C.2 AIR QUALITY

This section addresses the environmental setting and impacts related to the Proposed Project and alternatives. Specifically, Section C.2.1 provides a description of the environmental baseline and regulatory settings, followed by an environmental impacts analysis of the Proposed Project in Section C.2.2. Impact analysis for the alternatives is provided in Sections C.2.3 and C.2.4.

C.2.1 ENVIRONMENTAL BASELINE AND REGULATORY SETTING

C.2.1.1 Environmental Setting

C.2.1.1.1 *Climate and Meteorology*

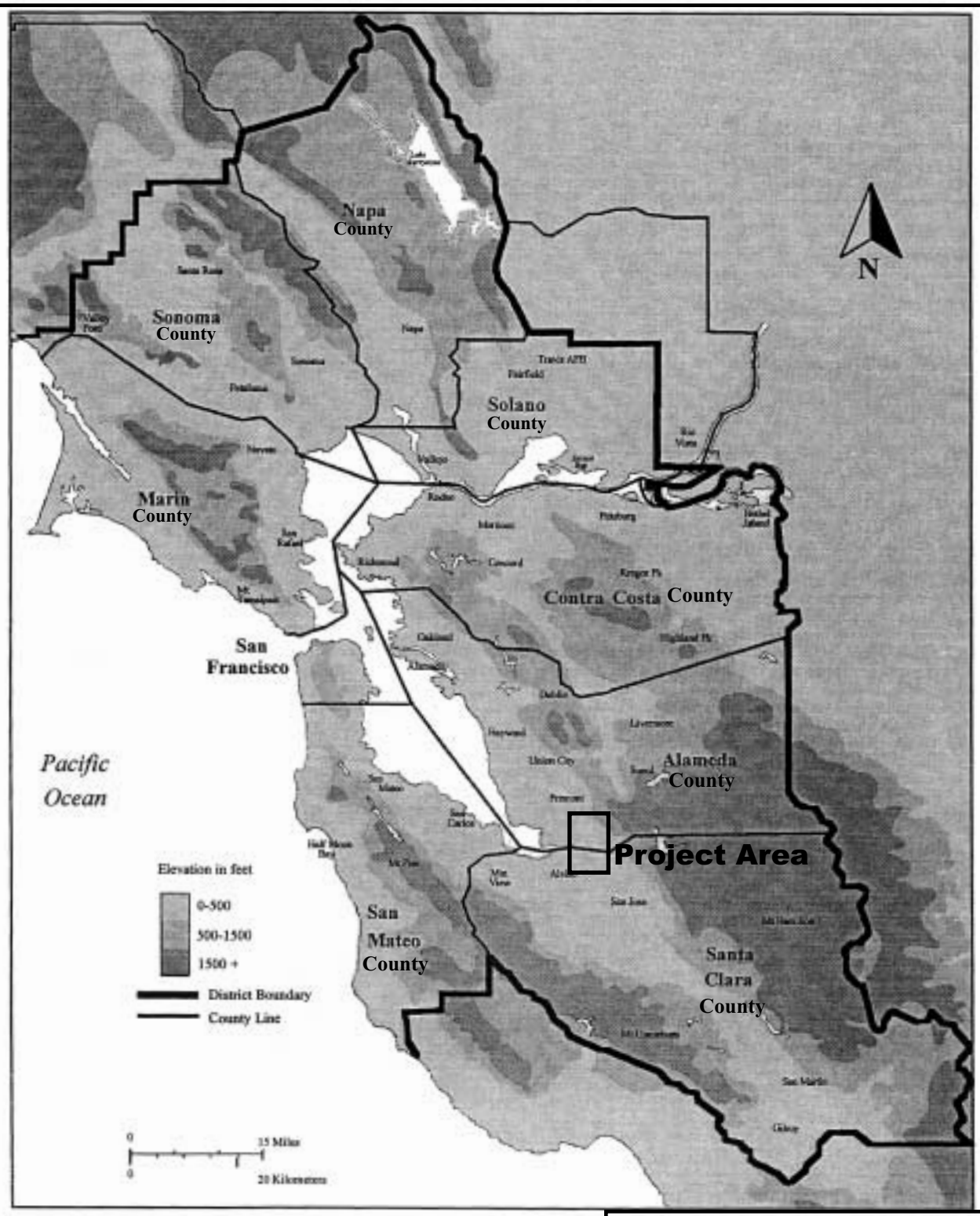
The study area, which includes the Proposed Project and alternative alignments and substations, lies within the San Francisco Bay Area (see Figure C.2-1), which is characterized by moderately wet winters and dry summers. The regional climate is dominated by a strong and persistent high pressure system that frequently lies off the Pacific coast (generally known as the *Pacific High*). The Pacific High shifts northward or southward in response to seasonal changes or the presence of cyclonic storms. Besides the influence from the Pacific High, other important meteorological characteristics influencing air quality in the study area are the persistent temperature inversions, predominance of on shore winds, mountain ridge and valley topography, and prevalent sunlight.

