2 with direct GHG emissions from construction higher than Alternative 2.	Same as Alternative 2 with direct GHG emissions from construction higher than Alternative 2.	Same as Alternative 2

3.3.2 Affected Environment

The background air quality conditions were determined through a review of criteria pollutant attainment/nonattainment designation data and ambient criteria pollutant concentration data sources that included, but were not limited to, the following:

- U.S. EPA Greenbook data
- State of California, Air Resources Board data
- South Coast Air Quality Management District data
- Proponent's Environmental Assessment

Data obtained will include the latest available existing data from the above sources.

The affected jurisdictions include the Kern County Air Pollution Control District (KCAPCD), the Antelope Valley Air Quality Management District (AVAQMD), and the South Coast Air Quality Management District (SCAQMD). Additionally, the Project route covers two separate air basins, the Mojave Desert Air Basin (MDAB) and South Coast Air Basin (SoCAB) which are separated by the border of the SCAQMD and AVAQMD in the Project area. The Project also traverses through the Angeles National Forest (ANF). Figure 3.3-1, located at the end of this section, shows the location of the proposed Project and Project alternatives along with the local air quality jurisdiction and national forest borders. CEQA guidelines and rules and regulations from these local jurisdictions have been reviewed and included as applicable for this Project.

3.3.2.1 Regional Setting

The regional setting is the same for the proposed Project and all Project alternatives as all of the alternatives are variations of the proposed Project without significant differences in location or context from an air quality setting perspective. Therefore, the regional setting is provided once for the proposed Project and alternatives.

Meteorological Conditions

The climate of northwestern Los Angeles County and southeastern Kern County is characterized by hot, dry summers and mild to cold winters with seasonally heavy precipitation that occur primarily during the winter months. Summer typically has clear skies, high temperatures, and low humidity. Monthly climate summaries for Mojave, Lancaster, and El Monte, California, locations within each local jurisdiction traversed by the Project route, were selected to characterize the climate of the study area. As described in Table 3.3-2, average summer (June-August) high and low temperatures in the study area range from 96°F to 50°F, respectively. Average winter (December-March) high and low temperatures in the study area range from 71°F to 34°F. The average annual precipitation of Mojave, Lancaster, and El Monte, California, ranges roughly from 6.6 inches to 18.6 inches with over 70 percent occurring between December and March. Little precipitation occurs during summer because a high-pressure cell blocks migrating storm systems over the eastern Pacific. The Project areas at higher altitudes in the Angeles National Forest (ANF) may have temperatures and precipitation that vary somewhat from that experienced in Mojave, Lancaster, and El Monte.

Table 3.3-2. Monthly Average Temperatures and Precipitation

Month	Mojave			Lancaster			El Monte		
	Temperature, °F		Precipitation Inches	Temperature, °F		Precipitation Inches	Temperature, °F		Precipitation Inches
	Max	Min		Max	Min		Max	Min	
January	58	34	1.34	57	31	1.60	70	56	4.07
February	62	37	1.51	61	35	1.62	71	45	4.66
March	66	41	1.13	65	39	1.44	72	47	3.76
April	72	46	0.22	71	45	0.32	77	50	1.01
May	81	54	0.15	79	53	0.12	79	55	0.41
June	91	62	0.05	89	60	0.05	84	59	0.16
July	97	67	0.16	95	66	0.10	89	62	0.03
August	96	66	0.27	95	64	0.14	90	63	0.10
September	90	59	0.28	88	57	0.20	88	61	0.44
October	79	49	0.28	78	46	0.30	83	55	0.57
November	66	39	0.43	65	35	0.50	76	46	1.29
December	58	33	0.81	57	29	1.01	71	42	2.06

Source: The Weather Channel 2008.
Note: Averaged over a minimum period of 30 years.

The northern end of the Project would be located in the Antelope Valley south and east of the Tehachapi Mountains within the Mojave Desert Air Basin (MDAB). The Project route travels in a general north to south direction crossing through the Antelope Valley, splitting into two routes, south through the Angeles National Forest (ANF), and continuing south through both East and West San Gabriel Valley converging into the Los Angeles Plain in Monterey Park. From Monterey Park the Project continues east to Southeastern Ontario.

The Clean Air Act identifies some wildernesses, Class Areas, for special protection from long term air pollution emitted by stationary sources. This Project is in fact being proposed to reduce dependence on stationary sources like conventional power plants. But it is also know that air pollutants emitted by this Project, like nitric oxides, ozone and fugitive dust have impacts on visibility and the aquatic and terrestrial ecosystem of these wildernesses. There is only one wilderness area within 10 kilometers of the transmission route (San Gabriel Wilderness) and twenty-six wilderness areas within 100 kilometers of the transmission route. Table 3.3-3 provides a list of the wilderness areas and their closest distance to the Project. Eight of these wilderness areas are also designated at federal Class 1 Areas. The nearest Class I Federal Lands area to the Project is the San Gabriel Wilderness. The route for Segment 6 of the Project comes to within one-tenth of a mile from the western border of the San Gabriel Wilderness. The next closest Class I area is the Cucamonga Wilderness which is approximately 14 miles north of Segment 8B.

Table 3.3-3. Wilderness Areas, Jurisdiction, and Nearest Project Element

USFS Wilderness Areas	Distance to Project (km)	Nearest Project Element
Aqua Tibia*	78.2	Mira Loma Substation
Bighorn Mountain	78.2	Mira Loma Substation
Chumash	57.6	Segment 4
Cucamonga*	21.8	Segment 8B
Dick Smith	86.5	Segment 4
Domeland*	74.2	Segment 10
Kiavah	59.6	Segment 10
Matilija	87.4	Segment 4

Table 3.3-3. Wilderness Areas, Jurisdiction, and Nearest Project Element		
USFS Wilderness Areas	Distance to Project (km)	Nearest Project Element
San Gabriel*	0.04	Segment 6
San Gorgonio*	55.8	Mira Loma Substation
San Jacinto*	74.1	Mira Loma Substation
San Mateo Canyon	44.0	Mira Loma Substation
Sespe	38.3	Segment 4
Sheep Mountain	17.3	Segment 6
BLM Wilderness Areas		
Bighorn Mountain	82.9	Mira Loma Substation
Black Mountain	93.5	Segment 10
Bright Star	47.9	Segment 10
Chimney Peak	88.0	Segment 10
Domeland*	72.4	Segment 10
El Paso Mountains	57.8	Segment 10
Golden Valley	75.3	Segment 10
Grass Valley	84.6	Segment 10
Kiavah	56.5	Segment 10
Owens Peak	71.2	Segment 10
Sacatar Trail	94.3	Segment 10
San Gorgonio*	77.7	Mira Loma Substation

* Class 1 Federal Lands

Existing Air Quality

The United States Environmental Protection Agency (USEPA), California Air Resources Board (CARB), and the local air districts classify an area as attainment, unclassified, or nonattainment depending on whether or not the monitored ambient air quality data shows compliance, insufficient data available, or non-compliance with the ambient air quality standards, respectively. The National and California Ambient Air Quality Standards (NAAQS and CAAQS) relevant to the Project are provided in Table 3.3-4.

Table 3.3-4. National and California Ambient Air Quality Standards			
Pollutant	Averaging Time	California Standards	National Standards
Ozone (O_3)	1-hour	0.09 ppm	—
	8-hour	0.070 ppm	0.075 ppm
Respirable particulate matter (PM_{10})	24-hour	50 µg/m^3	150 µg/m^3
	Annual mean	20 µg/m^3	—
Fine particulate matter ($PM_{2.5}$)	24-hour	—	35 µg/m^3
	Annual mean	12 µg/m^3	15 µg/m^3
Carbon monoxide (CO)	1-hour	20 ppm	35 pm
	8-hour	9.0 ppm	9.0 ppm
Nitrogen dioxide (NO_2)	1-hour	0.18 ppm	—
	Annual mean	0.030 ppm	0.053 ppm
Sulfur dioxide (SO_2)	1-hour	0.25 ppm	—
	24-hour	0.04 ppm	0.14 ppm
	Annual mean	—	0.03 ppm

Notes: ppm=parts per million; µg/m^3= micrograms per cubic meter; "—" = no standard
Source: CARB 2008a.

The proposed Project area would be located within both the MDAB, which is under the jurisdiction of the Kern County Air Pollution Control District KCAPCD, the Antelope Valley Air Quality Management District (AVAQMD), and the South Coast Air Basin (SoCAB), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). Table 3.3-5 summarizes the federal and State attainment status of criteria pollutants for the Project area based on the NAAQS and CAAQS, respectively.

Table 3.3-5. Attainment Status for the Mojave Desert Air Basin and South Coast Air Basin

Pollutant	Attainment Status Mojave Desert Air Basin		Attainment Status South Coast Air Basin	
	Federal	State	Federal	State
Ozone – 1 Hr	N/A	Extreme and Moderate Nonattainment [1]	N/A	Extreme Nonattainment
Ozone – 8 Hr	Severe and Moderate Nonattainment [2]		Extreme Nonattainment [3]	
CO	Attainment	Attainment	Attainment	Attainment
NO_2	Attainment	Attainment	Attainment	Attainment
SO_2	Attainment	Attainment	Attainment	Attainment
PM10	Attainment	Nonattainment	Serious Nonattainment	Nonattainment
PM2.5	Attainment	Attainment	Nonattainment	Nonattainment

Source: CARB 2008b, USEPA 2008a
N/A – Not Applicable
1 - The Antelope Valley Air Quality Management District portion of the MDAB is classified as extreme nonattainment due to historical SoCAB designation while Kern County is designated as moderate nonattainment of the state ozone standards.
2 - The Antelope Valley Air Quality Management District portion of the MDAB is in the process of being re-classified as extreme nonattainment while Kern County is in the process of being re-classified to moderate nonattainment of the federal 8-hour state ozone standard.
3 – The South Coast Air Basin is in the process of being re-classified as extreme nonattainment.

The Project site would be in southeastern Kern County, San Bernardino County, and Los Angeles County. Ozone, CO, NO_2, PM10, and PM2.5 concentrations are currently recorded at the Lancaster Pondera Street and Division Street monitoring stations, located approximately nine miles east of the Antelope Substation. Ozone, NO_2, PM10, and PM2.5 are currently recorded at the Mojave monitoring station, located in the western portion of the eastern county of the Mojave Desert Air Basin (MDAB) under the jurisdiction of the Kern County Air Pollution Control District (KCAPCD). SO_2 is currently recorded at the Trona and Riverside Rubidoux monitoring stations.

Exhibits 3.3-1 through 3.3-3 summarize the historical air quality data for the Project area collected at the nearest representative air quality monitoring stations in Mojave, Lancaster, and El Monte, respectively. Various monitoring stations in the area were used to compile data from 1997 to 2007 (10-year period). For ozone, nitrogen dioxide and PM10, the Mojave monitoring station was used (1997-2007). And for PM2.5, the Mojave monitoring station was used (1999-2007). The following monitoring stations that were used for ozone, carbon monoxide, nitrogen, and PM10 in the Lancaster area were Lancaster West Pondera Street (1997-2001) and Lancaster Division Street (2002-2007). And the following monitoring stations that were used for PM2.5 in the Lancaster area were Lancaster West Pondera Street (1999-2001) and Lancaster Division Street (2002-2004). And for sulfur dioxide, the Trona Athol & Telegraph monitoring station was used (1997-2007).

For ozone in the South Coast Air Basin area, the following monitoring stations were used due to insufficient data available: Glendora Laurel monitoring station was used (1997-1999, 2001-2003, 2004-2007), and Azusa (2000, 2004). For carbon monoxide in the South Coast Air Basin area, the following monitoring stations were used: Pasadena South Wilson Avenue (1998, 2000-2002, 2004-2005), Pomona (1999, 2003), and Pica Rivera (1997). For nitrogen dioxide in the South Coast Air Basin area, the following monitoring stations were used: Pasadena South Wilson Avenue (1997-1998, 2000-2002, 2005-2007), Pomona (1999), and Pico Rivera (2003-2004). For PM10 in the South Coast Air Basin area, the following monitoring stations were used: Ontario Airport (1997), and Ontario 1408 Francis Street (1998-2007). For PM2.5 in the South Coast Air Basin area, the following monitoring stations were used: Ontario 1408 Francis Street (1999), and Azusa (2000-2007). And for sulfur dioxide, the Riverside Rubidoux monitoring station was used (1997-2007).

In Exhibits 3.3-1 through 3.3-3, the short term normalized concentrations are provided from 1997 to 2007. Normalized concentrations represent the ratio of the highest measured concentrations in a given year to the most-stringent currently applicable national or State ambient air quality standard. Therefore, normalized concentrations lower than one indicates that the measured concentrations were lower than the most-stringent ambient air quality standard and conversely normalized concentrations greater than one indicates that the measured concentrations were higher than the most-stringent ambient air quality standard and also gives an indication of the magnitude behavior above the standards being experienced in the Project area.

As shown in Exhibits 3.3-1 through 3.3-3, the Project area is above the State 1-hour and 8-hour ozone standards, the State 24-hour PM10 standard and other SoCAB above the federal 24-hour PM 2.5 standard.

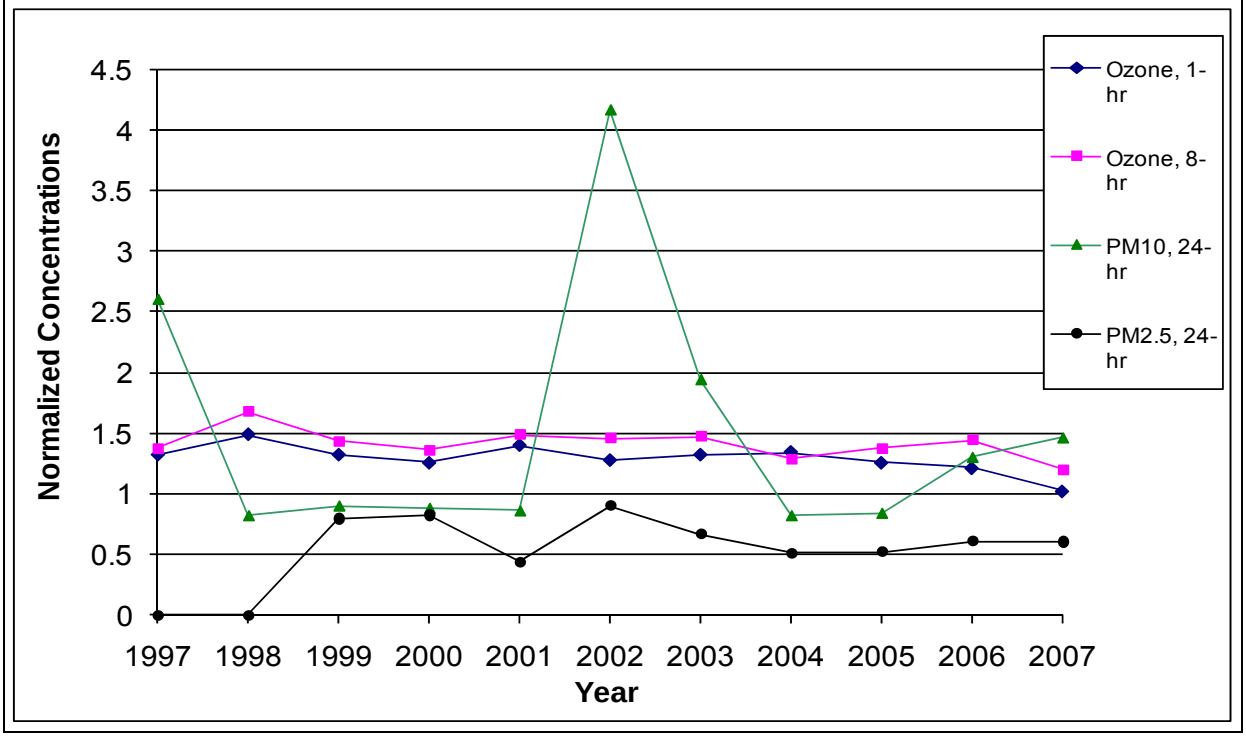
Ozone

In the presence of ultraviolet radiation, both NOx and VOCs go through a number of complex chemical reactions to form ozone. Table 3.3-6 summarizes the best representative ambient ozone data for the Project area collected over the past six to ten years from monitoring stations in Mojave, Lancaster and SoCAB. The table includes the maximum hourly concentration and the number of days above the National and State standards. As indicated in this table, ozone formation is generally higher in spring and summer and lower in the winter. The MDAB is classified as moderate nonattainment for 1-hour ozone CAAQS, whereas the SoCAB is classified as extreme nonattainment area, respectfully. MDAB is classified as a moderate nonattainment area for the 8-hour ozone NAAQS, whereas the SoCAB is classified as a severe nonattainment area.

The year 1997 to 2007 trends for the maximum 1-hour and 8-hour ozone concentrations, referenced to the most stringent standard, and the number of days exceeding the California 1-hour standard and the Federal 8-hour standard for the Mojave, Lancaster, South Coast Air Basin areas are shown in Exhibit 3.3-4 and 3.3-5, respectively.

As shown in Exhibits 3.3-4 and 3.3-5, long-term trends in reduced emissions of ozone precursors have led to reduced ozone formation in the Project area through 1999. After 1999, ozone increased in the Project area although a downward trend between 2003 and 2004 is apparent. In general, ozone continues to be above the State 1-hour and federal 8-hour ozone standards.

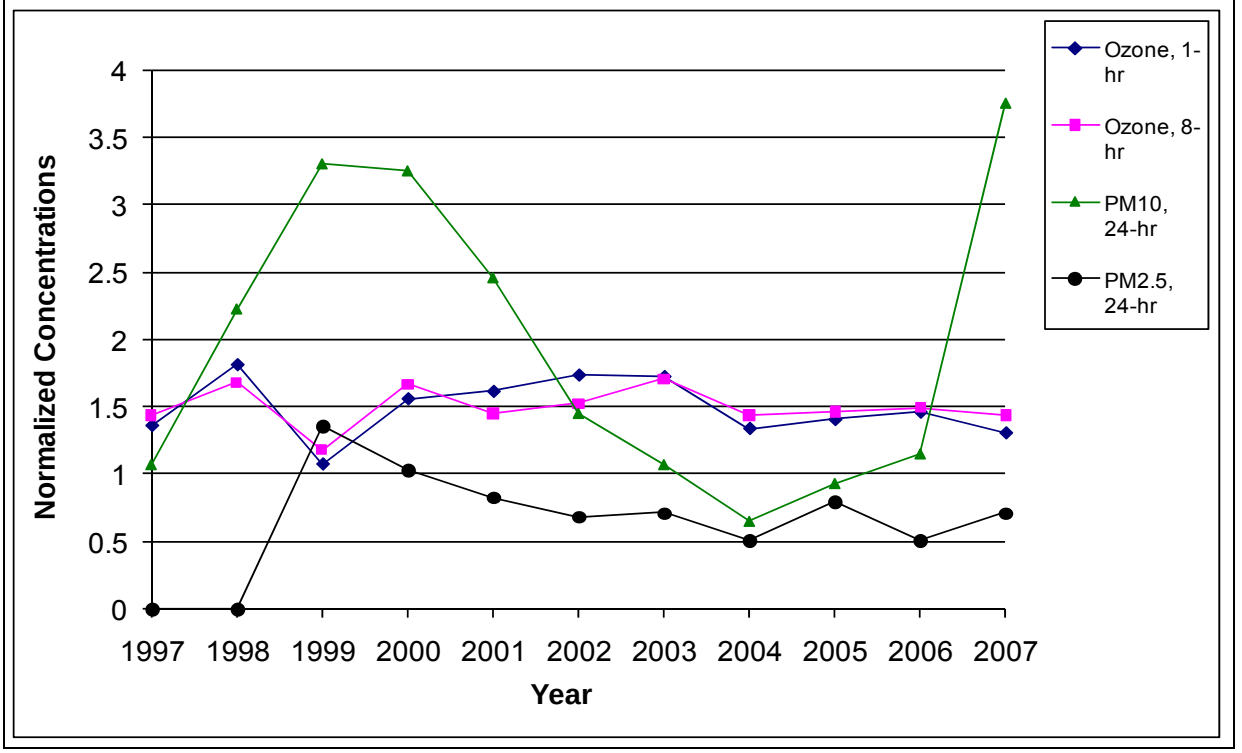
Exhibit 3.3-1. Normalized Maximum Short-term Historical Air Pollutant Concentrations in Mojave



Source: CARB 2006a, CARB 2008c.