Temperature and Precipitation. A monthly climate summary for a monitoring station in Livermore was selected to characterize the climate of the study area. As described in Table C.2-1, average summer (July) high and low temperatures in the Livermore area are 89.5 F and 54.0 F, respectively. Average winter (January) high and low temperatures in the Livermore area are 56.6 F and 36.2 F, respectively. Annual rainfall at the monitoring stations averages 14.52 inches. Most of the annual rainfall occurs between November and April, with minor precipitation during summer months.

Table C.2-1 Monthly Temperature and Precipitation in Livermore

Month	Temperature (F)		Precipitation (inches)
	Maximum	Minimum	
January	56.6	36.2	3.01
February	60.9	38.9	2.59
March	64.8	40.8	2.12
April	70.6	43.3	1.08
May	76.6	47.5	0.43
June	83.1	51.5	0.10
July	89.5	54.0	0.02
August	88.8	53.8	0.05
September	86.5	52.3	0.16
October	78.1	47.4	0.71
November	66.2	40.7	1.75
December	57.3	36.6	2.50

Note: The period of record for both monitoring stations is from April 1, 1930 to July 31, 2000.
Source: Western Regional Climate Center, 2000.



Not to Scale

Source: BAAQMD CEQA Guidelines, 1996

Tri-Valley 2002 Capacity Increase Project EIR

Figure C.2-1

Bay Area Air Quality Management District Jurisdiction

Aspen Environmental Group

Winds. Long-term wind measurement data in the form of prevailing and secondary direction and average wind speed are available for the Livermore area (see Table C.2-2). The prevailing wind direction in Livermore is from the southwest with an average speed of 5.1 miles per hour (mph). However, northeast winds with average speeds of 3.1 mph prevail in the winter. The Proposed Project would pass through the Altamont Pass wind energy generation area where some short-term wind measurements have been collected. The data indicates mean monthly wind speeds of up to 34 mph in the summer. The high-sustained winds in this area occur during summer (June, July, and August), usually between 6:00 p.m. and midnight when there is the greatest temperature difference between the coast and valley. These winds are localized within the Altamont Pass area, just west of the existing Tesla Substation. The highest peak wind speeds are usually associated with winter storms. The highest recorded peak gust at Altamont Pass is 79 mph, which occurred during a December storm in 1987 (PEA, 1999).

Table C.2-2 Wind Speed and Direction Statistics

Season	Prevailing Direction	Percent[a]	Average Speed[b] (mph)	Secondary Direction	Percent[a]	Average Speed[b] (mph)
Winter	NE	23.5	3.1	SW	15.3	4.0
Spring	SW	27.4	5.8	NE	9.4	3.3
Summer	W	41.2	6.3	S	9.8	5.8
Fall	SW	21.4	4.4	NE	15.7	2.6
Annual	**SW**	**24.0**	**5.1**	**NE**	**12.5**	**2.9**

Source: PEA, 1999.

[a] Percent of time wind comes from this direction.

[b] Average speed at which wind comes from this direction.

C.2.1.1.2 *Existing Air Quality*

Criteria Pollutants. The quality of the surface air (air quality) is evaluated by measuring ambient concentrations of pollutants that are known to have deleterious effects. The degree of air quality degradation is then compared to the current National and California Ambient Air Quality Standards (NAAQS and CAAQS). Because of unique meteorological problems in California, and because of differences of opinion by medical panels established by the California Air Resources Board (CARB) and the U.S. EPA, there is considerable diversity between state and federal standards currently in effect in California. In general, the CAAQS are more stringent than the corresponding NAAQS. The standards currently in effect in California are shown in Table C.2-3.

Air quality standards are designed to protect those people most susceptible to respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise. Table C.2-4 provides a summary of the health effects from the major criteria air pollutants. Healthy adults can tolerate occasional exposure to air pollutant concentrations above these minimum standards before adverse effects are observed (SCAQMD, 1993).

Table C.2-3 National and California Air Quality Standards

Pollutant	Averaging Time	California Standards[1]	National Standards[2]
Ozone (O_3)	8-hour	NS	0.08 ppm[3]
	1-hour	0.09 ppm	0.12 ppm
Carbon Monoxide (CO)	8-hour	9.0 ppm	9.0 ppm
	1-hour	20 ppm	35 pm
Nitrogen Dioxide (NOx)	Annual Average	NS	NS
	1-hour	0.25 ppm	0.053 ppm
Sulfur Dioxide (SOx)	Annual Average	NS	0.03 ppm
	24-hour	0.05 ppm	0.14 ppm
	1-hour	0.25 ppm	NS
Fine Particulate Matter (PM_{10})	Annual Arithmetic Mean	NS	50 ug/m[3]
	Annual Geometric Mean	30 : g/m[3]	NS
	24-hour	50 : g/m[3]	150 ug/m[3]
Fine Particulate Matter (PM2.5)[3]	Annual Arithmetic Mean	NS	15 ug/m[3]
	24-hour	NS	65 ug/m[3]