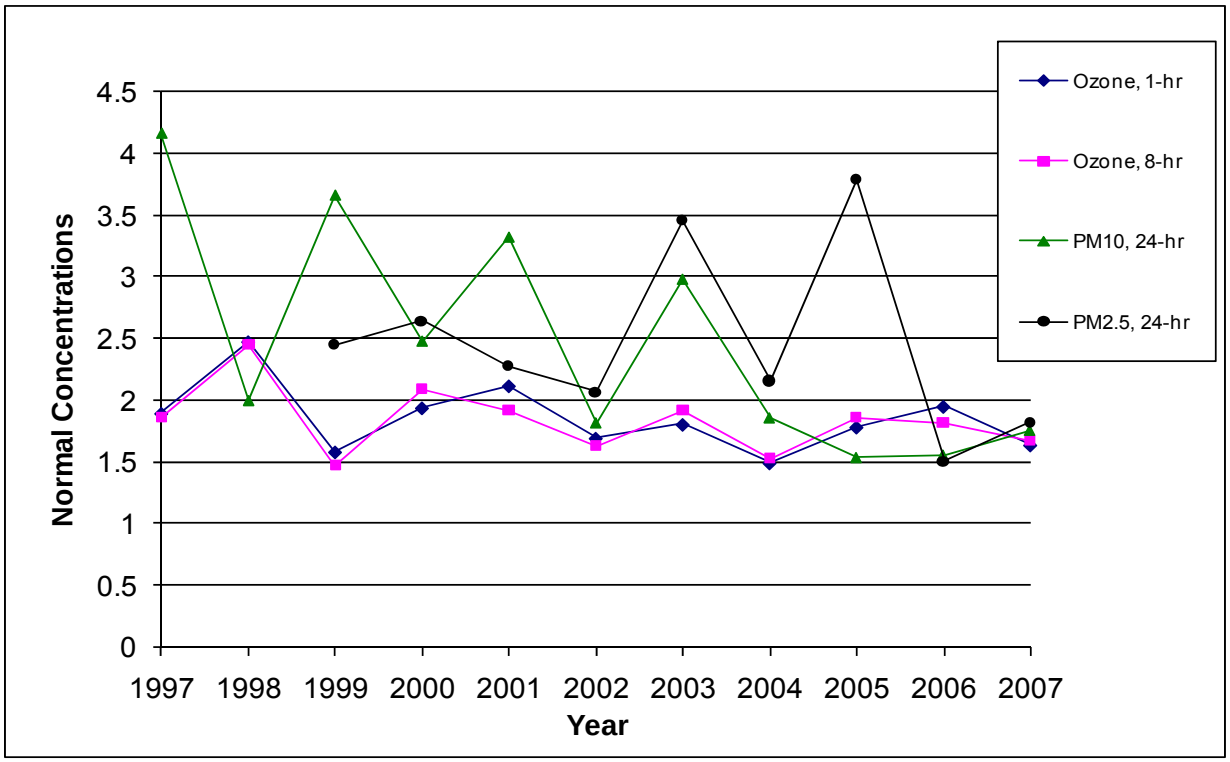
Note: A Normalized Concentration is the ratio of the highest measured concentration to the applicable most stringent air quality standard. For example, in 1990 the highest 1-hour average ozone concentration measured at Lancaster Pondera Street was 0.150 ppm. Since the most stringent ambient air quality standard is the State standard of 0.09 ppm, the 1990 normalized concentration is 0.150/0.09 = 1.67.

Exhibit 3.3-2. Normalized Maximum Short-term Historical Air Pollutant Concentrations in Lancaster



Source: CARB 2006a, CARB 2008c.

Exhibit 3.3-3. Normalized Maximum Short-term Historical Air Pollutant Concentrations in South Coast Air Basin



Source: CARB 2006a, CARB 2008c.

Table 3.3-6. Ozone Air Quality Summary 1997-2007

Year	Days Above NAAQS 1-Hr	Days Above CAAQS 1-Hr	Month of Max. 1-Hr Avg.	Max. 1-Hr Avg. (ppm)	Days Above NAAQS 8-Hr	Month of Max. 8-Hr Avg.	Max. 8-Hr Avg. (ppm)
	Mojave 923 - Poole Street						
1997	0	22	DEC	0.119	19	JUN	0.096
1998	2	43	JUL	0.134	40	JUL	0.117
1999	0	39	SEP	0.119	34	JUL	0.100
2000	0	25	JUL	0.113	15	JUL	0.095
2001	1	33	AUG	0.126	32	AUG	0.104
2002	0	18	JUL	0.115	26	JUL	0.102
2003	0	31	JUL	0.119	27	JUN	0.103
2004	0	8	SEP	0.121	3	JUN	0.090
2005	0	8	JUN	0.113	9	JUN	0.096
2006	0	10	JUN	0.109	8	JUN	0.101
2007	0	0	AUG	0.092	0	JUN	0.084
	Lancaster – W Pondera Street						
1997	0	14	JUN	0.123	7	JUN	0.101
1998	8	24	JUL	0.164	18	JUL	0.118
1999	0	1	JUN	0.097	0	JUN	0.083
2000	2	35	JUL	0.141	28	JUL	0.117
2001	3	37	JUL	0.146	24	AUG	0.102

Table 3.3-6. Ozone Air Quality Summary 1997-2007

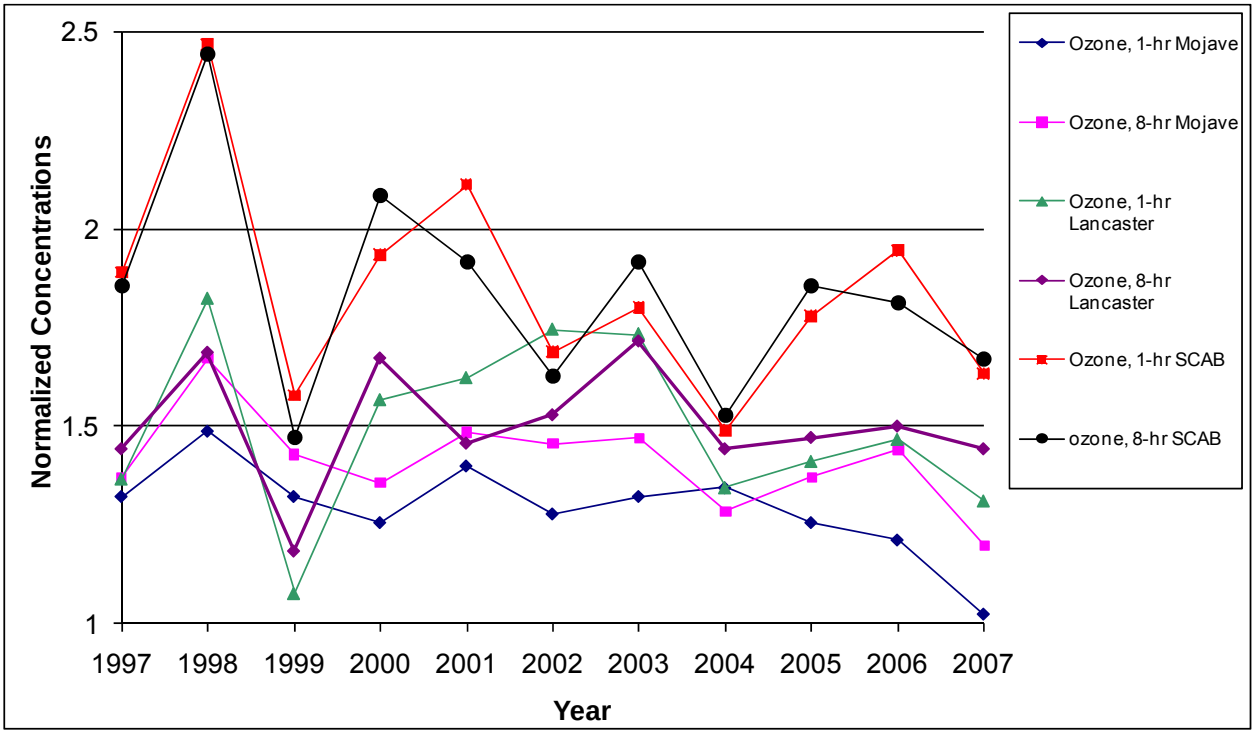
Year	Days Above NAAQS 1-Hr	Days Above CAAQS 1-Hr	Month of Max. 1-Hr Avg.	Max. 1-Hr Avg. (ppm)	Days Above NAAQS 8-Hr	Month of Max. 8-Hr Avg.	Max. 8-Hr Avg. (ppm)
Lancaster – 43301 Division Street							
2001	0	0	NOV	0.052	0	NOV	0.044
2002	5	46	JUL	0.157	38	AUG	0.107
2003	4	50	JUL	0.156	33	JUL	0.120
2004	0	37	JUN	0.121	24	JUN	0.101
2005	1	42	AUG	0.127	31	JUL	0.103
2006	2	22	JUL	0.132	16	JUN	0.105
2007	0	16	AUG	0.118	14	JUN	0.101
South Coast Air Basin – Glendora -Laurel							
1997	18	67	JUL	0.170	24	JUL	0.130
1998	28	61	JUL	0.222	37	JUL	0.171
1999	3	25	JUL	0.142	7	AUG	0.103
2000*	11	32	MAY	0.174	21	MAY	0.146
2001	13	61	AUG	0.190	28	JUN	0.134
2002	12	45	JUL	0.152	21	JUL	0.114
2003	22	61	SEP	0.162	40	JUL	0.134
2004*	2	28	JUN	0.134	16	JUN	0.107
2005	8	31	MAY	0.160	13	MAY	0.130
2006	11	37	JUL	0.175	15	JUL	0.127
2007	3	25	SEP	0.147	14	JUL	0.117

Source: CARB 2008c.
California Ambient Air Quality Standard (CAAQS): 1-hr, 0.09 ppm
National Ambient Air Quality Standard (NAAQS): 1-hr, 0.12 ppm; 8-hr, 0.08 ppm
* used Azusa monitoring station for highest 1-Hr. Avg. concentration within the Project area

Carbon Monoxide (CO)

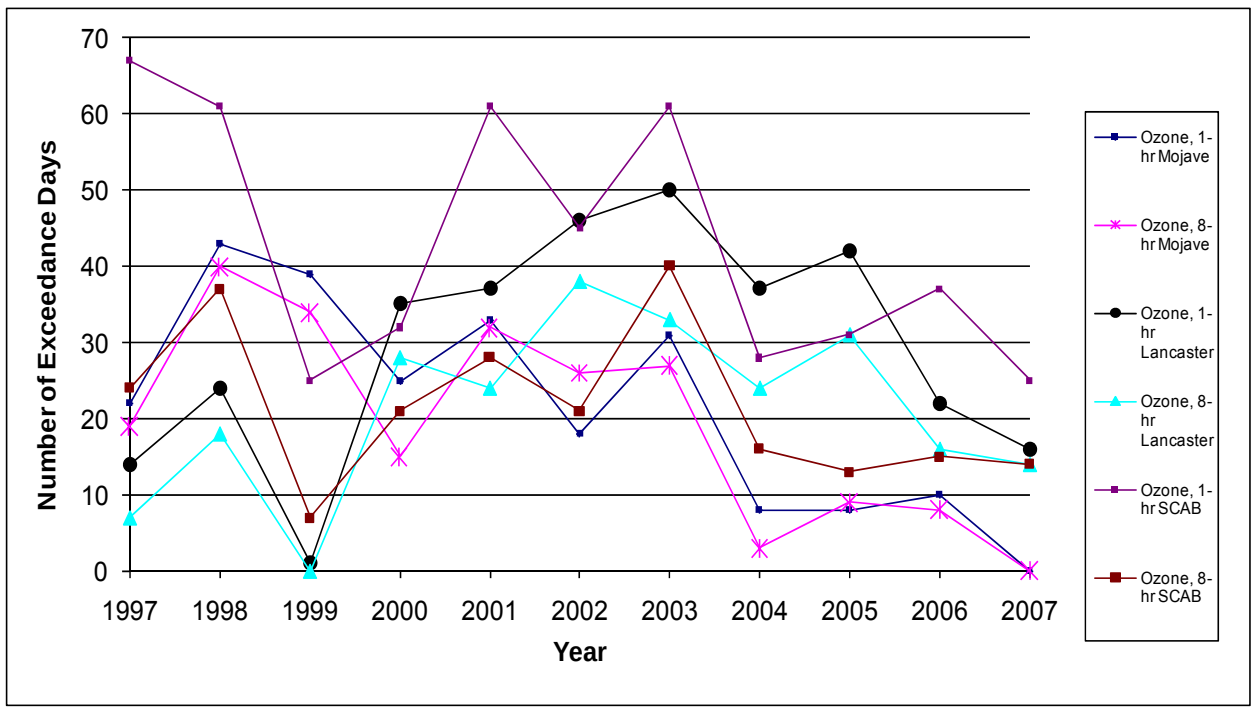
CO is generally found in high concentrations only near a significant source of emissions (i.e., freeway, busy intersection, etc.). The highest concentrations of CO occur when low wind speeds and a stable atmosphere trap the pollution emitted at or near ground level in what is known as the stable boundary layer. These conditions occur frequently in the wintertime late in the afternoon, persist during the night and may extend one or two hours after sunrise. Since mobile sources (motor vehicles) are the main cause of CO, ambient concentrations of CO are highly dependent on motor vehicle activity. In fact, the peak CO concentrations occur during the rush hour traffic in the morning and afternoon. Carbon monoxide concentrations in Los Angeles County and the rest of the State have declined significantly due to two Statewide programs: (1) the 1992 wintertime oxygenated gasoline program, and (2) Phases I and II of the reformulated gasoline program. Additionally, overall vehicle fleet turnover from higher-emitting older engines to lower-emitting new engines is a significant factor in the declining CO levels.

Exhibit 3.3-4. Normalized Ozone Air Quality Maximum Concentrations (1997-2007)



Source: CARB 2006a, CARB 2008c.
Note: A Normalized Concentration is the ratio of the highest measured concentration to the applicable most stringent air quality standard. The standard used for 1-hour ozone is the State standard of 0.09 ppm, and for 8-hr ozone is the national standard of 0.08 ppm.

Exhibit 3.3-5. Ozone – Number of Days Exceeding the CAAQS for 1-Hr and NAAQS for 8-Hr (1997-2007)



Source: CARB 2006a, CARB 2008c.

Table 3.3-7 summarizes the best representative ambient carbon monoxide data for the Project area collected over the past ten years from Lancaster and South Coast Air Basin monitoring stations. The table includes the maximum 1-hour and 8-hour concentrations.

Table 3.3-7. Carbon Monoxide Air Quality Summary 1997-2007

Year	Maximum 1-Hr Avg. (ppm)	Month of Max. 8-Hr Avg.	Maximum 8-Hr Avg. (ppm)
Lancaster – W Pondera Street			
1997	5.9	DEC	3.99
1998	5.4	DEC	3.59
1999	7.2	JAN	5.41
2000	6.0	DEC	4.34
2001	6.1	JAN	3.33
Lancaster – 43301 Division Street			
2001	2.6	DEC	1.70
2002	3.4	SEP	2.24
2003	3.2	DEC	1.88
2004	2.9	JAN	1.72
2005	2.9	DEC	1.54
2006	---	DEC	1.60
2007		JAN	1.25
South Coast Air Basin			
1997	9.2 +	NOV	6.10
1998	8.4 *	NOV	6.30
1999	10 -	JAN	6.46
2000	9.0 *	DEC	7.51
2001	6.6 *	JAN	5.10
2002	6.0 *	NOV	4.05
2003	5.8 -	OCT	4.38
2004	5.2 *	DEC	3.46
2005	4.3 *	JAN	2.83
2006	---	JAN	2.80
2007	--- *	NOV	2.28

Source: CARB 2006a, CARB 2008c.
California Ambient Air Quality Standard (CAAQS): 1-hr, 20; 8-hr, 9.0 ppm
National Ambient Air Quality Standard (NAAQS): 1-hr, 35 ppm; 8-hr, 9 ppm
* used Pasadena – S Wilson Avenue monitoring station
+ used Pica Rivera monitoring station
- used Pomona monitoring station

Much of the proposed Project site route area, or alternative route areas, would be expected to have lower CO levels than those presented in Table 3.3-7, as much of the route would be located in remote areas that would experience minimal or no nearby vehicle traffic, which is the major contributor to CO emissions. As indicated in the table, there have been no exceedances of CAAQS or NAAQS since at least 1997 for the 1-hour and the 8-hour CO standards in Lancaster or in the SoCAB monitoring stations most representation for the Project route. While the Antelope Valley and SoCAB are both designated attainment areas for carbon monoxide CAAQS and the Antelope Valley is still designated an attainment area for the NAAQS, the entire SoCAB is designated as a nonattainment area for the NAAQS.

Nitrogen Dioxide (NO_2)

The majority of the NOx emitted from combustion sources is in the form of NO, while the balance is mainly NO_2. NO is oxidized by O_2 (oxygen) in the atmosphere to NO_2 but some level of photochemical activity is needed for this conversion. This is why the highest concentrations of NO_2 generally occur during the fall and not in the winter, when atmospheric conditions favor the trapping of ground level releases of NO but lack significant radiation intensity (less sunlight) to oxidize NO to NO_2. In the summer, the conversion rates of NO to NO_2 are high, but the relatively high temperatures and windy conditions (atmospheric unstable conditions) disperse pollutants, preventing the accumulation of NO_2 to levels approaching the 1-hour ambient air quality standard. NO is also oxidized by O_3 to form NO_2. The formation of NO_2 in the summer with the help of the ozone occurs according to the following reaction:

$$NO + O_3 \rightarrow NO_2 + O_2$$

In urban areas, the ozone concentration level is typically high. That level will drop substantially at night as the above reaction takes place between ozone and NO. This reaction explains why, in urban areas, ozone concentrations at ground level drop, while aloft and in downwind rural areas (without sources of fresh NOx emissions) ozone concentrations can remain relatively high.

Table 3.3-8 summarizes the best representative ambient nitrogen dioxide data for the Project area collected over the past ten years from various monitoring stations. The table includes the maximum 1-hour and annual concentrations. As indicated in the table, there have been no exceedances of California Ambient Air Quality Standards or National Ambient Air Quality Standards since at least 1997 for the 1-hour and the annual NO_2 standards. The MDAB and the SoCAB are either unclassified or in attainment for nitrogen dioxide.

Table 3.3-8. Nitrogen Dioxide Air Quality Summary 1997-2007

Year	Month of Max. 1-Hr Avg.	Maximum 1-Hr Avg. (ppm)	Maximum Annual Avg. (ppm)
Mojave – 923 Poole Street			
1997	DEC	0.075	0.010
1998	AUG	0.082	0.011
1999	SEP	0.083	0.010
2000	FEB	0.071	0.010
2001	SEP	0.071	0.010
2002	NOV	0.071	0.009
2003	FEB	0.073	0.009
2004	OCT	0.064	0.008
2005	APR	0.044	---
2006	---	---	---
2007	---	---	---
Lancaster – W Pondera Street			
1997	OCT	0.071	0.014
1998	NOV	0.077	0.016
1999	NOV	0.083	0.018
2000	NOV	0.065	0.016
2001	OCT	0.075	---
Lancaster – 43301 Division Street			
2001	NOV	0.060	---
2002	JUN	0.101	0.016
2003	MAY	0.067	0.015
2004	AUG	0.103	0.015
2005	SEP	0.074	0.015

Table 3.3-8. Nitrogen Dioxide Air Quality Summary 1997-2007

Year	Month of Max. 1-Hr Avg.	Maximum 1-Hr Avg. (ppm)	Maximum Annual Avg. (ppm)
2006	JUN	0.066	0.015
2007	OCT	0.064	0.015
South Coast Air Basin			
1997 -	NOV	0.171	0.034
1998 -	NOV	0.166	0.035
1999 *	NOV	0.162	0.051
2000 -	DEC	0.173	0.029
2001 -	OCT	0.149	0.034
2002 -	FEB	0.154	0.033
2003 +	OCT	0.142	0.035
2004 +	OCT	0.124	0.031
2005 -	NOV	0.104	0.024
2006	NOV	0.120	0.025
2007	NOV	0.092	0.024

Source: CARB 2008c.
California Ambient Air Quality Standard (CAAQS): 1-hr, 0.25 ppm
National Ambient Air Quality Standard (NAAQS): Annual, 0.053 ppm
* used Pomona monitoring station
+ used Pico Rivera monitoring station
- used Pasadena-S Wilson Avenue station

Respirable Particulate Matter (PM10)

PM10 can be emitted directly or it can be formed many miles downwind from emission sources when various precursor pollutants interact in the atmosphere. Gaseous emissions of pollutants like NOx, SOx, VOC, and ammonia, given the right meteorological conditions, can form particulate matter in the form of nitrates (NO_3), sulfates (SO_4), and organic particles. These pollutants are known as secondary particulates, because they are not directly emitted, but are formed through complex chemical reactions in the atmosphere.

Table 3.3-9 summarizes the ambient particulate matter (PM10) data collected from various monitoring stations nearest the Project area. The table includes the maximum 24-hour and annual arithmetic average concentrations.

Table 3.3-9. Particulate Matter (PM10) Air Quality Summary 1997-2007

Year	Days * Above Daily NAAQS	Days * Above Daily CAAQS	Month of Max. Daily Avg.	Max. Daily Avg. ($\mu g/m^3$)	State Annual Arithmetic Mean ($\mu g/m^3$)
Mojave – 923 Poole Street					
1997	0	6.1	AUG	130	18.4
1998	0	0	APR	41	15
1999	0	0	SEP	45	17.7
2000	0	0	OCT	44	---
2001	0	0	JUN	43	18.2
2002	7	6.6	OCT	208	21.4
2003	0	12.1	FEB	97	19.3
2004	0	0	SEP	41	18.3
2005	0	0	SEP	42	---
2006	0	13.1	SEP	65	19.5
2007	0	18	APR	73	---

Table 3.3-9. Particulate Matter (PM10) Air Quality Summary 1997-2007

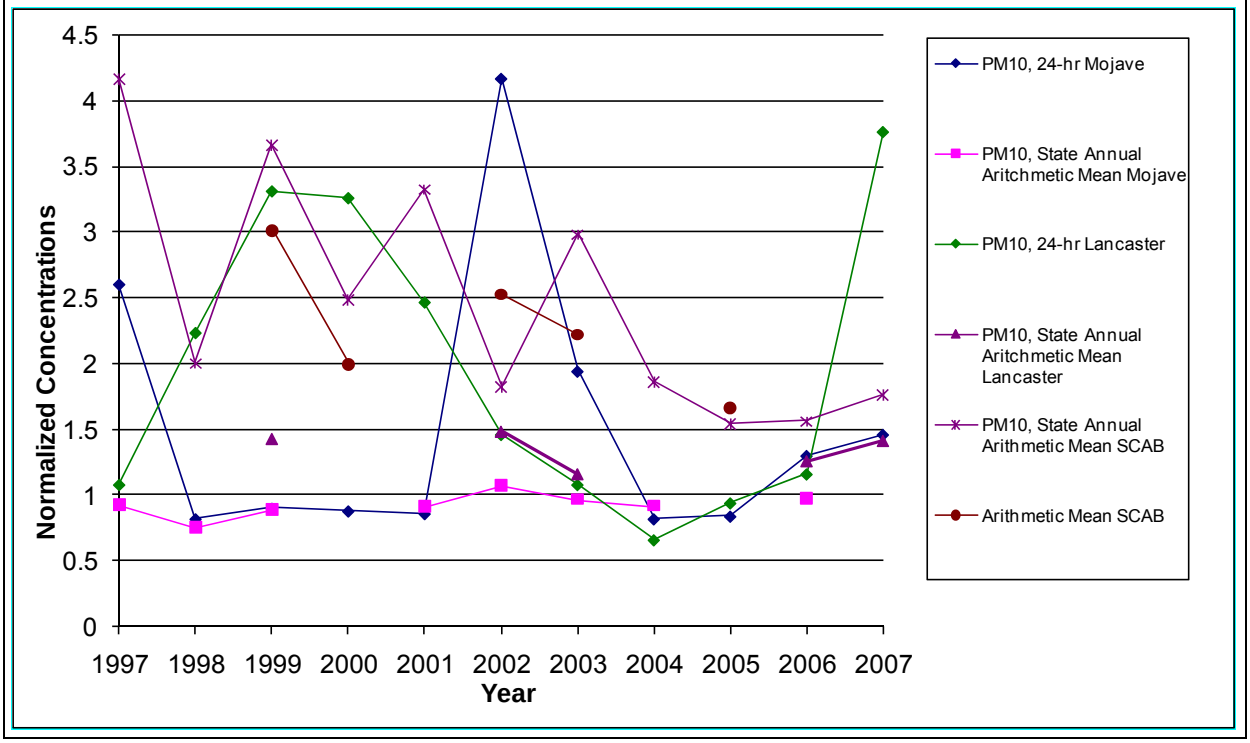
Year	Days * Above Daily NAAQS	Days * Above Daily CAAQS	Month of Max. Daily Avg.	Max. Daily Avg. (μg/m3)	State Annual Arithmetic Mean (μg/m3)
Lancaster – W Pondera Street					
1997	0	12	FEB	54	---
1998	0	12	DEC	111.7	---
1999	0	12.6	DEC	165.5	28.6
2000	---	---	MAR	162.9	---
2001	---	---	MAY	123.3	---
Lancaster – 43301 Division Street					
2001	---	---	NOV	---	---
2002	0	6.1	SEP	73	29.7
2003	0	6.1	JUL	54	23.2
2004	0	0	JUL	33	---
2005	0	0	APR	47	---
2006	0	25.7	SEP	58	25.2
2007	0	18.3	APR	188	28.3
South Coast Air Basin					
1997 +	6	126	OCT	208	---
1998 -	0	12	DEC	100	---
1999 -	6	222	MAY	183	---
2000 -	0	156	NOV	124	---
2001 -	6	154	JAN	166	52.4
2002 -	0	138	SEP	91	---
2003 -	0	90	OCT	149	41.3
2004 -	0	84	MAR	93	---
2005 -	0	109	NOV	77	39.5
2006 -	0	82	FEB	78	40.9
2007 -	6	75	NOV	88	45.7

Source: CARB 2008c.
California Ambient Air Quality Standard (CAAQS): 24-hr, 50 μg/m3; annual arithmetic, 20 μg/m3
National Ambient Air Quality Standard (NAAQS): 24-hr, 150 μg/m3; annual arithmetic, 50 μg/m3
* Days above the State and national standard (calculated): Because PM10 is monitored approximately once every six days, the potential number of exceedance days is calculated by multiplying the actual number of days of exceedance by six.
+ used Ontario- Airport monitoring station (due to the insufficient (or no) data available to determine the value)
- used Ontario- 1408 Francis Street monitoring station

As shown in Table 3.3-9, the Project area experiences exceedances of the State and 24-hour PM10 standards and the State annual arithmetic mean PM10 standards. The western MDAB is unclassified for the federal PM10 standard and in nonattainment of the State PM10 standard, whereas the SoCAB is in serious nonattainment for the federal PM10 standard and in nonattainment of the State PM10 standard.

The year 1997 to 2007 trends for the maximum 24-hour PM10 and State annual arithmetic mean PM10, referenced to the most stringent standard, and the number of days exceeding the California 24-hour PM10 standard for the Lancaster West Pondera Street (1997-2001), and Lancaster Division Street (2002-2004) monitoring stations are shown in Exhibits 3.3-6 and 3.3-7, respectively.

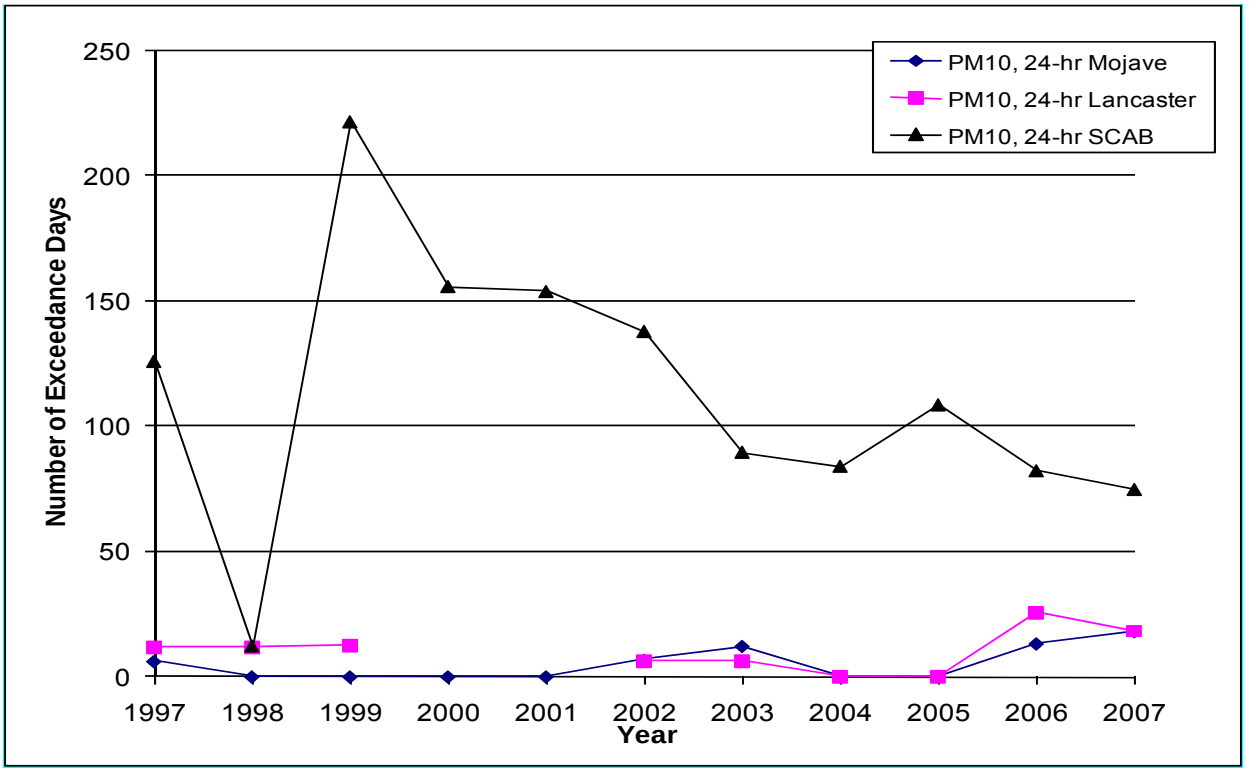
Exhibit 3.3-6. Normalized PM10 Air Quality Maximum Concentrations (1997-2007)



Source: CARB 2006a, CARB 2008c.

a. A Normalized Concentration is the ratio of the highest measured concentration to the applicable most stringent air quality standard. The standard used for 24-hour PM10 is the State standard of 50 μg/m^3, and for State annual arithmetic mean PM10 is the State standard of 20 μg/m^3.

Exhibit 3.3-7. PM10 24-Hour – Number of Days Exceeding the CAAQS (1997-2007)



Source: CARB 2006a, CARB 2008c.

Fine Particulate Matter (PM2.5)

Table 3.3-10 summarizes the ambient fine particulate matter data collected over the past eight years from Mojave, Azusa, and Lancaster monitoring stations located near the Project area.

Table 3.3-10 Fine Particulate Matter (PM2.5) Air Quality Summary 1999-2007

Year	Month of Max. Daily Avg.	Max. Daily Avg. ($\mu g/m^3$)	98th Percentile of Max. Daily Avg. ($\mu g/m^3$)	Days Above 98th Percentile Daily NAAQS	3-Yr. Avg. 98th Percentile of Max. Daily Avg. ($\mu g/m^3$)	National Annual Avg. ($\mu g/m^3$)	3-Yr. Avg. of National Annual Avg. ($\mu g/m^3$)
Mojave – 923 Poole Street							
1999	FEB	27.6	---	0	---	---	---
2000	DEC	28.7	---	0	---	---	---
2001	MAY	15.3	13.9	0	---	6.1	---
2002	OCT	31.4	---	0	---	---	---
2003	NOV	23.2	---	0	---	---	---
2004	JUN	17.8	---	0	---	---	---
2005	JUL	18.1	---	0	---	---	---
2006	SEP	21.3	---	0	---	---	---
2007	DEC	21.1	19.9	0	---	6.2	---
Lancaster – W Pondera Street							
1999	JUL	47.6	23.5	0	---	11.2	---
2000	DEC	36	21.0	0	---	10.5	---
2001	JAN	35	---	0	---	---	---
Lancaster – 43301 Division Street							
2001	DEC	47.6	---	0	---	---	---
2002	OCT	36	20.0	0	---	10.4	---
2003	MAR	35	17.0	0	---	9.4	---
2004	JUL	47.6	15.0	0	17	8.5	9
2005	FEB	36	16	0	16	8.9	8
2006	SEP	35	13	0	15	7.4	8
South Coast Air Basin							
1999+	JAN	85.8	85.6	2	---	25.4	---
2000*	OCT	92.5	61.6	5	---	20.2	---
2001*	NOV	79.7	61.4	4	---	21.7	---
2002*	OCT	72.4	52.6	1	59	20.7	20
2003*	JUL	121.2	---	3	---	19.3	20
2004*	JUL	75.6	---	1	---	18.3	19
2005*	JUL	132.6	---	1	---	17	18
2006*	NOV	52.7	---	0	---	15.4	16
2007*	NOV	63.8	---	0	---	15.7	16

Source: CARB 2008c.
National Ambient Air Quality Standard: 3-Year Average - 98th Percentile of 24-Hr Avg. Conc., 65 $\mu g/m^3$.
3-Year Average of Annual Arithmetic Mean (National Annual Average), 15 $\mu g/m^3$; 3-Year Average of Annual Arithmetic Mean (State Annual Average), 12$\mu g/m^3$
+ used Ontario-1408 Francis Street monitoring station
* used Azusa monitoring station

As shown in Table 3.3-10, the 98th percentile 24-hour average PM2.5 concentration levels exceed the NAAQS of 65 $\mu g/m^3$ and exceed the federal and state annual averages of 15 $\mu g/m^3$ and 12 $\mu g/m^3$, respectively the SoCAB is designated nonattainment for the federal and State PM2.5 standards.

Sulfur Dioxide (SO_2)

Sulfur dioxide is typically emitted as a result of the combustion of a fuel containing sulfur. Fuels such as natural gas contain very little sulfur and consequently have very low SO_2 emissions when combusted. By contrast, fuels high in sulfur content such as coal or heavy fuel oils can emit very large amounts of SO_2 when combusted. Sources of SO_2 emissions come from every economic sector and include a wide variety of fuels, gaseous, liquid and solid.

The MDAB and the SoCAB are designated attainment or unclassified for all SO_2 State and federal ambient air quality standards. The closest currently operating SO_2 monitoring stations to the Project area is in Trona Athol & Telegraph and Riverside Rubidoux, which have shown no exceedances of CAAQS or NAAQS between 1997 and 2007.

Due to the restrictions for the use of high sulfur fuels, reduction in gasoline and diesel sulfur contents and reduction in SOx emissions from other industrial sources, such as refineries, SOx pollution is no longer a major air quality concern in most of California including the Project area.

Table 3.3-11. Sulfur Dioxide Air Quality Summary 1997-2007

Year	Month of Max. 1-Hr Avg.	Maximum 1-Hr Avg. (ppm)	Maximum Annual Avg. (ppm)
Trona – Athol & Telegraph			
1997	NOV	0.005	0.001
1998	MAR	0.010	0.001
1999	NOV	0.006	0.002
2000	OCT	0.006	0.001
2001	AUG	0.007	0.001
2002	SEP	0.007	0.001
2003	APR	0.003	0.001
2004	MAR	0.005	0.001
2005	NOV	0.004	0.001
2006	APR	0.004	0.001
2007	JUN	0.005	0.001
Riverside – Rubidoux			
1997	NOV	0.005	0.001
1998	NOV	0.009	0.001
1999	FEB	0.012	0.002
2000	MAR	0.038	0.001
2001	AUG	0.009	0.001
2002	FEB	0.003	---
2003	JUL	0.012	0.002
2004	JUN	0.015	0.003
2005	SEP	0.011	0.003
2006	NOV	0.003	0.001
2007	MAR	0.004	0.002

Source: CARB 2008c.
California Ambient Air Quality Standard (CAAQS): 1-hr, 0.25 ppm
National Ambient Air Quality Standard (NAAQS): Annual, 0.053 ppm

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill and the chronically ill, especially those with cardio-respiratory diseases.

Residential areas are also considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

A land use survey was conducted to identify sensitive receptors (e.g., local residences, schools, hospitals, churches, recreational facilities) in the general vicinity of the proposed Project alignment. In the Kern County and Antelope Valley Project segments, and through Angeles National Forest, the transmission lines would travel through generally undeveloped areas where only a few rural residences have been identified. However, south of where the transmission line would exit Angeles National Forest the Project segments travel through populated areas in Los Angeles and San Bernardino County where residences and other sensitive receptors will be located near or adjacent the construction route/construction sites. Additional information about specific sensitive receptors that may be impacted by the proposed Project will be provided with the evaluation of impacts for each of the Project alternatives.

Greenhouse Gases

Greenhouse gases (GHG) that contribute to global climate change are carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). In response to Executive Order S-3-05 (June 2005), which declared California's particular vulnerability to climate change, the California Global Warming Solutions Act of 2006, Assembly Bill 32 (AB32), was signed into effect on September 27, 2006. In passing the bill, the California Legislature found that

> *"Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems"* (California Health & Safety Code, Sec. 38500, Division 25.5, Part 1).

Emissions of CO_2 occur largely from combustion of fossil fuels. The major categories of fossil fuel combustion CO_2 sources can be broken into sectors for residential, commercial, industrial, transportation, and electricity generation. The transportation sector includes all motor gasoline and diesel fuel combustion, and the GHG emissions of this sector are not split into activities or uses (i.e., there is no separate estimate for the level of GHG emissions caused by gasoline or diesel fuel combustion related to statewide construction activities). Other GHG emissions such as methane (CH_4) and nitrous oxide (N_2O) are also tracked by State inventories but occur in much smaller quantities. The global warming potential of methane is about 21 times that of CO_2. When quantifying GHG emissions, the different global warming

potentials of GHG pollutants are usually taken into account by normalizing their rates to an equivalent CO_2 emission rate (CO_2 Eq.).

California's greenhouse gas emissions are large in a world-scale context and growing over time (CEC, 2007). The State is responsible for approximately 500 million metric tons of CO_2 equivalent ($MMTCO_2$ Eq.) or more than one percent of the 49,000 $MMTCO_2$ Eq. emitted globally (IPCC, 2007). Electricity generation within California is responsible for about 50 million metric tons of CO_2 (depending on yearly variations) or 15 percent of the total statewide CO_2 emissions and about one percent of statewide methane emissions. Electricity generation in other states delivered to California over high-voltage transmission lines also causes a substantial quantity of GHG emissions, about 10 percent more than the amount from in-state electricity generation. The use of sulfur hexafluoride (SF_6) in power transformers and circuit breakers at power plants and along transmission lines also poses a concern, because this pollutant can slowly escape from the equipment, and it has an extremely high global warming potential (one ton of SF_6 is equivalent to approximately 23,900 tons of CO_2).

Statewide emissions of greenhouse gases from relevant source categories in 1990 and later years are summarized in Table 3.3-12.

Table 3.3-12. California Greenhouse Gas Emissions (million metric tons CO_2 Eq.)

Emission Inventory Category	1990		2000	2001	2002	2003	2004	2005
Residential Fuel Combustion (CO_2)	28.97		30.25	27.21	27.32	26.40	27.86	---
Commercial Fuel Combustion (CO_2)	12.65		15.63	12.04	17.84	15.06	12.1	---
Industrial Fuel Combustion (CO_2)	66.12		76.17	80.48	71.53	65.47	67.1	---
Transportation Fuel Combustion (CO_2)	161.08		181.68	182.49	190.19	180.64	187.95	---
Electricity Generation, In-State (CO_2)	43.36		55.87	61.35	47.78	45.92	55.10	49.0
Elec. Generation Subtotal, Natural Gas (CO_2)	36.42		49.71	55.48	41.98	40.56	48.94	43.0
Elec. Generation Subtotal, Coal (CO_2)	2.33		2.26	2.13	2.39	2.17	2.58	2.2
Elec. Generation Subtotal, Petroleum (CO_2)	4.61		3.90	3.74	3.41	3.20	3.59	3.7
Methane (all CH_4 shown as CO_2 Eq.)	25.82		26.32	26.62	27.07	27.49	27.80	---
Nitrous Oxide (all N_2O shown as CO_2 Eq.)	32.75		31.43	30.76	34.48	33.85	33.34	---
Electricity Transmission and Distribution (SF_6 shown as CO_2 Eq.)	2.32		1.14	1.10	1.04	1.01	1.02	---
Total California Greenhouse Gas Emissions without Electricity Imports	389.97		440.47	446.35	444.86	423.20	439.19	---
Electricity Imports (CO_2 Eq.)	43.31		40.48	47.37	51.73	56.44	60.81	---
Total California Greenhouse Gas Emissions with Electricity Imports	433.28		480.94	493.72	496.59	479.64	500.00	---

Source: California Energy Commission, 2007. (Totals include source categories not shown. Data reflect changes in memo from CEC to CARB dated January 23, 2007.)

The proposed Project would serve both existing and future renewable power, primarily wind power, sources in the western high desert. This will allow a reduction in the use of other power generation facilities including fossil fueled fired power plants within the SoCAB or elsewhere allowing a reduction in GHG emissions from electricity generation.

3.3.3 Applicable Laws, Regulations, and Standards

The proposed Project includes construction but does not include any stationary emission sources, so there are very few direct air quality regulations that specifically regulate the Project's air quality emission sources. The regulations that do apply, such as fugitive dust regulations, tend to be general and allow multiple means of achieving compliance. A description of the specific and general regulations that apply to the Project is provided below.

3.3.3.1 Federal

The United States Environmental Protection Agency (USEPA) has issued a number of National Ambient Air Quality Standards (NAAQS). Pollutants regulated under these standards include ozone, nitrogen dioxide (NO_2), carbon monoxide (CO), respirable particulate matter (PM10), fine particulate matter (PM2.5), and sulfur dioxide (SO_2). Additional information regarding the NAAQS that are relevant to the Project is provided in Section 3.3.2.1. The South Coast Air Quality Management District (SCAQMD) and the California Air Resources Board (CARB) are the responsible agencies for providing attainment plans and meeting attainment with these standards; and the USEPA reviews and approves these plans and regulations that are designed to attain and maintain attainment with the NAAQS.

USEPA has a number of other regulations under the authority of the federal Clean Air Act (such as New Source Review (NSR), Prevention of Significant Deterioration (PSD), Title V permitting program, etc.); however, none of these regulations apply to this Project because the Project would have no operating stationary emission sources. Therefore, a PSD air quality impact analysis of the proposed Project's impacts to the nearest mandatory Class I area is not required.

The USEPA does have on-road and off-road engine emission reduction programs that indirectly affect the Project's emissions through the phasing in of cleaner on-road and off-road equipment engines.

The USDA Forest Service regulates the portion of the Project's route that goes through the Angeles National Forest (ANF) and the Forest Service has prepared a Land Management Plan (Forest Plan) for the ANF (USDA Forest Service, 2005). The Angeles National Forest Plan Strategy does not include any air quality strategies that would be significantly impacted by the construction or operation of the proposed Project. The Angeles National Forest air quality strategies are limited to the following:

- AIR 1: Minimize Smoke and Dust
- AIR 2: Forest Air Quality Emissions

The Angeles National Forest strategy AIR 1 is very general and is directed to "Control and reduce fugitive dust to protect human health, improve safety and moderate or eliminate environmental impacts." The only action item of this of this strategy is to "Incorporate visibility requirements into project plans." The Angeles National Forest air quality strategy AIR 2 relates to providing an air quality inventory for prescribed burns and wildfires and therefore does not directly relate to the proposed Project's construction and operation emissions.

Per Section 176(c) of the Clean Air Act Amendments (CAAA) of 1990, the Forest Service must make a determination of whether the proposed Project (i.e., Proposed Action) and Project alternatives "conforms" with the State Implementation Plan (SIP). However, if the total direct and indirect emissions from the proposed Project and Project alternatives are below the General Conformity Rule applicability emission trigger levels, the proposed Project would be exempt from performing a comprehensive Air Quality Conformity Analysis and Determination, and would be considered to be in conformity with the

SIP. If an Air Quality Conformity Analysis and Determination is necessary it must be certified prior to the Project's Record of Decision (ROD).

3.3.3.2 State

CARB has issued a number of California Ambient Air Quality Standards (CAAQS). These standards include pollutants not covered under the NAAQS and also require more stringent standards than provided under the NAAQS. Pollutants regulated under these standards include ozone, nitrogen dioxide (NO_2), carbon monoxide (CO), respirable particulate matter (PM10), fine particulate matter (PM2.5), sulfur dioxide (SO_2), lead, sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. Additional information regarding the CAAQS that are relevant to the Project is provided Section 3.3.2.1.

CARB, like USEPA, also has on-road and off-road engine emission reduction programs that indirectly affect the Project's emissions through the phasing in of cleaner on-road and off-road equipment engines. Additionally, CARB has a Portable Equipment Registration Program that allows owners or operators of portable engines and associated equipment to register their units under a Statewide portable program to operate their equipment, which must meet specified program emission requirements, throughout California without having to obtain individual permits from local air districts.

The State recently enacted a new regulation for the reduction of diesel particulate matter (DPM) and criteria pollutant emissions from in-use off-road diesel-fueled vehicles (CCR Title 13, Article 4.8, Chapter 9, Section 2449). This regulation provides target emission rates for particulate matter and NOx emissions from owners of fleets of diesel-fueled off-road vehicles. This regulation applies to equipment fleets of three specific sizes and the target emission rates are reduced over time. This regulation would begin implementation prior to the end of Project construction.

3.3.3.3 Local

The proposed Project is routed through three separate local jurisdictions, the KCAPCD, the AVAQMD, and the SCAQMD. The local jurisdictions are responsible for planning, implementing, and enforcing federal and State ambient standards within their jurisdictions. The regulations of these agencies are focused on stationary sources; therefore, most of the local agency regulations are not relevant to this Project. However, portable engines used during construction that are larger than 50 hp and that are not registered under the CARB Portable Equipment Registration Program would need to be obtain permits from the local jurisdictions.

All three agencies have visible emissions, nuisance, and fugitive dust regulations with which the Project's construction will need to comply. The specific regulations are as follows:

- AVAQMD Rule 401 – Visible Emissions
- AVAQMD Rule 402 – Nuisance
- AVAQMD Rule 403 – Fugitive Dust
- KCAPCD Rule 401 – Visible Emissions
- KCAPCD Rule 402 – Fugitive Dust
- KCAPCD Rule 419 – Nuisance
- SCAQMD Rule 401 – Visible Emissions
- SCAQMD Rule 402 – Nuisance
- SCAQMD Rule 403 – Fugitive Dust

These rules limit the visible dust emissions from the Project construction sites, prohibit emissions that can cause a public nuisance, and require the prevention and reduction of fugitive dust emissions. One or more measures are required by the Fugitive Dust rules reduce fugitive dust emissions from specific dust causing activities. These measures may include, adding freeboard to haul vehicles, covering loose material on haul

vehicles, watering, using chemical stabilizers and/or ceasing all activities (such as during periods of high winds).

SCAQMD has also recently enacted Rule 2446 that implements portions of Title 13, Article 4.8, Chapter 9, Section 2449.3 of the California Code of Regulations (CCR)[1]. This rule does not apply directly to the Project but could impact construction contractor off-road vehicle fleets.

Climate Change Policies and Regulations

California Global Warming Solutions Act of 2006 (AB32). This law requires CARB to adopt a statewide greenhouse gas emissions limit equivalent to the statewide GHG emissions levels in 1990 to be achieved by 2020. To achieve this, CARB has a mandate to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions.

CARB announced early action GHG reduction measures in June 2007 and is expected to establish a state-wide emissions cap for 2020 by January 2008. Also by January 2008, CARB is scheduled to adopt regulations requiring mandatory GHG emissions reporting. The remainder of the timeline for implementation would have CARB adopting a plan by January 1, 2009 that would indicate how emission reductions will be achieved from significant sources of GHGs via regulations, market mechanisms, and other actions. Then, during 2009, ARB staff would draft rule language to implement its plan and hold public workshops on each measure including market mechanisms (CARB, 2006b).

Strategies that the State should pursue for managing GHG emissions in California are identified in the California Climate Action Team's Report to the Governor (CalEPA, 2006). Many focus on generally reducing consumption of petroleum across all areas of the California economy. Improvements in transportation energy efficiency (fuel economy) and alternatives to petroleum-based fuels are slated to provide substantial reductions by 2020 (CalEPA, 2006). Initially, three "discrete" early action measures to reduce GHG emissions between 13 and 26 $MMTCO_2$ Eq. annually by 2020 are being pursued: the Low Carbon Fuel Standard; reduction of refrigerant losses from motor vehicle air conditioning maintenance; and increased methane capture from landfills (CARB, 2007). In early 2008, the CPUC and California Energy Commission found that a cap-and-trade program would enable CARB to cost-effectively reduce GHG emissions from the electricity sector, but allowances and offset programs for carbon trading in California are still in the developmental phase (CPUC Rulemaking R. 06-04-009).

CPUC GHG Emissions Performance Standard. The Electricity GHG Emission Standards Act (SB1368) was enacted in 2006, and at its January 25, 2007 meeting, the CPUC adopted GHG requirements in the form of an Emissions Performance Standard for any long-term power commitments made by the State's electrical utilities. Utilities are not allowed to enter into a long-term commitment to buy base load power from power plants that have CO_2 emissions greater than 1,100 pounds (0.5 metric tons) per megawatt-hour (MWh), which is roughly the amount emitted by a combined cycle turbine fueled with natural gas. The GHG Emissions Performance Standard applies to new power plants, new investments in existing power plants, and new or renewed contracts with terms of five years or more, including contracts with power plants located outside of California.[2] On May 23, 2007, the CEC also adopted a performance standard consistent with that adopted by the CPUC.[3]

[1] See discussion of this CCR above in the State regulation discussion.
[2] See Rule at http://www.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/64072.htm
[3] See CEC Docket # 06-OIR-1, http://www.energy.ca.gov/ghgstandards/index.html.

IPCC Key Mitigation Technologies and Practices for Energy Supply. In the absence of explicit State or federal GHG requirements at this time, international literature also provides policy direction. The Intergovernmental Panel on Climate Change (IPCC) provides a broad overview of climate change mitigation strategies that are available to policy-makers and decision-makers. The following strategies are identified by IPCC for decisions related to energy supply (IPCC, 2007).

- **Key mitigation technologies and practices currently commercially available.** Improved energy supply and distribution efficiency; fuel switching from coal to gas; nuclear power; renewable heat and power (hydropower, solar, wind, geothermal, and bioenergy); combined heat and power; early applications of Carbon Capture and Storage (e.g., storage of removed CO2 from natural gas).
- **Key mitigation technologies and practices projected to be commercialized before 2030.** Carbon capture and storage for gas, biomass and coal-fired electricity generating facilities; advanced nuclear power; advanced renewable energy, including tidal and waves energy, concentrating solar, and solar photovoltaic.

Local Climate Change Plans. There are many jurisdictions (city and county) within California that have adopted climate change plans (OPR 2008). This Project is not known to traverse any of the jurisdictions that have adopted climate changes plans; however the City of Pasadena and the Los Angeles County have passed Green Building Programs. These two green building programs do not appear to have provisions that would apply to transmission line construction or substation upgrades.

3.3.4 Impact Analysis Approach

3.3.4.1 Criteria for Determining Impact Significance

The air quality significance criteria were developed considering the CEQA significance criteria developed by the local air quality districts in the Project area, approved CEQA air quality checklists, and considering other federal criteria. NEPA regulations do not provide specific air quality significance criteria, and the local air quality district CEQA significance criteria is more stringent than the air quality significance criteria generally used in EIS documents (such as the PSD 250 ton/year emission thresholds).

Regional Air Quality Significance Criteria

CEQA allows for the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. The SCAQMD, AVAQMD, and KCAPCD have established regional thresholds of significance for construction activities and for project operations as shown below in Table 3.3-13. As a conservative approach, the most stringent of these standards would apply to the proposed Project.

Table 3.3-13. Air Quality Regional Thresholds

Criteria Pollutant	Antelope Valley AQMD		South Coast AQMD		Kern County APCD	
	Construction or Operation		Construction	Operation	Construction or Operation	
	tons/year [1]	lbs/day	lbs/day	lbs/day	Tons/year	lbs/day
Carbon Monoxide (CO)	100	548	550	550	---	---
Oxides of Nitrogen (NOx)	25	137	100	55	25	137 [2]
Particulate Matter (PM10)	15	82	150	150	15	--
Fine Particulate Matter (PM2.5)	---	---	55	55	---	---
Oxides of Sulfur (SOx)	25	137	150	150	27	--
Volatile Organic Compounds (VOC)	25	137	75	55	25	137 [2]

1 – The annual limit is no more restrictive than the daily limit (annual limit is 365 times the daily limit), so the daily limit will be used for impact determination within the AVAQMD jurisdiction.
2 – Indirect vehicle trip emissions only. The Project does not create indirect trip generation, such as a housing project, so the Project does not have the potential to create significant impacts for this KCAPCD significance criteria.
Source: SCAQMD 2008, AVAQMD 2005, and KCAPCD 1999.

Localized Air Quality Significance Criteria

In addition to the thresholds provided in Table 3.3-14, the SCAQMD provides additional localized significance thresholds (LSTs) for toxic air contaminants (TACs), odors, and ambient air quality (see Table 3.3-14).

Table 3.3-14. Localized Significant Thresholds for the South Coast AQMD

Criteria Pollutant	Toxic Air Contaminants (TACs) and Odor Thresholds
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Hazard Index ≥ 1.0 (project increment)
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402
	Ambient Air Quality for Criteria Pollutants [a]
NO2 1-Hour Average Annual Average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (State) 0.03 ppm (federal)
PM10 - 24-Hour Average	10.4 μg/m^3 (recommended for construction) [b] 2.5 μg/m^3 (operation)
PM2.5 - 24-Hour Average	10.4 μg/m^3 (recommended for construction) [b] 2.5 μg/m^3 (operation)
CO 1-Hour Average 8-Hour Average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (State) 9.0 ppm (State/federal)

Source: SCAQMD 2008.
Notes: lbs/day = pounds per day; ppm = parts per million; ug/m^3 = micrograms per cubic meter; ≥ greater than or equal to
a. Ambient air quality threshold for criteria pollutants based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.
b. Ambient air quality threshold based on SCAQMD Rule 403.

Specific onsite emission thresholds have been developed for assessment of the LSTs within the SCAQMD jurisdiction. These thresholds are determined by Sensitive Receptor Areas (SRAs), for this Project, within the South Coast Air Basin portion of SCAQMD's jurisdiction. The proposed Project and Project alternative construction covers seven separate SRAs (8, 9, 10, 11, 15, and 33). The specific construction emission thresholds, based on the distance to sensitive receptors for these six SRAs are listed in Table 3.3-15.

The LST thresholds for CO are too high (minimum value of 535 lbs/day) to be exceeded for any given single construction site, so there is no potential for localized CO impacts from the Project construction.

The normal operating emissions will be comprised of inspection and maintenance activities that will not have significant emissions in any one location to create a localized impact. Therefore, only construction emissions are evaluated with respect to the SCAQMD LSTs.

Note that ozone and PM2.5 are not included in Tables 3.3-13, 3.3-14, and 3.3-15. Ozone is not directly emitted from stationary or mobile sources; rather it is formed as the result of chemical reactions in the atmosphere between directly emitted air pollutants, specifically oxides of nitrogen (NOx) and hydrocarbons (VOCs). Therefore, it cannot be directly regulated, like its precursors, NOx and VOCs. PM2.5 is not always included in the agency significance criteria as it is currently in the beginning stages of becoming regulated, and as such, thresholds have not yet been developed.

Table 3.3-15. Applicable SCAQMD LST Emission Thresholds (lbs/day)

SRA #	Pollutant											
	NOx			CO			PM10			PM2.5		
	Site Acres			Site Acres			Site Acres			Site Acres		
	1	2	5	1	2	5	1	2	5	1	2	5
25 meters to receptor												
8	69	98	148	535	812	1540	4	6	12	3	4	7
9	89	128	203	727	1112	2022	5	7	14	3	5	8
10	118	170	270	576	833	1475	4	6	12	3	4	7
11	83	121	183	673	1031	1814	5	7	14	4	5	9
15	106	152	228	590	877	1644	4	6	12	3	4	6
16	103	147	221	496	724	1246	4	6	11	3	4	6
33	118	170	270	863	1232	2193	5	6	16	4	5	9
50 meters to receptor												
8	69	95	141	783	1125	1921	11	19	37	4	5	9
9	112	151	227	1102	1568	2683	14	22	43	5	7	11
10	148	200	302	858	1279	2033	11	18	36	4	6	9
11	84	118	176	760	1143	1984	13	22	43	5	8	12
15	107	148	219	879	1256	2095	12	19	38	4	5	8
16	104	143	212	637	938	1607	10	17	34	4	6	9
33	148	200	303	1328	1877	2978	14	19	50	6	8	12
100 meters to receptor												
8	81	104	151	1158	1594	2599	27	34	53	7	9	14
9	159	200	286	2233	2852	4294	34	42	63	9	12	17
10	211	263	378	1640	2165	3477	26	33	51	7	10	15
11	96	126	184	1113	1554	2549	29	37	59	9	12	19
15	124	160	233	1294	1787	2922	25	32	52	7	9	13
16	121	156	226	941	1295	2112	24	31	49	9	11	15
33	211	263	378	2423	3218	5188	44	34	80	12	14	21
200 meters to receptor												
8	104	124	166	2229	2785	4119	58	66	85	18	21	27
9	251	284	368	5604	6601	8867	75	84	105	22	26	35
10	334	377	487	4093	4802	6605	57	64	82	18	21	28
11	123	147	202	2110	2660	4024	60	68	91	20	24	34
15	161	190	256	2500	3108	4608	51	59	79	18	20	26
16	159	186	249	1834	2270	3347	53	60	78	20	24	34
33	334	378	486	5691	6778	9611	103	66	140	32	36	45
500 meters to receptor												
8	164	175	208	7270	7957	9857	152	160	180	77	82	93
9	489	513	584	23063	24758	29411	199	207	229	94	100	116
10	652	684	778	17890	19082	22091	148	156	175	75	80	93
11	193	206	245	6884	7530	9342	153	162	186	83	89	104
15	254	271	321	8174	8933	11049	131	139	161	74	80	95
16	252	269	317	6064	6612	8129	137	145	165	74	79	95
33	652	684	778	23065	24768	29410	280	160	322	141	150	170

Source: SCAQMD, 2008.
Values are for 1/2/5 acre active sites and are determined based on the minimum distance from the construction site to sensitive receptors.

Federal General Conformity Significance Criteria

In addition to the regional and local significance criteria, the General Conformity Rule applicability emission levels shown in Table 3.3-16, would apply to the Project areas in federal jurisdiction and control that are in nonattainment of the NAAQS. USFS Counsel has directed that the appropriate area for General Conformity consideration is limited to actions, occurring within federal jurisdiction, in this case Angeles

National Forest, and actions, occurring outside the ANF when directly related to the actions occurring in the ANF, such as transportation of supplies into or waste out of the Project construction areas inside the ANF. Therefore the General Conformity Rule is not applicable to the Kern County portion of the MDAB for this Project.

Table 3.3-16. General Conformity Applicability Emission Levels

Area	NOx and VOC [1]	PM10	CO and PM2.5 and SO_2
South Coast Air Basin	10 tons/year	70 tons/year	100 tons/year
Antelope Valley Portion of MDAB	25 tons/year	N/A	N/A

1 – The SoCAB and the Antelope Valley Portion of the MDAB are currently being re-classified as extreme and severe nonattainment of the federal 8-hour ozone standard, respectively.
N/A – not applicable.

Significance Criteria Summary

For this analysis both CEQA checklist criterion and the criterion discussed above were considered to create a list of significance criteria. The Project may result in significant impacts if:

- Criterion AIR1: The Project would generate emissions of air pollutants that would exceed any SCAQMD, AVAQMD, or KCAPCD regional air quality standard as defined in Table 3.3-13.
- Criterion AIR2: The Project would generate emissions of air pollutants that would exceed any SCAQMD localized significance threshold as defined in Tables 3.3-14 and 3.3-15.
- Criterion AIR3: The Project would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds as defined in Table 3.3-14.
- Criterion AIR4: The Project would result in non-compliance with the Federal General Conformity Rule (40 CFR Parts 6, 51, and 93) requirements.
- Criterion AIR5: The Project would expose a substantial number of people to objectionable odors.
- Criterion AIR6: The Project would conflict with air quality provisions of the Angeles National Forest Strategy.
- Criterion AIR7: The Project would be inconsistent with the current approved Air Quality Management Plans.
- Criterion AIR8: The Project would result in greenhouse gas emissions substantially exceeding baseline greenhouse gas emissions and following construction would not impel a regional reduction in GHGs.

The proposed Project's emissions, specifically the construction dust emissions, could also impact sensitive plant species and create temporary visual impacts; however, implementing mitigation as required to address these criterions will effectively mitigate air quality impacts on biological communities and visual resources.

3.3.4.2 Applicant-Proposed Measures (APMs)

The Applicant-Proposed Measures (APMs) are shown in Table 3.3-17 (SCE, 2007).

Table 3.3-17. Applicant-Proposed Measures – Air Quality

APM AQ-1	Use Ultra-low sulfur diesel fuel (e.g., <15 ppm).
APM AQ-2	Use of clean burning on- and off-road diesel engines. Where feasible, heavy duty diesel powered construction equipment manufactured after 1996 (with federally mandated "clean" diesel engines) would be utilized. (see proposed Mitigation Measure AQ-1b)
APM AQ-3	Construction workers will carpool when possible. (see proposed Mitigation Measure AQ-1a and AQ-1c)
APM AQ-4	Restrict vehicle idling time to less than 10 minutes whenever possible. (see proposed Mitigation Measure AQ-1g)
APM AQ-5	Properly maintain mechanical equipment. (see proposed Mitigation Measure AQ-1f)

Table 3.3-17. Applicant-Proposed Measures – Air Quality	
APM AQ-6	Use particle traps and other appropriate controls to reduce diesel particulate matter (DPM) where possible. Utilize equipment such as specialized catalytic converters (oxidation catalysts) to control approximately 20 percent of DPM, 40 percent of carbon monoxide, and 50 percent of hydrocarbon emissions. (see proposed Mitigation Measure AQ-1b)
APM AQ-7	Implement feasible fugitive dust control measures as provided in KCAPCD's Rule 402 and AVAQMD and SCAQMD Rule 403. (see proposed Mitigation Measure AQ-1a)
APM AQ-8	As feasible, restrict construction operations during the morning hours and during high wind events when NO_X emissions are more likely to contribute to O_3 formation. (see proposed Mitigation Measure AQ-1a)
APM AQ-9	Efficiently schedule staff and daily construction activities to minimize the use of unnecessary/duplicate equipment when possible. (see proposed Mitigation Measure AQ-1c)

Many of these proposed measures do not provide definitive requirements, do not ensure measurable emission reductions, and are not enforceable as written. Hence, some of these measures, as noted in Table 3.3-17, have been replaced and/or rewritten in Mitigation Measures provided in Section 3.3.6.1. APM AQ-1 is now a California regulatory requirement and so does not have to be provided as a mitigation measure.

3.3.4.3 Impact Assessment Methodology

The air quality impacts of the proposed Project are discussed below under subheadings corresponding to each of the significance criterion presented in the preceding section. The analysis describes the impacts of the proposed Project related to air quality and, for each criterion, determines whether implementation of the proposed Project would result in significant impacts.

The operating emissions from the proposed Project and all Project alternatives are comprised of occasional inspection and maintenance activities and no new stationary source operating emission sources will be constructed/operated as part of this Project. The overhead line inspection and maintenance activities currently occur on the existing transmission lines that this Project would affectively replace, while some minor new inspection and maintenance activities will occur for the new line segments. Therefore, the proposed Project would create minor incremental operating emissions along new line segments, but not create incremental operating emissions along existing line segments, nor create the potential for significant operating emission impacts. The operating emissions are essentially identical for most of the Project alternatives, as they do not substantially increase in length, but there would be an increase for maintaining the alternative with an underground transmission route. Additionally, a minor increase in emissions is anticipated from unauthorized use of the additional service roads being constructed. The Project would also indirectly reduce emissions in the SoCAB or elsewhere by reducing the amount of power that would have to be generated using polluting technologies. Not considering the indirect emission reduction of the Project, the normal operating emissions would only include an hour or two of incremental small helicopter use or the use of a crew truck for underground maintenance activities, and these incremental maintenance activities would be well below SCAQMD, AVAQMD, KCAPCD emission significance criteria. A more thorough documentation of the operating emissions is provided under the Impact AQ-2 discussions later in this section.

For the purposes of satisfying CEQA requirements, the significance of each impact is also identified according to the following classifications: Class I: Significant impact; cannot be mitigated to a level that is less than significant; Class II: Significant impact; can be mitigated to a level that is less than significant; Class III: Adverse impact; less than significant; and Class IV: Beneficial impact.

3.3.5 Alternative 1: No Project/Action

Selection of the No Project/Action Alternative would mean that the proposed TRTP would not be implemented. As such, none of the associated Project activities would occur and the environmental impacts associated specifically with the proposed Project would not occur.

The No Project Alternative includes the assumption that existing transmission lines and power plants would continue to operate. The effects that these facilities cause on the existing environment would not change, so no new impacts would occur from continuing operation of the existing transmission lines and power plants. Also, under the No Project Alternative, the proposed TRTP Project would not be constructed, so the impacts associated with construction and operation of the Project would not occur. These impacts avoided would include the dust and exhaust emissions caused by construction activities and the changes in emissions from power plants that could be caused by operation of TRTP.

The first component of the No Project Alternative is the continuation of ongoing demand-side actions, including energy conservation and distributed generation (DG). These actions would result in possible localized air quality impacts as a result of development of DG units by energy consumers. This would be the case if fossil-fuel fired or other combustion or thermal DG technologies become more widespread. For this type of development, local jurisdictions such as cities, counties, and air districts, would need to conduct environmental reviews and issue air quality permits for stationary sources related to these facilities. Increased conservation would not cause any air quality impacts.

The second component of the No Project Alternative is the continuation of supply-side actions, resulting in potentially increased generation within California or increased transmission into California to serve anticipated growth in electricity consumption, specifically within SCAQMD jurisdiction. The impacts of new power plants and new transmission lines could add air pollutants contributing to existing nonattainment conditions or violations of ambient air quality standards, if they occur in areas of substantial existing pollution. Although construction and operation of new power plants and transmission lines may occur, their locations and development schedules cannot be predicted. New generation and construction activities would need to comply with local air quality management requirements and may require local air permit review. Stationary sources would be required to implement the Best Available Control Technology, and if occurring in nonattainment areas, new emissions would need to be offset with emission reductions from the control or shutdown of existing emission sources. These requirements are components of the New Source Review program and the emissions "cap and trade" program within SCAQMD which apply to any new major source of emissions. These requirements are effective at minimizing but not eliminating the air quality impacts of new stationary sources of power generation.

The forecast net decrease in emissions from power plants (described in Impact AQ-7) would not occur with implementation of No Project Alternative (CAISO, 2008). However, under the No Project/Action Alternative, some currently unknown plan would need to be developed to provide the transmission upgrades necessary to interconnect renewable generation projects in the Tehachapi area and to also address the existing transmission problems south of Lugo Substation. Similarly, other yet unspecified transmission upgrades would presumably be proposed in the future to provide the needed capacity and reliability to serve growing electrical load in the Antelope Valley and South Coast Air Basin. To interconnect wind projects in the Tehachapi area, it is possible that other electrical utilities with transmission facilities in the area, such as LADWP, might purchase some of the power from Tehachapi wind developers and integrate it into their system. Another possibility is the development of a private transmission line that could connect wind projects to the electrical grid. Any of these projects, which

would occur as a result of the unfulfilled electrical transmission need in the absence of TRTP, are likely to have similar impacts as those identified for the proposed Project. However, if a transmission line were to be constructed in the absence of TRTP that was located in a new ROW that is more accessible by paved roads and requires fewer or no helicopter tower construction, then such projects having similar power carrying capacity would have the potential to have lower emissions than the proposed TRTP Project and potentially have reduced impacts.

3.3.6 Alternative 2: SCE's Proposed Project

3.3.6.1 Direct and Indirect Effects Analysis

Regional Emission Thresholds (Criterion AIR1)

Impact AQ-1: Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds.

Construction of the proposed Project would result in short-term impacts to ambient air quality. Construction is tentatively scheduled for July 2009 to November 2013. Temporary construction emissions would result from on-site activities, such as surface clearing, excavation, tower foundation construction, tower steel construction, power cable stringing, substation upgrades, etc.; and from off-site activities such as construction related haul trips, construction worker commuting, and helicopters used for tower construction. Pollutant emissions would vary from day to day depending on the level of activity, the specific operations, and the prevailing weather.

Construction equipment would include machinery such as water trucks, compactors, dump trucks, graders, bulldozers, loaders, cranes, diggers, tension machines, and several types of helicopters (SCE, 2007, 2008). Tables 2.2-11 to 2.2-25 provide the general construction durations, the list of the types of equipment used for each construction activity, and the construction crew requirements for each activity anticipated for the proposed Project. More detailed construction schedule, equipment use, and vehicle trip assumptions are provided in Appendix C. A considerable number of the off-site truck trips are associated with importing concrete and structural steel and exporting wastes from tower demolition.

Air emissions for the proposed Project were calculated using the latest standard calculation methodologies accepted by such agencies as the SCAQMD and incorporating applicant proposed measures, and additional appropriate mitigation measures, such as fugitive dust controls. For on-road and off-road vehicles (except helicopters), SCAQMD CEQA website emission factors for the year 2009 through 2013 (SCAQMD, 2008) were used. Fugitive dust emissions were calculated using the USEPA's AP-42 emission factors (USEPA, 2008b) and various SCAQMD CEQA Handbook (SCAQMD, 1993) guideline parameters (e.g., silt content, precipitation, etc.) were used as inputs into the USEPA emission factor calculations. Helicopter emission factors are based on values from the FAEED database (FAA, 2001).

Maximum daily and annual emissions are determined by analysis of the Project schedule, and the maximum daily and annual construction emission calculations and assumptions are presented in Appendix C, and a comparison of those emissions with the SCAQMD, AVAQMD, and KCAPCD significance criteria are presented in Table 3.3-18.

Table 3.3-18. Alternative 2 Construction Emission/Air District Regional Emission Threshold Comparison

		Emissions (daily – lbs/day, annual - tons/year)					
Jurisdiction		NOx	VOC	CO	PM10	PM2.5	SO_2
SoCAB	Maximum Daily Emissions	1,427	328	1,293	569	184	10
	Significance Threshold	100	75	550	150	55	150
	Exceeds (YES/NO)	YES	YES	YES	YES	YES	NO
AVAQMD	Maximum Daily Emissions	1,650	403	1,493	363	136	12
	Significance Threshold	137	137	548	82	--	137
	Exceeds (YES/NO)	YES	YES	YES	YES	YES	NO
KCAPCD	2010 Annual Emissions	30.98	5.00	25.13	35.41	9.25	0.05
	Significance Threshold	25	25	--	15	--	27
	Exceeds (YES/NO)	YES	NO	--	YES	--	NO

Based on the data provided in Table 3.3-18, daily construction emissions would be expected to exceed the Air District Regional planning thresholds for significance for NOx, VOC, CO, PM10, and PM2.5 in the SoCAB and AVAQMD, and in 2010, prior to equipment mitigation, would exceed the annual NOx and PM10 KCAPCD significance criteria.

For the SCAQMD and AVAQMD the major source of the maximum daily NOx, CO, and VOC emissions are from the off-road equipment tailpipe emissions, particularly from the large helicopters required for helicopter based tower construction. The majority of the maximum daily PM10 emissions are from the paved and unpaved road dust emissions due to the long round trip travel distances required to reach the more remote tower construction and helicopter staging area sites. The VOC and CO exceedances in SCAQMD and AVAQMD are directly related to helicopter construction of tower. Days that would not have helicopter construction activities would not exceed these regional significance thresholds. The NOx and PM emission thresholds would be exceeded for a large portion of the time that major construction activities occur in these two jurisdictions due to the large ground-based emissions for these two pollutants.

For the KCAPCD the major source of emissions during 2010 are the paved and unpaved road travel for PM10 and the off-road equipment, primarily ground based, for NOx.

Implementation of recommended Mitigation Measures AQ-1a through AQ-1j would reduce construction impacts to air quality to the maximum degree feasible but would not eliminate all significant impacts. Mitigation measure AQ-1a will reduce fugitive dust through the reduction of the creation of emissions by stabilizing unpaved road surfaces and using water to bind active soil handling activities among other measures. The most important of the recommended dust mitigation measures is the use of CARB approved soil-binders on unpaved roads, parking areas, and staging areas that will provide an estimated 84 percent control of PM10 emissions. The 84 percent value is taken from the CARB website (www.arb.ca.gov/eqpr/mainlist.htm) using the lower value of the fugitive dust control values noted for the two certified dust suppressants. Mitigation measures AQ-1b to AQ-1j would reduce the on-road and off-road construction equipment exhaust emissions to the extent feasible.

Mitigation Measures for Impact AQ-1

AQ-1a **Implement Construction Fugitive Dust Control Plan.** SCE shall develop a Fugitive Dust Emission Control Plan (FDECP) for construction work. The Plan shall be completed prior to construction and approved by the CPUC and FS. This Plan is in addition to any fugitive dust

control plan required by the South Coast Air Quality Management District (SCAQMD). Measures to be incorporated into the plan shall include, but are not limited to the following:

- Non-toxic soil binders shall be applied per manufacturer recommendations to active unpaved roadways, unpaved staging areas, and unpaved parking area(s) throughout construction to reduce fugitive dust emissions. On NFS lands, SCE shall obtain FS approval of any soil binders to be used.
- Unpaved road travel will be limited to the extent possible, by limiting the travel of heavy equipment in and out of the unpaved areas (move from construction site to construction site rather than back to marshalling or staging areas daily) and through carpooling/busing construction workers to the maximum feasible extent. The FDECP will include a road travel plan applicable for construction sites with unpaved access greater than one mile.
- Water the disturbed areas of the active construction sites at least three times per day and more often if uncontrolled fugitive dust is noted.
- Enclose, cover, water twice daily, and/or apply non-toxic soil binders according to manufacturer's specifications to exposed piles with a five percent or greater silt content.
- Maintain unpaved road vehicle travel to the lowest practical speeds, and no greater than 15 miles per hour (mph), to reduce fugitive dust emissions.
- All vehicle tires shall be inspected, are to be free or dirt, and washed as necessary prior to entering paved roadways.
- Install wheel washers or wash the wheels of trucks and other heavy equipment where vehicles exit the site.
- Cover all trucks hauling soil and other loose material, or require at least two feet of freeboard.
- Establish a vegetative ground cover (in compliance with biological resources impact mitigation measures) or otherwise create stabilized surfaces on all unpaved areas at each of the construction sites within 21 days after active construction operations have ceased.
- Increase the frequency of watering, if water is used as a soil binder, or implement other additional fugitive dust mitigation measures, to all active disturbed fugitive dust emission sources when wind speeds (as instantaneous wind gusts) exceed 25 mph.
- Travel routes to each construction site shall be developed to minimize unpaved road travel.

SCAQMD Rule 403 Best Available Control Measures (BACM) are required to be proposed in the FDECP and implemented when and if the BACM are as strict or stricter than the control measures listed above. Additionally, mitigation measures provided on the SCAQMD CEQA website Tables IX-A through IX-E (http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html) must be implemented in the FDECP were applicable. This mitigation measure covers construction work performed within all three local air quality jurisdictions.

AQ-1b **Off-road Diesel-fueled Equipment Standards.** All off-road construction diesel engines not registered under CARB's Statewide Portable Equipment Registration Program, which have a rating of 50 horsepower (hp) or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any off-road engine larger than 50 hp, that engine shall have tailpipe retrofit controls that reduce exhaust emissions of NOx and PM to no more than Tier 2 emission levels. Tier 1 engines will be allowed on a case-by-case basis only when the Project owner has documented that no Tier 2 equipment or emissions equivalent retrofit equipment is available for a particular equipment type that must be used to complete the Project's construction. This shall be documented with signed written correspondence by the appropriate construction contractor along with documented correspondence with at least two construction equipment rental firms. Equipment properly

registered under and in compliance with CARB's Statewide Portable Equipment Registration Program are in compliance with this mitigation measure.

AQ-1c **Limit Vehicle Traffic and Equipment Use.** Construction worker carpooling will be encouraged and other vehicle trips and equipment use will be limited to the extent practical by efficiently scheduling staff and daily construction activities to minimize the use of unnecessary/duplicate equipment when possible.

AQ-1d **Heavy Duty Diesel Haul Vehicle On-road Equipment Standards.** Require the use of 2006 engines or pre-2006 engines with CARB certified Level 3 diesel emission controls for all heavy duty diesel haul vehicles that are contracted on a continuing basis for use to haul equipment and waste for the Project.

AQ-1e **On-road Vehicles Standards.** All on-road construction vehicles, other than those meeting the requirements of Mitigation Measure AQ-1d (Heavy Duty Diesel Haul Vehicle On-road Equipment Standards), shall meet all applicable California on-road emission standards and shall be licensed in the State of California. This does not apply to construction worker personal vehicles.

AQ-1f **Properly Maintain Mechanical Equipment.** The construction contractor shall ensure that all mechanical equipment associated with Project construction is properly tuned and maintained in accordance with the manufacturer's specifications.

AQ-1g **Restrict Engine Idling to 5 Minutes.** Diesel engine idle time shall be restricted to no more than 5 minutes. Exceptions are vehicles that need to idle as part of their operation, such as concrete mixer trucks.

AQ-1h **Schedule Deliveries Outside of Peak Traffic Hours.** All material deliveries to the marshalling yards and from the marshalling yards to the construction sites shall be scheduled outside of peak traffic hours (6:00 to 9:30 am and 3:30 to 6:30 pm) to the extent feasible, and other truck trips during peak traffic hours shall be minimized to the extent feasible.

AQ-1i **Off-road Gasoline-fueled Equipment Standards.** As practicable, all off-road stationary and portable gasoline powered equipment shall have EPA Phase 1/Phase 2 compliant engines, where the specific engine requirement shall be based on the new engine standard in affect two years prior to the initiating Project construction. In the event that EPA Phase 1/Phase 2 compliant engines are determined not to be practicable, SCE shall provide documentation to the CPUC and FS with an explanation.

AQ-1j **Reduction of Helicopter Emissions.** Helicopter use will be limited to the extent feasible and helicopters with low emitting engines shall be used to the extent practical.

As noted the emission estimates include the recommended fugitive dust mitigation measures, but the off-road equipment emissions assume fleet average emissions for the SCAQMD off-road fleet. The implementation of Mitigation Measure AQ-1b would reduce the off-road equipment engine emissions; however, the exact amount cannot be easily calculated as the final extent of the use of higher Tier engines cannot be reasonably estimated. However, an analysis of the 2009 SCAQMD off-road emission factors indicates that the fleet average engine for the equipment types assumed to be used for this Project would be just better than Tier 1 on average. SCAQMD's CEQA website provides assumptions for the mitigation potential for the use of higher tier off-road engines, which are as follows:

Percentage Reduction From Tier 1 to Tiers 2, 3, & 4									
Engine	Tier 1 to Tier 2			Tier 1 to Tier 3			Tier 1 to Tier 4		
Size (hp)	NOx	ROG	PM	NOx	ROG	PM	NOx	ROG	PM
75 - 99	23%	76%	46%	52%	85%	46%	64%	88%	97%
100 - 174	33%	70%	28%	59%	82%	28%	64%	83%	95%
175 - 299	33%	76%	63%	59%	85%	63%	78%	86%	96%
300 - 600	34%	76%	63%	59%	85%	63%	78%	86%	96%

Source: SCAQMD 2008

Note: Reductions in Reactive Organic Gases (ROG) would be relatively comparable to reductions in Volatile Organic Compounds (VOC).

While significant reductions in off-road ground-based emissions may occur with the implementation of recommended Mitigation Measure AQ-1b, those reduction are still not enough to change the regional emissions significance findings, due to the significant helicopter and fugitive dust emissions contributions that remain after mitigation, with the exception of NOx emissions within the KCAPCD jurisdiction that should be reduced below the 25 tons per year significance threshold with the implementation of the recommended mitigation measures (specifically AQ-1b).

The use of emission offsets to further mitigate the significant maximum daily construction emissions in SCAQMD and AVAQMD and the 2010 PM10 emissions in KCAPCD are not considered feasible, due to lack of availability of such offsets and their prohibitive cost.

CEQA Significance Conclusion

The proposed Project's NOx, CO, VOC, PM10 and PM2.5 emissions, even after implementation of all feasible mitigation measures listed above, will remain above the SCAQMD and AVAQMD daily significance thresholds and the proposed Project's PM10 emissions will remain above the KCAPCD annual significance threshold values. Therefore, the daily regional and annual emissions from the proposed Project would cause significant and unavoidable impacts (Class I) in these three jurisdictions,

Impact AQ-2: Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds.

Operation and maintenance of the proposed Project would result in short-term direct and indirect impacts to ambient air quality. The Project direct operating emissions are comprised of increased inspection and maintenance activities. Recently regulated increases in inspection and maintenance actions that are not directly related to the Project are not considered Project incremental operations. The incremental operations assumptions due to the Project and the resulting emission estimates are provided Appendix C.

Direct operating emissions for the proposed Project were calculated using the latest standard calculation methodologies accepted by such agencies as the SCAQMD. For on-road and off-road vehicles, SCAQMD CEQA website emission factors for the year 2013 (SCAQMD, 2008) were used. Fugitive dust emissions were calculated using the USEPA's AP-42 emission factors (USEPA, 2008b) and various SCAQMD CEQA Handbook (SCAQMD, 1993) guideline parameters (e.g., silt content, precipitation, etc.) were used as inputs into the USEPA emission factor calculations. Helicopter emission factors are based on values from the FAEED database (FAA, 2001).

A comparison of the incremental direct operating emissions with the SCAQMD, AVAQMD, and KCAPCD significance criteria are presented in Table 3.3-19.

Table 3.3-19. Alternative 2 Operating Emission/Air District Regional Emission Threshold Comparison

Jurisdiction		Emissions (daily – lbs/day, annual - tons/year)					
		NOx	VOC	CO	PM10	PM2.5	SO_2
SCAQMD	Maximum Daily Emissions	46	7	25	61	19	0.1
	Significance Threshold	55	55	550	150	55	150
	Exceeds (YES/NO)	NO	NO	NO	NO	NO	NO
AVAQMD	Maximum Daily Emissions	44	6	23	57	21	0.1
	Significance Threshold	137	137	548	82	--	137
	Exceeds (YES/NO)	NO	NO	NO	NO	NO	NO
KCAPCD	2013 Annual Emissions	0.40	0.06	0.24	0.67	0.22	0.00
	Significance Threshold	25	25	--	15	--	27
	Exceeds (YES/NO)	NO	NO	--	NO	--	NO

The emissions caused directly by operation, maintenance, and inspection of the proposed Project are shown above in Table 3.3-19 to be below all applicable regional daily and annual emission thresholds. The emissions show that the proposed Project would not result in significant direct operational emissions within any jurisdiction. Therefore, direct operational impacts of the proposed Project would not conflict with any air quality management plan.

Project indirect emissions are comprised of the Project's impact on the transmission grid and operation of existing and forecast power plants. The indirect emissions for the proposed Project have not been calculated by CAISO, but it is assumed that the indirect emission reductions from the displacement of fossil-fuel fired power plant emissions are higher than the direct emission increases from the limited inspection and maintenance activities required to maintain the new transmission lines and associated facilities.

CEQA Significance Conclusion

The Project's direct operating emissions are minor and would therefore not conflict with any air quality management plans and would have a less-than-significant impact (Class III) in all jurisdictions. Additionally, the proposed Project is assumed to help impel an indirect emission decrease and an overall emissions decrease. Therefore, the operations of the proposed Project would provide a beneficial operating emissions impact (Class IV).

SCAQMD Localized Significance Thresholds (Criterion AIR2)

Impact AQ-3: Construction of the Project would expose sensitive receptors to substantial pollutant concentrations.

Most of the construction route through the MDAB south through the SoCAB to the ANF southern border are in fairly remote areas that would not affect substantial numbers of sensitive receptors. The portion of the route within the MDAB, with the exception of the Quartz Hills and Desert View Highlands areas, has a very low residential population and there are no schools or other known sensitive receptors located near (within 500 meters) any of the construction sites within the MDAB. The closest residences to the Antelope Valley Substation are more than 150 meters (492 feet) away. Due to the lack of sensitive receptors, their distance from each construction site, the mitigation measures recommended under Impact AQ-1, and the relatively low amount of emissions that would occur at each tower construction site at any given time, and the lower background concentrations (i.e. better air quality than SoCAB), the impacts to sensitive receptors located in the MDAB are determined to be less than significant.

The construction route for the proposed Project traverses SCAQMD Source Receptor Areas (SRAs) 8, 9, 10, 11, 15, and 33. Most of the tower construction sites within SRA 15 are remote; however, there are many areas of the construction route or substation construction that will be located near residences, schools, or other sensitive receptors. The SCAQMD Localized Significance Thresholds (LSTs) in lbs/day are provided in Table 3.3-15 for conservative Project area sizes and distances to receptors for each of the SRAs crossed by the proposed Project.

To be conservative it is assumed that the route is within 25 meters of residences for all of the SRAs except SRA 15 where the closest residence is located within 100 meters. For substations within the SoCAB undergoing construction for this Project the distance to nearest sensitive receptor are as follows: Mira Loma within 100 meters (residences – new development north of the substation); Mesa within 300 meters (residences); Rio Hondo 500 meters (park); Gould within 100 meters (residences). For marshalling areas, to be conservative due the locations of these areas being currently unknown, it is assumed sensitive receptors are located within 25 meters. Table 3.3-20 compares the worst-case daily on-site emissions from the marshalling yards, tower construction, and substation construction sites to the emission thresholds presented in Table 3.3-15. It is assume that the marshalling areas and the tower construction sites are two acres and one acre, respectively, are therefore comparable with the two acre and one acre site LST thresholds (conservative assumption), while the substation improvement work is limited to small areas on each substation assumed to be one acre.

Table 3.3-20. Alternative 2 Localized Impact Emissions Comparison

	NOx	PM10	PM2.5
Marshalling Area Construction Emissions (2-acres)	5	1	0.5
Localized Significance Threshold (25 meters)	98	6	4
Exceeds (YES/NO)	NO	NO	NO
Tower Construction Emissions (1-acre)	47	6.5	3.5
Localized Significance Threshold (25 meters)	69	4	3
Exceeds (YES/NO)	NO	YES	YES
Substation Construction Emissions (2-acres)	14	1	1
Localized Significance Threshold (50 meters)	69	11	4
Exceeds (YES/NO)	NO	NO	NO

The PM emission estimates shown in Table 3.3-20 are limited to the on-site emission sources only and do not include all of the unpaved road travel needed to get to personnel and materials to the tower sites and do not include the road construction emissions which do not occur at a single site but rather over a one-half mile stretch of road per day. Additionally, helicopter emissions are not included as they are not ground level emissions, with the exception of the helicopter construction staging areas that are not separately evaluated as they are not known to be located within 500 meters of any sensitive receptors.

As can be seen in Table 3.3-20, site specific construction emissions of PM10 and PM2.5 emissions would have the potential to exceed the localized significance criteria during tower construction activities when those towers are located less than 50 meters from a receptor.

The onsite construction emissions are estimated, after implementation of Mitigation Measures AQ-1a for fugitive dust control, but do not explicitly include all of the control gained for measures AQ-1b to AQ-1j, as appropriate, to control off-road and on-road equipment emissions to mitigate Impact AQ-1 to the maximum feasible extent. The mitigation measures for Impact AQ-1 mitigate construction emissions to the maximum feasible extent, so no additional mitigation is recommended for this impact.

CEQA Significance Conclusion

Construction of the Project would cause localized emissions above the SCAQMD LST thresholds even after mitigating to the maximum feasible extent; therefore, the Project operation would have a significant and unavoidable impact (Class I) to local sensitive receptors that are located within 50 meters of a new tower construction site.

Impact AQ-4: Operation of the Project would expose sensitive receptors to substantial pollutant concentrations.

Operations of the proposed Project would result in short-term direct and indirect impacts to ambient air quality. The Project direct operating emissions are comprised of increased inspection and maintenance activities. As shown in Table 3.3-19 the direct maximum daily operating emissions are minimal and the Project is assumed to create an indirect emission reduction. Additionally, the operating emissions occur over a large area as a result of non-stationary activities such as line inspection and road maintenance so that a significant amount of normal operating emissions would not occur in any single location in quantities that could approach the SCAQMD LST thresholds.

CEQA Significance Conclusion

Operation of the Project would not cause localized emissions above the SCAQMD LST thresholds; therefore, the Project operation would have a less-than-significant impact (Class III) to local sensitive receptors.

Air Toxic Contaminant Emissions (Criterion AIR3)

Impact AQ-5: Construction or operation of the Project would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds.

While the construction of the proposed Project would generate large quantities of criteria pollutant emissions as shown in Table 3.3-18 and Appendix C, the Project covers a very large area and does not generate large quantities of emissions at any one site, such as a major stationary source, nor does it generate large quantities of toxic air contaminants, with the potential exception of diesel particulate matter (DPM). Additionally, the Project's construction occurs over a limited period of time that would further reduce the long term chronic exposures (carcinogenic and non-carcinogenic exposures) to DPM and other air toxic contaminants. Therefore, the risk from Project construction at any given receptor area would be well below the SCAQMD significance thresholds. Operation emissions of toxic air contaminants are negligible and as noted previously the Project would result in an indirect net emission decrease that would lower risk from toxic air contaminants.

CEQA Significance Conclusion

In summary, the proposed Project's toxic air contaminant emissions would not exceed SCAQMD risk thresholds so the Project would have less-than-significant (Class III) health risk impacts.

Federal General Conformity Rule (Criterion AIR4)

Impact AQ-6: The Project would not conform to Federal General Conformity Rules.

The proposed Project would result in significant impacts if the Project were to cause annual emissions that exceed the General Conformity de minimus thresholds and the Project cannot be shown to conform to the SIP. Based on the current proposed Project schedule, the Project's maximum annual ANF related

construction emissions would occur in 2010 or 2011 in the South Coast Air Basin, and in 2012 in the AVAQMD portion of the Mojave Desert Air Basin. The estimated annual ANF related emissions in the SoCAB and AVAQMD portions of the MDAB compared to the respective General Conformity de minimus thresholds are provided in Table 3.3-21.

Table 3.3-21. Alternative 2 Emissions/General Conformity Emissions Threshold Comparison

		Emissions (Tons/year)					
Air Basin		NOx	VOC	CO	PM10	PM2.5	SO_2
SoCAB	2009 Emissions	0.7	0.1	0.6	1.6	0.3	0.0
	2010 Emissions	18.9	2.9	14.5	15.3	4.2	0.1
	2011 Emissions	17.5	2.9	14.4	21.8	5.2	0.1
	2012 Emissions	10.1	1.9	8.6	16.0	3.8	0.0
	2013 Emissions	0.1	0.0	0.0	0.0	0.0	0.0
	Applicability Trigger	10 [a]	10	100	70	100	100
	Exceeds (YES/NO)	YES	NO	NO	NO	NO	NO
MDAB AVAQMD	2009 Emissions	0.6	0.1				
	2010 Emissions	3.5	0.5				
	2011 Emissions	3.0	0.5				
	2012 Emissions	13.3	2.6				
	2013 Emissions	0.0	0.0				
	Applicability Trigger [b]	25	25				
	Exceeds (YES/NO)	NO	NO				

Table Notes:
a- NOx emission trigger as a PM2.5 precursor is 100 tons/year.
b- Antelope Valley portion of the MDAB.

Table 3.3-21 shows that the proposed Project's estimated construction emissions are less than the General Conformity applicability thresholds for the AVAQMD portion of the MDAB and over the thresholds for NOx for the SoCAB. The annual emissions calculations and assumptions are provided in Appendix C. The proposed Project's emission estimate considers the implementation of Mitigation Measures AQ-1a, but do not fully consider implementation of Mitigation Measures AQ-1b through AQ-1j. However, the level of the exceedance of these thresholds indicates that full implementation of these mitigation measures would not mitigate emissions below the NOx General Conformity applicability thresholds during 2010 and 2011. A complete conformity analysis is only required for projects that exceed the General Conformity applicability thresholds. The proposed Project's estimated emissions have been determined to be above the General Conformity applicability thresholds; therefore, a complete conformity analysis on the selected Project alternative will be performed as required by statute and approved before the Record of Decision (ROD) is approved for this Project.

The following mitigation measure is recommended to mitigate this impact to less than significant (Class II) and provide assurance that the Project will comply with the General Conformity Rule and be shown to conform to the SIP.

Mitigation Measure for Impact AQ-6

AQ-6 **General Conformity Emission Offset Mitigation.** In the event that the final emission estimate for the selected Project alternative as provided in the Project's Conformity Analysis exceeds the NOx and/or VOC emission applicability thresholds, and assuming the SCAQMD does not provide confirmation that the Project's emissions are accounted for in the State Implementation Plan (SIP) emission estimates per 40 CFR §93.158(a)(1), then the Project will obtain emission reduction credits to fully offset the NOx and/or VOC emissions per 40 CFR §93.158(a)(2) for

the years that the Project has been estimated to exceed the NOx and/or VOC emission applicability thresholds. Credits shall be submitted to the CPUC and FS for review and approval.

CEQA Significance Conclusion

With the incorporation of the air quality Mitigation Measure AQ-6 the Project would be found to be in conformity of the SIP and the Project would have less-than-significant (Class II) impacts for Impact AQ-6.

Odors (Criterion AIR5)

Impact AQ-7: The Project would create objectionable odors.

Construction equipment and equipment used during construction operations, such as the potential for small areas of asphalt paving; and the operations maintenance/inspection equipment may create mildly objectionable odors. These odors would be temporary and would not affect a substantial number of people. No mitigation measures for odor reduction are necessary for this Project.

CEQA Significance Conclusion

The odor impacts from the proposed Project's construction and operation would be less than significant (Class III).

Angeles National Forest Strategy Conformance (Criterion AIR6)

Impact AQ-8: The Project would not conform to Angeles National Forest air quality strategies.

The Angeles National Forest Strategy does not include any air quality strategies that would be significantly impacted by the construction or operation of the proposed Project. The Angeles National Forest air quality strategies are limited to the following:

- AIR 1: Minimize Smoke and Dust
- AIR 2: Forest Air Quality Emissions

The Angeles National Forest strategy AIR 1 is very general and is directed to "Control and reduce fugitive dust to protect human health, improve safety and moderate or eliminate environmental impacts." The only action item of this of this strategy is to "Incorporate visibility requirements into project plans." The proposed Project construction smoke and dust would be reduced through conformance with SCAQMD and AVAQMD fugitive dust rules and additionally mitigated to the extent feasible by the additional mitigation measures listed for Impact AQ-1, including the requirement for a construction fugitive emission control plan (Mitigation Measure AQ-1a).

The Angeles National Forest air quality strategy AIR 2 relates to providing an air quality inventory for prescribed burns and wildfires and therefore does not directly relate to the proposed Project's construction and operation emissions. The proposed Project's fire safety requirements are addressed separately in Section 3.16.

CEQA Significance Conclusion

With the incorporation of the air quality Mitigation Measures AQ-1a through AQ-1j, the air quality strategy would be compliant with ANF air quality strategies and the Project impacts would be less than significant (Class II).

Conformance with Applicable Air Quality Management Plans (Criterion AIR7)

Impact AQ-9: The Project would not conform with applicable Air Quality Management Plans.

The proposed Project and all alternatives would be constructed in compliance with applicable federal, State, and local requirements. Additionally, the Project construction mitigation measures (AQ-1a through AQ-1j) required to mitigate regional emission impacts to the extent feasible were developed after consulting SCAQMD personnel to confirm mitigation measures that would be consistent with SCAQMD approved Air Quality Management Plans. The operating emissions would be comprised of minimal inspection and maintenance activities that would not significantly impact air quality and the Project would not directly or indirectly cause any population growth that is not considered in the current approved air quality plan. The mitigation measures specifically required to comply with the SCAQMD AQMP proposed emission reduction measures are as follows: AQ-1a (Implement Construction Fugitive Dust Control Plan), AQ-1b (Off-road Diesel-fueled Equipment Standards), and AQ-1d (Heavy Duty Diesel Haul Vehicle On-road Equipment Standards).

CEQA Significance Conclusion

After mitigation the Project would be consistent with the currently approved Air Quality Management Plans and would have a less-than-significant impact (Class II).

Climate Change Impacts (Criterion AIR8)

Impact AQ-10: Emissions would contribute to climate change.

The proposed Project would cause greenhouse gas (GHG) emissions during the short-term duration of Project construction. The GHG emissions are estimated using a California Climate Action Registry General Reporting Protocol emission factors for fuel use (CCAR 2007). The emission estimate includes the truck transport emissions to the site from the last major shipping terminal (port, rail yard, etc.) but does not include rail or ship transport of cable, steel, electrical equipment etc.

The GHG emissions estimated for construction activities are provided in Table 3.3-22 with the calculations and assumptions provided in Appendix C.

Table 3.3-22. Alternative 2 Construction GHG Emission Estimate

Year	CO_2-eq Emissions (tonnes/year)
Construction Equipment	33,206
SF_6 Leaks	24.035
Total	57,187

During operation of the Project, minor quantities of direct long-term greenhouse gas emissions, in the form of additional SF_6 equipment leak emissions would occur from the proposed Project. Inspection and maintenance activities would also cause a small increase in GHG emissions.

The indirect GHG emissions decrease that would result from the Project has been calculated, using an SCE estimate of the renewable energy enabled by the Project, to be approximately 3,200,000 tonnes per year and the eGRID estimate (USEPA 2007) of CO_2-eq emissions per MWh in the SCE service area (see Appendix C). This shows that the Project's construction and operating GHG emission increases would be more than offset by the Project providing greater renewable energy transmission and providing improved transmission effectiveness and efficiency.

The estimated annual direct and indirect operational GHG emissions are provided in Table 3.3-23 with the calculations and assumptions for the direct operating emissions provided in Appendix C.

Table 3.3-23. Alternative 2 Direct and Indirect Operating GHG Emission Estimate

Activity	CO_2-eq Emissions (tonnes/year)
SF_6 Leaks	9,614
Inspection/Maintenance	86
Total Direct	9,700
Indirect Emissions	(-3,175,570)
Total Direct and Indirect Emissions	(-3,165,870)

Demand for electricity would not change as a result of the proposed Project, and power generated by power plants (renewable, fossil-fueled, large hydro, etc.) in response to the demand would occur at some location regardless of whether the proposed Project is approved or disapproved. In this way, by increasing the use of renewable energy and improving the distribution efficiency of the California transmission grid, the proposed Project would partially implement one of the IPCC key strategies for mitigating climate change.

CEQA Significance Conclusion

The Project's direct operating GHG emissions are minor and the Project would create a substantial indirect emission decrease that, even considering the Project's construction GHG emissions, would create an overall GHG emissions decrease over the Project's life. Additionally, the Project's purpose would implement key strategies for mitigating climate change proposed by the California Energy Commission and the IPCC to improve transmission and increase renewable energy use. Therefore, the Project would provide a beneficial GHG emissions impact (Class IV).

3.3.6.2 Cumulative Effects Analysis

Geographic Extent

For Air Quality, the potential geographic extent of the cumulative impact area covers two air basins, two counties, and three local air quality jurisdictions. Cumulative impacts could extend over the entire Project route. However, the identification of cumulative projects for air quality generally ranges from within one mile of a proposed Project to as far as six miles or more from a proposed Project. The effect of downwind dispersion eliminates the potential for Project level significant cumulative air quality impacts over areas larger than a few miles.

Since the proposed Project has very minor direct operating emissions and a net decrease considering direct and indirect emissions, the cumulative impact discussion is focused on construction impacts. Construction impacts are localized and of short duration. Therefore, only projects within one mile of the Project route, as well as projects that could impact traffic during the Project construction are considered projects that could, with the proposed Project, cause cumulative impacts. Additionally, only projects that are scheduled concurrently in the same area as the proposed Project are considered as projects that could contribute to cumulative impacts.

Existing Cumulative Conditions

The proposed Project area covers three air quality jurisdictions that have varying pollutant attainment/nonattainment classifications, as provided in Section 3.3. Long-term trends in reduced

emissions of most criteria pollutants have generally reduced criteria pollutant concentrations; however, those trends have flattened in recent years and over the past ten years only one significant change in attainment status has occurred (SoCAB attained State and Federal CO standards). Therefore, any increase in emissions of nonattainment pollutants and precursors would cause an adverse Air Quality impact.

Reasonably Foreseeable Future Projects and Changes

Only those projects listed in Section 2.9 (Cumulative Projects) and shown in Figures 2.9-1a through 2.9-1d (located at the end of Chapter 2), that have been identified within one mile of the proposed Project and that have the potential for temporally overlapping emissions with the proposed Project are considered potential cumulative projects. There are a large number of projects listed in Section 2.9 and shown in Figures 2.9-1a through 2.9-1d that are within one mile of the Project route. However, the construction schedule of many of these projects is uncertain, so there is the potential that a number of these projects will not have construction periods coincident with that of the proposed Project.

Cumulative Impact Analysis

Since the proposed Project would have very minor operating emissions, the cumulative impact analysis focuses on construction impacts, which are localized and of short duration. Therefore, only projects within one mile of the Project route, as well as projects that could impact traffic during construction of the proposed Project are considered for analysis of cumulative impacts. Additionally, only new projects with construction or operating emissions that would occur at the same time as the proposed Project's construction are considered as part of this cumulative impact analysis; existing emission sources are considered part of the existing ambient background cumulative condition. A large number of projects within one mile of the proposed or alternative Project routes are listed in Section 2.9 and shown in Figures 2.9-1a through 2.9-1b; however, the construction schedules of many of these projects is uncertain, making it possible that construction of many of these projects would not occur coincident with and within one mile of the construction of the proposed Project. Should construction activities from related projects within one mile of the proposed transmission route occur concurrent with construction of the proposed Project, cumulative Air Quality impacts could occur.

- **Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-1).** Construction activities associated with the proposed Project would result in air emissions that exceed the SCAQMD, AVAQMD, and KCAPCD regional emission thresholds for selected pollutants (see Table 3.3-18). For cumulative assessment purposes the potential existence of nearby concurrent cumulative projects would only add to these significant emission totals. The cumulative project list (Section 2.9 and Figures 2.9-1a through 2.9-1d) shows four projects within one mile of the proposed Project route in KCAPCD jurisdiction, shows five projects within one mile of the proposed Project route in AVAQMD jurisdiction, and shows eighteen projects within one mile of the proposed Project route in SCAQMD jurisdiction. Given the assumption that any of these projects, other currently unknown projects, would be constructed concurrently with TRTP in the SCAQMD, AVAQMD, and KCAPCD jurisdictions then the proposed Project would have cumulatively significant impacts in those jurisdictions. Therefore, the combined effect of construction emissions from the proposed Project and other projects construction and/or operating emissions would be cumulatively significant at various times during construction (Class I).
- **Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-2).** Direct operating emissions for the Project are very minimal and would occur over a large area and would not cumulatively have the potential to exceed SCAQMD, AVAQMD, and KCAPCD emission significance thresholds (see Table 3.3-19). Indirectly the Project would reduce operating emissions. Therefore, the Project's operation would have a less-than-significant cumulative regional impact (Class III).
- **Construction of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3).** Construction activities associated with the Project would expose sensitive receptors in the

populated areas along the construction route. The SCAQMD Localized Significance Threshold (LST) lookup tables used to determine Project significance do not apply to cumulative project evaluation; however, the significance criteria is based on downwind pollutant concentrations causing a new exceedance (NOx and CO) of an air quality standard, substantially increasing current exceedances (PM10 and PM2.5) of an air quality standard, and these general criteria are applicable standards for localized impact cumulative project analysis. For the emissions of any two projects to have the potential for significant cumulative downwind concentrations, they must both be in close proximity to limit the downwind dispersion from one site to the other and generally one of the projects must be able to cause an air quality standard exceedance on its own (conservation of mass principles dictate that two exhaust plumes of stable criteria pollutants do not add concentration, they mix concentration with the plume of highest concentration being diluted by the plume with the lower concentration). Therefore, it can be assumed that the potential for cumulative impacts to sensitive receptors is the same as the Project impacts to sensitive receptors, so the proposed Project would have cumulative significant impacts to sensitive receptors after mitigation (Class I).

- **Operation of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-4).** Direct operating emissions for the Project are minimal and not very localized, and indirectly the Project would reduce operating emissions. Since the proposed Project's operation will have minimum direct localized operating emissions and the project will help create an overall net emission decrease, it will have a less-than-significant cumulative localized impact to sensitive receptors (Class III).
- **Construction or operation of the Project would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds (Impact AQ-5).** Construction activities associated with the Project do not have large amounts of toxic air contaminant emissions, are of short duration, and do not have significant emissions in any single area that could create a significant risk to local populations. Similarly, the cumulative projects construction would not be expected to have significant emissions of toxic air contaminants, and would not have the potential to cumulatively exceed SCAQMD risk thresholds. Given the temporary nature and low toxic air contaminant emission level for the proposed Project's and cumulative projects, the proposed Project would have a less-than-significant cumulative health risk (Class III).
- **The Project would not conform to Federal General Conformity Rules (Impact AQ-6).** This impact is strictly applicable to single project evaluation. Therefore, cumulative impacts do not apply (No Impact).
- **The Project would create objectionable odors (Impact AQ-7).** Construction equipment and operations, such as asphalt paving, may create temporary and mildly objectionable odors. Such odors would not significantly affect a substantial number of people. To have the potential to combine with odors from the Project, odor-generating activities from other current and proposed Projects would have to occur concurrently, occur in very close proximity with the odor-generating activities of the Project, and result in a cumulatively worse odor condition. Given the temporary nature and relative mildness of the Project's construction odors, odor impacts related to the proposed Project would be adverse but not cumulatively significant (Class III).
- **The Project would not conform to Angeles National Forest air quality strategies (Impact AQ-8).** This impact is strictly applicable to single project evaluation. Therefore, cumulative impacts do not apply (No Impact).
- **The Project would not conform with applicable Air Quality Management Plans (Impact AQ-9).** This impact is strictly applicable to single project evaluation. Therefore, cumulative impacts do not apply (No Impact).
- **Emissions would contribute to climate change (Impact AQ-10).** This impact is already evaluated in a globally cumulative context. Therefore, cumulative impacts do not apply (No Impact).

Mitigation to Reduce the Project's Contribution to Significant Cumulative Effects

There are no additional feasible mitigation measures that could be imposed on the proposed Project to further reduce its contribution to cumulative air quality effects. All feasible construction emission mitigation measures have been recommended to mitigate Impacts AQ-1 and AQ-3.

3.3.7 Alternative 3: West Lancaster Alternative

3.3.7.1 Direct and Indirect Effects Analysis

Alternative 3 is described in detail in Section 2.3. This alternative remains within the same local air district jurisdictions, air basins, and SCAQMD SRAs; and so does not change the affected regional environment from that of the proposed Project, as described in Section 3.3.2.

This alternative's construction methods do not change from those described for Alternative 2 (SCE's Proposed Project). The proposed route for this alternative does not change from that of Alternative 2 within the KCAPCD or SCAQMD jurisdictions; therefore, the construction emissions for this alternative are only presented numerically for the AVAQMD jurisdiction within the MDAB.

This alternative would cause construction activities similar to those of the proposed Project, except it would:

- Decrease the number of new towers by one and increase the overall line length by 0.4 mile for Segment 4.

The maximum daily construction emissions for this very minor route change are identical to that assumed for the proposed Project. Annual emissions are identical to that estimated for the proposed Project for every year other than 2010. Appendix C provides the emission assumptions and detailed emission calculations for this alternative and shows a comparison with the annual emissions estimated for the proposed Project.

Regional Emission Thresholds (Criterion AIR1)

Construction emissions associated with Alternative 3 would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-1) in the same way as Alternative 2, with the exception of a very minor Project route adjustment in the AVAQMD jurisdiction that does not change the construction methods or the construction schedule overlap. Therefore, the AVAQMD, and other jurisdiction, maximum daily emissions are identical to those of Alternative 2 (see Table 3.3-18). Accordingly, this alternative has significant and unavoidable (Class I) regional air quality impacts for SCAQMD and AVAQMD. The recommended mitigation measures for Impact AQ-1 are identical to those recommended for Alternative 2. See Section 3.3.6.1 to provide maximum feasible mitigation for this Class I impact.

Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-2). This alternative would have identical direct and indirect operating emissions as Alternative 2. Therefore, like Alternative 2, due to the Project's indirect emission reductions this alternative's operating emissions would provide a beneficial regional operating emissions impact (Class IV).

SCAQMD Localized Significance Thresholds (Criterion AIR2)

Construction of Alternative 3 would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3). Alternative 3 is a minor route adjustment in a sparsely populated area. It will move the route slightly farther from two existing residences than the Alternative 2 route. However, it will not change the route or impacts in the SCAQMD jurisdiction, so the localized emissions presented in Table 3.3-20 are still valid for this alternative. The mitigation measures recommended for Impact AQ-1 mitigate construction emissions to the maximum feasible extent, so no additional mitigation is recommended for

this impact. Therefore, this alternative, like Alternative 2, will have significant and unavoidable (Class I) temporary air quality impacts to sensitive receptors in SCAQMD jurisdiction.

Operation of Alternative 3 would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-4). This alternative would have identical direct and indirect operating emissions as Alternative 2. Therefore, like Alternative 2, this alternative's operating emissions would have a less-than-significant impact (Class III) to local sensitive receptors.

Air Toxic Contaminant Emissions (Criterion AIR3)

Construction or operation of Alternative 3 would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds (Impact AQ-5). Alternative 3 does not impact the Project's construction within SCAQMD jurisdiction, and only marginally impacts construction emissions within AVAQMD jurisdiction. Therefore, like Alternative 2, this alternatives construction and operation emissions would not exceed SCAQMD risk thresholds so the Project would have less-than-significant (Class III) health risk impacts.

Federal General Conformity Rule (Criterion AIR4)

The Project would not conform to Federal General Conformity Rules (Impact AQ-6). Alternative 3 does not change the emissions in the ANF. Therefore, the impacts for this alternative are identical to Alternative 2 and this alternative has identical recommended mitigation of Alternative 2. Like Alternative 2, with incorporation of Mitigation Measure AQ-6, this alternative would conform to the SIP and would have a less-than-significant impact (Class II).

Odors (Criterion AIR5)

The Project would create objectionable odors (Impact AQ-7). Alternative 3 would have identical construction and operation odor potential as Alternative 2. Therefore, like Alternative 2, this alternative would have less-than-significant (Class III) odor impacts.

Angeles National Forest Strategy Conformance (Criterion AIR6)

The Project would not conform to Angeles National Forest air quality strategies (Impact AQ-8). Alternative 3 does not change the construction requirements and methods within the Angeles National Forest from those in Alternative 2. Therefore, like Alternative 2, with the incorporation of the air quality Mitigation Measures AQ-1a through AQ-1j, the air quality strategy would be compliant with ANF air quality strategies and the Project impacts would be less than significant (Class II).

Conformance with Applicable Air Quality Management Plans (Criterion AIR7)

The Project would not conform with applicable Air Quality Management Plans (Impact AQ-9). Alternative 3 has identical impacts, and recommended mitigation measures, as Alternative 2 in respect to conforming to AQMPs. Therefore, like Alternative 2, with incorporation of mitigation measures AQ-1a, AQ-1b, and AQ-1d. This alternative would be consistent with the currently approved Air Quality Management Plans and would have a less-than-significant impact (Class II).

Climate Change Impacts (Criterion AIR8)

Emissions would contribute to climate change (Impact AQ-10). The GHG emissions estimated for construction and operating activities are essentially the same as those for the proposed Project shown in Tables 3.3-22, and 3.3-23, as is the forecast indirect emission decrease. Therefore, this alternative has

essentially the identical impacts as the proposed Project and would provide a beneficial GHG emissions impact (Class IV).

3.3.7.2 Cumulative Effects Analysis

Alternative 3 is a minor reroute of Alternative 2 and as such has the same geographic extent, existing cumulative conditions, reasonably foreseeable future projects and changes, and impacts as Alternative 2. Therefore, Alternative 3 would have the same potential cumulative impacts as Alternative 2 (see Section 3.3.6.2).

3.3.8 Alternative 4: Chino Hills Route Alternatives

3.3.8.1 Direct and Indirect Effects Analysis

Alternative 4 is described in detail in Section 2.4. This set of four route alternatives remains within the same local air district jurisdictions and air basins as Alternative 2. However, these transmission route alternatives cover one more SCAQMD SRA (16 – North Orange County) than Alternative 2.

This alternative's construction methods do not change from those described for Alternative 2. The proposed route for this alternative does not change from that of the proposed Project within the KCAPCD or AVAQMD jurisdictions; therefore, the construction emissions for this alternative are only presented numerically for the SCAQMD jurisdiction.

This alternative would cause construction activities similar to those of the proposed Project, except it would:

For Alternative 4A

- Would require the construction of a new 4.5 acre gas-insulated switching station (in SRA 33).
- Would decrease the number of new towers by 90 to 92 in comparison with Alternative 2.
- Would not require the construction of Segments 8B or 8C from Chino Substation to Mira Loma Substation.
- Would not require wreckout and construction of 66kV lines.
- Would not require upgrade to Mira Loma substation.

For Alternative 4B

Construction activities would be the same as 4A, other than route, and:

- Would require 7 to 9 more new towers than 4A and route would be a corresponding amount longer.

For Alternative 4C

Construction activities would be the same as 4A, other than route, and:

- Would require 46 to 53 more towers than 4A, route would be a corresponding amount longer, and would require the wreckout of 25 to 27 existing towers.

For Alternative 4D

Construction activities would be the same as 4A, other than route, and:

- Would require 29 to 36 more new towers than 4A and route would be a corresponding amount longer.

The maximum daily construction emissions for each route under this alternative are assumed to be identical, with no additional overlapping construction activities, to that assumed for the proposed Project.

Annual emissions are identical to that estimated for the proposed Project for every year other than 2010, 2011, and 2012. Appendix C provides the emission assumptions and detailed emission calculations for this alternative and shows a comparison with the annual emissions estimated for the Alternative 2.

Regional Emission Thresholds (Criterion AIR1)

Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-1). Alternative 4 is the same as Alternative 2, with the exception of a Project route adjustment in the SCAQMD jurisdiction that does not change the construction methods or the maximum construction schedule overlap. Therefore, the SCAQMD, and other jurisdiction, maximum daily emissions are identical to those of Alternative 2 (see Table 3.3-18). Accordingly, this alternative has significant and unavoidable (Class I) regional air quality impacts for SCAQMD and AVAQMD. The recommended mitigation measures are identical to those recommended for Alternative 2. See Section 3.3.6.1 to provide maximum feasible mitigation for this Class I impact.

Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-2). Alternative 4 would have nearly identical direct and identical indirect operating emissions as Alternative 2. There would be some minor additional inspection and maintenance activities associated with the new switchyard, but these emissions would not be anywhere near the SCAQMD regional significance criteria. Therefore, like Alternative 2, due to the Project's indirect emission reductions this alternative's operating emissions would provide a beneficial regional operating emissions impact (Class IV).

SCAQMD Localized Significance Thresholds (Criterion AIR2)

Construction of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3). Alternative 4 is a route adjustment in a sparsely populated area. It will also eliminate construction in more populated areas from the Chino Substation to the Mira Loma substation. Therefore, in comparison with Alternative 2, this alternative would have a lower potential for adverse impacts to sensitive receptors. However, overall it will not change the level of localized impact in the SCAQMD jurisdiction, so the localized emissions presented in Table 3.3-20, with the removal of the Mira Loma substation row, are still valid for this alternative.

The new switchyard construction, for Alternative 4B and 4D only, adds another potential location for localized impacts. Alternative 4A and 4C also have a new switchyard, but for those alternatives the switchyard would be more than a mile and more than 700 meters, respectively from the nearest residential or other sensitive receptor. The switchyard for Alternative 4B and 4D is approximately 400 meters from the nearest residential receptor. For this location that is located in SRA 33 the NOx, PM10 and PM2.5 LST significance thresholds for 400 meters from a 5 acre site, assuming linear interpolation between the 200 and 500 meter values shown in Table 3.3-15, would be 680, 261, and 128 pounds per day respectively. The Switchyard construction daily emissions will be nowhere near those values so no additional significant impacts will result from Alternative 4.

The mitigation measures recommended for Impact AQ-1 mitigate construction emissions to the maximum feasible extent, so no additional mitigation is recommended for this impact. Therefore, this alternative, like Alternative 2, will have significant and unavoidable (Class I) temporary air quality impacts to sensitive receptors in SCAQMD jurisdiction.

Operation of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-4). Alternative 4 would have nearly identical direct and identical indirect operating emissions as

Alternative 2. There would be some minor additional inspection and maintenance activities associated with the new switchyard, but these emissions would not be anywhere near the SCAQMD localized significance criteria that would apply to this remote switchyard. Therefore, like Alternative 2, this alternative's operating emissions would have a less-than-significant impact (Class III) to local sensitive receptors.

Air Toxic Contaminant Emissions (Criterion AIR3)

Construction or operation of the Project would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds (Impact AQ-5). Alternative 4 does not, with the exception of the construction and operation of the new switchyard, impact the Project's construction methods or direct operating emissions within SCAQMD jurisdiction, and does not impact emissions in the AVAQMD or KCAPCD jurisdiction. Additionally, the Project's construction occurs over a very limited period that would further reduce the long term chronic exposures (carcinogenic and non-carcinogenic exposures) to DPM and other air toxic contaminants. Therefore, like Alternative 2, the risk from Project construction at any given receptor area would be well below the SCAQMD significance thresholds so the Project would have less-than-significant (Class III) health risk impacts.

Federal General Conformity Rule (Criterion AIR4)

The Project would not conform to Federal General Conformity Rules (Impact AQ-6). Alternative 4 does not change the emissions in the ANF. Therefore, the impacts for this alternative are identical to Alternative 2 and this alternative has identical recommended mitigation of Alternative 2. Like Alternative 2, with incorporation of Mitigation Measure AQ-6, this alternative would conform to the SIP and would have a less-than-significant impact (Class II).

Odors (Criterion AIR5)

The Project would create objectionable odors (Impact AQ-7). Alternative 4 would have essentially identical construction and operation odor potential as Alternative 2. Therefore, like Alternative 2, this alternative would have less-than-significant (Class III) odor impacts.

Angeles National Forest Strategy Conformance (Criterion AIR6)

The Project would not conform to Angeles National Forest air quality strategies Impact AQ-8). Alternative 4 does not change the construction requirements and methods within the Angeles National Forest from those in Alternative 2. Therefore, like Alternative 2, with the incorporation of the air quality Mitigation Measures AQ-1a through AQ-1j, the air quality strategy would be compliant with ANF air quality strategies and the Project impacts would be less than significant (Class II).

Conformance with Applicable Air Quality Management Plans (Criterion AIR7)

The Project would not conform with applicable Air Quality Management Plans (Impact AQ-9). Alternative 4 has identical impacts, and recommended mitigation measures, as Alternative 2 in respect to conforming to AQMPs. Therefore, like Alternative 2, with incorporation of mitigation measures AQ-1a, AQ-1b, and AQ-1d, this alternative would be consistent with the currently approved Air Quality Management Plans and would have a less-than-significant impact (Class II).

Climate Change Impacts (Criterion AIR8)

Emissions would contribute to climate change (Impact AQ-10). The GHG emissions estimated for construction and operating activities, while slightly different than that shown for Alternative 2 (Tables 3.3-22, and 3.3-23), would due to the very large indirect emissions reduction have the same overall significant Project GHG emission reduction. Therefore, this alternative has essentially the identical impacts as the proposed Project and would provide a beneficial GHG emissions impact (Class IV).

3.3.8.2 Cumulative Effects Analysis

Alternative 4 is a reroute of Alternative 2 in Segment 8, and as such has the same general geographic extent, existing cumulative conditions, reasonably foreseeable future projects and changes, and impacts as Alternative 2. Specifically, the new route would not have as many cumulative projects within one mile as the original route for Segment 8, and as such would have a lower potential for cumulative impacts along Segment 8. However, Alternative 4 would have the same cumulative impact levels as Alternative 2 (see Section 3.3.6.2).

3.3.9 Alternative 5: Partial Underground Alternative

3.3.9.1 Direct and Indirect Effects Analysis

Alternative 5 is described in detail in Section 2.5. This alternative only covers a 3.5 mile portion of the Segment 8 route within SRA 33. However, this alternative introduces completely different construction methods and would be in construction from 2009 through 2013. The proposed route for this alternative does not change from that of the proposed Project within the KCAPCD or AVAQMD jurisdictions; therefore, the construction emissions for this alternative are only presented numerically for the SCAQMD jurisdiction.

This alternative would cause construction activities similar to those of the proposed Project, except it would:

- Require the construction of a 3.5 miles of undergrounded lines (in SRA 33).
- Decrease the number of new towers by 15 in comparison with Alternative 2.

The maximum daily construction emissions and annual emissions for this alternative are different from Alternative 2 in the SCAQMD jurisdiction. Appendix C provides the emission assumptions and detailed emission calculations for this alternative and shows a comparison with the annual emissions estimated for the Alternative 2.

Regional Emission Thresholds (Criterion AIR1)

Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-1). Alternative 5 is the same as Alternative 2 for the AVAQMD and KCAPCD jurisdictions. However, the worst case daily emissions for SCAQMD would increase due to the additional construction activities required for this alternative, but would not cause any additional emission exceedances, just increase the existing emission exceedances. Overall, this alternative would disproportionally increase criteria pollutant emissions in comparison with Alternative 2 (see Appendix C).

Implementation of recommended Mitigation Measures AQ-1a through AQ-1j, as previously recommended for Alternative 2, and two additional mitigation measures added to mitigate the waste soil hauling

emissions would reduce the construction emissions to the maximum feasible degree. However, after mitigation the regional construction emission impacts are still significant and unavoidable (Class I)

Additional Mitigation Measures for Impact AQ-1

AQ-1k **Tunnel Waste Trip Distance Minimization.** The haul trip distances for the waste soil and rock from tunneling shall be minimized to the extent feasible by working with other agencies to identify the closest locations for reuse (sand and gravel plants) or disposal of the tunneling soil and rock wastes.

AQ-1l **Tunnel Waste Truck Capacity.** Double trailer trucks with a minimum total effective capacity of 20 cubic yards will be used to haul the tunneling waste soil and rock.

Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-2). Alternative 5 would have increased operating emissions in comparison with Alternative 2, due to the increased inspection and maintenance requirements for the underground line. However, this increase, which is assumed to be limited to occasional small truck trips, is not considered to be higher on a daily basis that the operating emissions already calculated for the proposed project. Therefore, like Alternative 2, due to the Project's indirect emission reductions this alternative's operating emissions would provide a beneficial regional operating emissions impact (Class IV).

SCAQMD Localized Significance Thresholds (Criterion AIR2)

Construction of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3). Alternative 5 covers an area that includes significant residential development. The location of the construction equipment will, by necessity, have to be very close to homes. Table 3.3-24 presents the comparison of worst-case daily onsite construction emissions, showing only the tunneling off-road equipment emissions, for the underground line and the SRA 33 LST for a one-acre construction site with receptors located 25 meters from the site. Appendix C provides the assumptions for the worst-case construction activity for localized impact assessment for this alternative.

Table 3.3-24. Alternative 5 Localized Impact Emissions Comparison – Additional Construction

	NOx	PM10	PM2.5
Undergrounding construction (1-acre)	494	20	18
Localized Significance Threshold (25 meters)	118	5	4
Exceeds (YES/NO)	YES	YES	YES

The mitigation measures recommended for Impact AQ-1 mitigate construction emissions to the maximum feasible extent, so no additional mitigation is recommended for this impact. This alternative creates a new significant localized NOx impact that does not occur for the proposed project and creates higher magnitude PM10 and PM2.5 significant impacts. Therefore, this alternative, like Alternative 2, will have significant and unavoidable (Class I) temporary air quality impacts to sensitive receptors in SCAQMD jurisdiction.

Operation of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-4). Alternative 5 would have additional inspection and maintenance activities associated with the underground section; however, those emissions would be limited to smaller vehicles going to the from the underground access locations and would not result in a considerable amount of emissions in any one location and these inspection and maintenance emissions would not be anywhere near the SCAQMD localized significance criteria. Therefore, like Alternative 2, this alternative's operating emissions would have a less-than-significant impact (Class III) to local sensitive receptors.

Air Toxic Contaminant Emissions (Criterion AIR3)

Construction or operation of the Project would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds (Impact AQ-5). Alternative 5 does not, with the exception of the construction and operation of the underground section, impact the Project's construction methods or direct operating emissions within SCAQMD jurisdiction, and does not impact emissions in the AVAQMD or KCAPCD jurisdiction. Additionally, the Project's construction occurs over a limited period, no more than 5 years that would further reduce the long term chronic exposures (carcinogenic and non-carcinogenic exposures) to DPM and other air toxic contaminants. Therefore, like Alternative 2, the risk from Project construction at any given receptor area is expected to be below the SCAQMD significance thresholds so the Project would have less-than-significant (Class III) health risk impacts.

Federal General Conformity Rule (Criterion AIR4)

The Project would not conform to Federal General Conformity Rules (Impact AQ-6). Alternative 5 does not change the emissions in the ANF. Therefore, the impacts for this alternative are identical to Alternative 2 and this alternative has identical recommended mitigation of Alternative 2. Like Alternative 2, with incorporation of Mitigation Measure AQ-6, this alternative would conform to the SIP and would have a less-than-significant impact (Class II).

Odors (Criterion AIR5)

The Project would create objectionable odors (Impact AQ-7). Alternative 5 would have essentially identical construction and operation odor potential as Alternative 2. Therefore, like Alternative 2, this alternative would have less-than-significant (Class III) odor impacts.

Angeles National Forest Strategy Conformance (Criterion AIR6)

The Project would not conform to Angeles National Forest air quality strategies (Impact AQ-8). Alternative 5 does not change the construction requirements and methods within the Angeles National Forest from those in Alternative 2. Therefore, like Alternative 2, with the incorporation of the air quality Mitigation Measures AQ-1a through AQ-1j, the air quality strategy would be compliant with ANF air quality strategies and the Project impacts would be less than significant (Class II).

Conformance with Applicable Air Quality Management Plans (Criterion AIR7)

The Project would not conform with applicable Air Quality Management Plans (Impact AQ-9). Alternative 5 has identical impacts, and recommended mitigation measures, as Alternative 2 in respect to conforming to AQMPs. Therefore, like Alternative 2, with incorporation of mitigation measures AQ-1a, AQ-1b, and AQ-1d. This alternative would be consistent with the currently approved Air Quality Management Plans and would have a less-than-significant impact (Class II).

Climate Change Impacts (Criterion AIR8)

Emissions would contribute to climate change (Impact AQ-10). The GHG emissions estimated for construction are higher for this alternative than for Alternative 2 (Tables 3.3-22, and 3.3-23); however, due to the very large indirect emissions reductions would have the same overall significant Project GHG emission reduction. Therefore, this alternative has essentially the identical impacts as the proposed Project and would provide a beneficial GHG emissions impact (Class IV).

3.3.9.2 Cumulative Effects Analysis

Alternative 5 revises a small portion of the Segment 8 route from being overhead lines to being underground lines, and as such has the same general geographic extent, existing cumulative conditions, reasonably foreseeable future projects and changes, and impacts as Alternative 2. Therefore, Alternative 5 would have the same cumulative impact levels as Alternative 2 (see Section 3.3.6.2).

3.3.10 Alternative 6: Maximum Helicopter Construction in the ANF Alternative

3.3.11.1 Direct and Indirect Effects Analysis

The alternatives are described in detail in Section 2. This alternative changes the construction method in the more remote areas of Segments 6 and 11, by increasing the number of towers that are constructed by helicopter construction. This will impact emissions within the SoCAB and AVAQMD portion of the MDAB from 2010 through 2013. This alternative would cause construction activities similar to those of the proposed Project, except it would:

- Require the helicopter construction of an additional 110 towers in comparison to Alternative 2.
- Require the helicopter wreckout of an additional 107 towers in comparison with Alternative 2.
- Require the construction of additional helicopter staging areas in comparison with Alternative 2.
- Require less road construction and road rehabilitation work in comparison with Alternative 2.

The maximum daily construction emissions for this alternative is the same as Alternative 2, while the annual emissions for this alternative are different from Alternative 2 in the SCAQMD and AVAQMD jurisdictions. Appendix C provides the emission assumptions and detailed emission calculations for this alternative and shows a comparison with the annual emissions estimated for Alternative 2.

Regional Emission Thresholds (Criterion AIR1)

Construction emissions associated with Alternative 6 would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-1) in the same way as Alternative 2, with the exception that there would be more maximum emission days due to the increased length of the helicopter construction. Therefore, the maximum daily emissions are identical to those of Alternative 2 (see Table 3.3-18) and the maximum annual emissions from KCAPCD are not impacted by this alternative. Accordingly, this alternative has significant and unavoidable (Class I) regional air quality impacts for SCAQMD and AVAQMD. The recommended mitigation measures for Impact AQ-1 are identical to those recommended for Alternative 2. See Section 3.3.6.1 to provide maximum feasible mitigation for this Class I impact.

Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-2). Alternative 6 would have identical direct and indirect operating emissions as Alternative 2. Therefore, like Alternative 2, due to the project's indirect emission reductions this alternative's operating emissions would provide a beneficial regional operating emissions impact (Class IV).

SCAQMD Localized Significance Thresholds (Criterion AIR2)

Construction of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3). Alternative 6 covers an area that is generally remote, as would be expected for tower sites

constructed by helicopter construction methods. The helicopter staging areas and the new towers constructed by helicopter are all more than 500 meters away from any sensitive receptor locations. Additionally, the majority of the helicopter emissions occur above ground level and are also well dispersed through the action of the rotors. Therefore, while the helicopters have relatively high emissions of certain pollutants (NOx in particular) the increase in helicopter construction from this alternative will not change the impacts to sensitive receptors. Therefore, this alternative, like Alternative 2, will have significant and unavoidable (Class I) temporary air quality impacts to sensitive receptors in SCAQMD jurisdiction.

Operation of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-4). Alternative 6 would have identical direct and indirect operating emissions as Alternative 2. Therefore, like Alternative 2, this alternative's operating emissions would have a less than significant impact (Class III) to local sensitive receptors.

Air Toxic Contaminant Emissions (Criterion AIR3)

Construction or operation of the Project would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds (Impact AQ-5). Alternative 6 does not, with the exception of the additional helicopter construction activities, impact the project's construction methods or direct operating emissions within SCAQMD and AVAQMD jurisdictions, and does not impact emissions in the KCAPCD jurisdiction. Additionally, the differences in the project's construction for this alternative occurs in remote areas with no nearby sensitive receptors and over a limited period of time, no more than 4 years, that would further reduce the long term chronic exposures (carcinogenic and non-carcinogenic exposures) to DPM and other air toxic contaminants. Therefore, like Alternative 2, the risk from project construction at any given receptor area is expected to be below the SCAQMD significance thresholds so the project would have less than significant (Class III) health risk impacts.

Federal General Conformity Rule (Criterion AIR4)

The Project would not conform to Federal General Conformity Rules (Impact AQ-6). Alternative 6 results in changes to the annual construction emissions in the ANF portions of the SoCAB and the AVAQMD portion of the MDAB from 2010 through 2012. The revised annual emissions in the SoCAB and AVAQMD portion of the MDAB are provided below in Table 3.3-25. As shown for Alternative 2 in Table 3.3-21, the Project's CO, PM10, PM2.5, and SO_2 construction emissions are well below levels needed to exceed the general conformity applicability trigger levels, and the extra helicopter construction activities will not impact these pollutants to nearly the extent to reach anywhere near their trigger levels, so the emissions of these pollutants are not shown in Table 3.3-25.

Table 3.3-25. Alternative 6 Emissions/General Conformity Emissions Threshold Comparison

		Emissions (Tons/year)	
Air Basin		NOx	VOC
SoCAB	2010 Emissions	32.8	8.0
	2011 Emissions	35.5	6.0
	2012 Emissions	28.0	6.0
	Applicability Trigger	10	10
	Exceeds (YES/NO)	YES	NO
MDAB	2010 Emissions	11.6	2.7

Table 3.3-25. Alternative 6 Emissions/General Conformity Emissions Threshold Comparison

		Emissions (Tons/year)	
AVAQMD	2011 Emissions	5.3	0.8
	2012 Emissions	25.4	5.4
	Applicability Trigger [a]	25	25
	Exceeds (YES/NO)	YES	NO

Table Note:
a- Antelope Valley portion of the MDAB.

A comparison of Table 3.3-21 and Table 3.3-25 shows that Alternative 6 has higher construction NOx emissions for project construction during 2010 through 2012, and has the same overall findings with respect to exceeding General Conformity applicability triggers in the SoCAB but creates a new exceedance of the AVAQMD/MDAB applicability trigger for NOx. However, the NOx emission estimate does not include the NOx reduction from the recommended off-road equipment mitigation measures, which would reduce the annual NOx emissions in the AVAQMD portion of the MDAB to less than 25 tons per year in 2012. Therefore, while the magnitude of the SoCAB emissions are higher than for Alternative 2, the impact level for this alternative is identical to Alternative 2 and this alternative has identical recommended mitigation of Alternative 2. Like Alternative 2, with incorporation of Mitigation Measure AQ-6, this alternative would conform to the SIP and would have a less-than-significant impact (Class II).

Odors (Criterion AIR5)

Project would create objectionable odors (Impact AQ-7). Alternative 6 would have essentially identical construction and operation odor potential as Alternative 2. Therefore, like Alternative 2, this alternative would have less than significant (Class III) odor impacts.

Angeles National Forest Strategy Conformance (Criterion AIR6)

The Project would not conform to Angeles National Forest air quality strategies (Impact AQ-8). Alternative 6 increases the amount of helicopter construction within the Angeles National Forest from that required by Alternative 2. This change will increase certain emissions (NOx and SOx) and decrease others (PM10). However, with the incorporation of the air quality Mitigation Measures AQ-1a through AQ-1j, this alternative would continue to have the same impact finding as Alternative 2. Therefore, the air quality strategy would be compliant with ANF air quality strategies and the project impacts would be less than significant after mitigation (Class II).

Conformance with Applicable Air Quality Management Plans (Criterion AIR7)

The Project would not conform with applicable Air Quality Management Plans (Impact AQ-9). Alternative 6 has identical impacts, and recommended mitigation measures, as Alternative 2 in respect to conforming to AQMPs. Therefore, like Alternative 2, with incorporation of mitigation measures AQ-1a, AQ-1b, and AQ-1d, this alternative would be consistent with the currently approved Air Quality Management Plans and would have a less than significant impact (Class II).

Climate Change Impacts (Criterion AIR8)

Emissions would contribute to climate change (Impact AQ-10). The GHG emissions estimated for construction are higher for this alternative than for Alternative 2 (Tables 3.3-22, and 3.3-23); however,

due to the very large indirect emissions reductions would have the same overall significant project GHG emission reduction. Therefore, this alternative has essentially the identical impacts as the proposed Project and would provide a beneficial GHG emissions impact (Class IV).

3.3.9.2 Cumulative Effects Analysis

Alternative 6 changes the construction methods but does not change the construction route; therefore, it has the same general geographic extent, existing cumulative conditions, reasonably foreseeable future projects and changes, impacts as Alternative 2. Therefore, Alternative 6 would have the same cumulative impact levels as Alternative 2 (see Section 3.3.6.2).

3.3.11 Alternative 7: 66-kV Subtransmission Alternative

3.3.11.1 Direct and Indirect Effects Analysis

The alternatives are described in detail in Section 2. This alternative changes the amount of construction method and the routing in Segments 7 and 8, by addition 66-kV construction and wreck out requirements. This will impact emissions within the SoCAB from 2009 through 2013. This alternative would cause construction activities similar to those of the proposed Project, except it would:

- Would require the underground construction of approximately 3,300 feet and another 6,000 feet of 66 kV line in Segment 7.
- Would require the construction of approximately 1.63 miles of new overhead 66 kV poles/line.
- Would require the demolition of the existing 66 kV poles/lines being replaced in Segment 7 and 8.

The maximum daily construction emissions and annual emissions for this alternative are different from Alternative 2 in the SCAQMD jurisdictions. Appendix C provides the emission assumptions and detailed emission calculations for this alternative and shows a comparison with the annual emissions estimated for Alternative 2.

Regional Emission Thresholds (Criterion AIR1)

Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-1). Alternative 7 is the same as Alternative 2 for the KCAPCD and AVAQMD jurisdictions. While there are incremental emission increases for Alternative 7, they are not forecast to occur at the same time as the previously determine Alternative 2 worst-case day or create a new worst day.

Therefore, the SCAQMD, and other jurisdiction, maximum daily emissions are identical to those of Alternative 2 (see Table 3.3-18). Accordingly, this alternative has significant and unavoidable (Class I) regional air quality impacts for SCAQMD and AVAQMD. The recommended mitigation measures for Impact AQ-1 are identical to those recommended for Alternative 2. See Section 3.3.6.1 to provide maximum feasible mitigation for this Class I impact.

Operating emissions would not exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds (Impact AQ-2). Alternative 7 would have essentially identical direct and identical indirect operating emissions as Alternative 2. Therefore, like Alternative 2, due to the Project's indirect emission reductions this alternative's operating emissions would provide a beneficial regional operating emissions impact (Class IV).

SCAQMD Localized Significance Thresholds (Criterion AIR2)

Construction of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-3). The 66-kV construction proposed under Alternative 7 does not have higher localized emission potentials from that already evaluated under Alternative 2. Therefore, this alternative, like Alternative 2, will have significant and unavoidable (Class I) temporary air quality impacts to sensitive receptors in SCAQMD jurisdiction.

Operation of the Project would expose sensitive receptors to substantial pollutant concentrations (Impact AQ-4). Alternative 7 would have essentially identical direct and identical indirect operating emissions as Alternative 2. Therefore, like Alternative 2, this alternative's operating emissions would have a less-than-significant impact (Class III) to local sensitive receptors.

Air Toxic Contaminant Emissions (Criterion AIR3)

Construction or operation of the Project would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds (Impact AQ-5). Alternative 7 does not, with the exception of the additional 66-kV construction activities, impact the Project's construction methods or direct operating emissions within SCAQMD jurisdiction, and does not impact emissions in the AVAQMD and KCAPCD jurisdictions. Additionally, the differences in the Project's construction for this alternative are fairly minor and occur over a limited period of time that would further reduce the long term chronic exposures (carcinogenic and non-carcinogenic exposures) to DPM and other air toxic contaminants. Therefore, like Alternative 2, the risk from Project construction at any given receptor area is expected to be below the SCAQMD significance thresholds so the Project would have less-than-significant (Class III) health risk impacts.

Federal General Conformity Rule (Criterion AIR4)

The Project would not conform to Federal General Conformity Rules (Impact AQ-6). Alternative 6 does not change the emissions in the ANF. Therefore, the impacts for this alternative are identical to Alternative 2 and this alternative has identical recommended mitigation of Alternative 2. Like Alternative 2, with incorporation of Mitigation Measure AQ-6, this alternative would conform to the SIP and would have a less-than-significant impact (Class II).

Odors (Criterion AIR5)

Project would create objectionable odors (Impact AQ-7). Alternative 7 would have essentially identical construction and operation odor potential as Alternative 2. Therefore, like Alternative 2, this alternative would have less-than-significant (Class III) odor impacts.

Angeles National Forest Strategy Conformance (Criterion AIR6)

The Project would not conform to Angeles National Forest air quality strategies (Impact AQ-8). Alternative 7 does not change the construction requirements and methods within the Angeles National Forest from those in Alternative 2. Therefore, like Alternative 2, with the incorporation of the air quality Mitigation Measures AQ-1a through AQ-1j, the air quality strategy would be compliant with ANF air quality strategies and the Project impacts would be less than significant (Class II).

Conformance with Applicable Air Quality Management Plans (Criterion AIR7)

The Project would not conform with applicable Air Quality Management Plans (Impact AQ-9). Alternative 7 has identical impacts, and recommended mitigation measures, as Alternative 2 in respect to

conforming to AQMPs. Therefore, like Alternative 2, with incorporation of mitigation measures AQ-1a, AQ-1b, and AQ-1d, this alternative would be consistent with the currently approved Air Quality Management Plans and would have a less-than-significant impact (Class II).

Climate Change Impacts (Criterion AIR8)

Emissions would contribute to climate change (Impact AQ-10). The GHG emissions estimated for construction are slightly higher for this alternative than for Alternative 2 (Tables 3.3-22, and 3.3-23); however, due to the very large indirect emissions reductions would have the same overall significant Project GHG emission reduction. Therefore, this alternative has essentially the identical impacts as the proposed Project and would provide a beneficial GHG emissions impact (Class IV).

3.3.11.2 Cumulative Effects Analysis

Alternative 7 does not significantly change the construction route; therefore, it has the same general geographic extent, existing cumulative conditions, reasonably foreseeable future projects and changes, and impacts as Alternative 2. Therefore, Alternative 7 would have the same cumulative impact levels as Alternative 2 (see Section 3.3.6.2).

3.3.12 Impact Significance Summary

Table 3.3-26 summarizes the direct and indirect environmental impacts of the proposed Project (Alternative 2) and the other alternatives on air quality. The direct and indirect effects of the proposed Project and alternatives have been fully described in Sections 3.3.6 through 3.3.10 above.

Table 3.3-26. Summary of Impacts and Mitigation Measures – Air Quality

Impact	Impact Significance								Mitigation Measures
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
AQ-1: Construction emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Yes	AQ-1a: Implement Construction Fugitive Dust Control Plan. AQ-1b: Off-road Diesel-fueled Equipment Standards. AQ-1c: Limit Vehicle Traffic and Equipment Use. AQ-1d: Heavy Duty Diesel Haul Vehicle On-road Equipment Standards. AQ-1e: On-road Vehicles Standards. AQ-1f: Properly Maintain Mechanical Equipment. AQ-1g: Restrict Engine Idling to 5 Minutes. AQ-1h: Schedule Deliveries Outside of Peak Traffic Hours. AQ-1i: Off-road Gasoline-fueled Equipment Standards. AQ-1j: Reduction of Helicopter Emissions. AQ-1k: Tunnel Waste Trip Distance Minimization (Alt 5 only) AQ-1l: Tunnel Waste Truck Capacity (Alt 5 only)

Table 3.3-26. Summary of Impacts and Mitigation Measures – Air Quality

Impact	Impact Significance								Mitigation Measures
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	NFS Lands*	
AQ-2: Operating emissions would exceed the SCAQMD, AVAQMD, and/or KCAPCD regional emission thresholds	Class IV	Class IV	Class IV	Class IV	Class IV	Class IV	Class IV	Yes	None recommended.
AQ-3: Construction of the Project would expose sensitive receptors to substantial pollutant concentrations	Class I	Class I	Class I	Class I	Class I	Class I	Class I	No	AQ-1a to AQ-1j
AQ-4: Operation of the Project would expose sensitive receptors to substantial pollutant concentrations	Class III	Class III	Class III	Class III	Class III	Class III	Class III	No	None recommended.
AQ-5: Construction or operation of the Project would generate toxic air contaminant emissions that would exceed SCAQMD risk thresholds.	Class III	Class III	Class III	Class III	Class III	Class III	Class III	No	None recommended.
AQ-6: The Project would not conform to Federal General Conformity Rules	Class II	Class II	Class II	Class II	Class II	Class II	Class II	Yes	AQ-6: General Conformity Emission Offset Mitigation
AQ-7: The Project would create objectionable odors	Class III	Class III	Class III	Class III	Class III	Class III	Class III	Yes	None recommended.
AQ-8: The Project would not conform to Angeles National Forest air quality strategies	Class II	Class II	Class II	Class II	Class II	Class II	Class II	Yes	AQ-1a to AQ-1j
AQ-9: The Project would not conform with applicable Air Quality Management Plans	Class II	Class II	Class II	Class II	Class II	Class II	Class II	Yes	AQ-1a, AQ-1b, and AQ-1d
AQ-10: Emissions would contribute to climate change	Class IV	Class IV	Class IV	Class IV	Class IV	Class IV	Class IV	Yes	None recommended.

* Indicates whether this impact is applicable to the portion of the Project on National Forest System lands.

Proposed Project (Alternative 2)

- Segment 4
- Segment 5
- Segment 6
- Segment 7
- Segment 8A
- Segment 8B
- Segment 8C
- Segment 10
- Segment 11
- Substations
- Other Project Alternatives
- Air Quality District
- Angeles National Forest

1" = 7 miles

1:443,520

0 1 2 4 6 8 10 Miles

Windhub
Cottonwind
Whirlwind
Antelope
Vincent
Gould
Goodrich
Rio Hondo
Mesa
Chino
Mira Loma

10
4
5
6
11
7
8A
8B
8C

West Lancaster Alternative 3

Maximum Helicopter Construction in the ANF Alternative 6

Partial Underground Alternative 5

66-kV Subtransmission Alternative 7

Chino Hills Route Alternative 4 (A-D)

Kern County APCD
Mojave Desert AQMD
Antelope Valley AQMD
South Coast AQMD

Angeles National Forest
San Bernardino National Forest
Cleveland National Forest

Mojave
Rosamond
Kern
Edwards Air Force Base
Los Angeles
Lancaster
Palmdale
San Bernardino
Adelanto
Victorville
Wrightwood
Acton
Santa Clarita
San Fernando
Burbank
Glendale
Altadena
Pasadena
Arcadia
Bradbury
Azusa
Claremont
Fontana
West Hollywood
Alhambra
Covina
Montclair
Pomona
Ontario
Los Angeles
Santa Monica
Commerce
Industry
Whittier
Inglewood
Downey
Chino Hills
Riverside
Compton
Fullerton
Yorba Linda
Orange
Cerritos
Corona
Redondo Beach
Torrance
Long Beach
Anaheim
Orange
Rancho Palos Verdes
Huntington Beach
Irvine

Aspen Environmental Group

Figure 3.3-1

Air Quality Jurisdictions