Notes: ppm = parts per million; ug/m[3]; NS = no standard

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, and PM_{10} are values that are not to be excluded. If the standard is for a 1-hour, 8-hour, or 24-hour average, then some measurements may be excluded. In particular, measurements are excluded that California Air Resources Board determines would occur less than once per year on the average.
2. National standards other than for ozone and those based on annual averages or annual arithmetic means are not to be exceeded more than once a year. For example, the ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one.
3. In 1997, U.S. EPA established an 8-hour standard for ozone, and annual and 24-hour standards for very fine particulate matter (PM2.5). As of December 1999, the Bay Area Air Quality Management District (BAAQMD) did not have sufficient monitoring data to determine the region's attainment status. The U.S. EPA's new standards were challenged in court, and as of December 2000, their status was uncertain.

Source: BAAQMD, 1999 and U.S. EPA, 2000a.

Table C.2-4 Summary of Health Effects of the Major Criteria Pollutants

Air Pollutant	Adverse Effects
Ozone	-Eye irritation -Respiratory function impairment -Aggravation of respiratory and cardiovascular diseases
Carbon Monoxide	-Impairment of oxygen transport in the bloodstream, increase of carboxyhemoglobin -Aggravation of cardiovascular disease -Impairment of central nervous system function -Fatigue, headache, confusion, dizziness -Death at high levels of exposure -Aggravation of some heart diseases (angina)
Nitrogen Dioxide	-Risk of acute and chronic respiratory disease
Suspended Particulates	-Increased risk of chronic respiratory disease -Reduced lung function -With SO_2, may produce acute illness -Particulate matter 10 microns or less in size (PM_{10}) may lodge in and/or irritate the lungs

Source: South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993.

Attainment Status. A summary of the air quality status within the San Francisco Bay Area relative to meeting the national and state AAQS is provided in Table C.2-5. "Non-attainment" is a term used by the U.S. EPA to indicate violations of the standards. As indicated in Table C.2-5, air quality in the San Francisco Bay area is below the standards of the NAAQS and CAAQS for ozone and of the CAAQS for PM_{10}. In June of 1995, the Bay Area was redesignated to attainment for the national ozone

standard, and in June of 1998, the Bay Area was redesignated to attainment of the NAAQS for the 8-hour carbon monoxide standard. On July 10, 1998, the Bay Area was again redesignated to nonattainment for the national ozone standard. Although the Bay Area is currently above the national CO standard, it is still considered to be a "maintenance area" for that pollutant.

Table C.2-5 Bay Area Attainment Status

Air Basin	O_3		CO		NO_2		SO_2		PM_{10}	
	State	National	State	National	State	National	State	National	State	National
SF Bay Area	**N**	**N**	A	A	A	A	A	A	**N**	U

Sources: BAAQMD, 2000a and U.S. EPA, 2000b.
Notes: A = Attainment; N = Non-attainment; U = Unclassified

The Bay Area Air Quality Management District (BAAQMD) operates a regional air quality monitoring network that regularly measures the concentrations of the four major air pollutants. A monitoring station nearest the Proposed Project in Livermore was selected to provide a general profile of the air quality within the study area. Table C.2-6 presents the ambient air quality concentrations recorded from 1996 through 1999.

Table C.2-6 Air Quality Summary

Standards	Livermore – Old First Street			
	1996	1997	1998	1999
Ozone (1-Hour) Standard				
Max. Concentration (ppm)	0.14	0.11	0.15	0.15
Days>CAAQS (0.09 ppm)	22	3	21	14
Days>NAAQS (0.12 ppm)	8	0	6	2
NO_2 (Annual) Standard[a]				
Max. Concentration (ppm)	0.09	0.08	0.07	0.09
Days>CAAQS (0.25 ppm)	0	0	0	
PM_{10} (24-Hour) Standard[b]				
Max. Concentration (ppm)	71	62	62	87
Days>CAAQS (50 ppm)	1/61	2/61	2/61	3/61
Days>NAAQS (150 ppm)	0/61	0/61	0/61	0/61
CO (8-Hour) Standard				
Max. Concentration (ppm)	2.5	2.5	2.4	2.9
Days>CAAQS (9.0 ppm)	0	0	0	0
Days>NAAQS (9.0 ppm)	0	0	0	0

Notes: ppm = parts per million; ug/m^3 = micrograms per cubic meter
[a] No Federal (1-hour) NOx standard
[b] "Days" for PM_{10} are given as accedences/number of annual measurements.
Source: CARB, 1999 and BAAQMD, 2000b

As indicated in Table C.2-6, the Livermore Station experienced the least amount of ozone exceedances during the year of 1997, with three violations of the CAAQS and no violations of the NAAQS. However, during 1996, 1998, and 1999, the station averaged 19 ozone exceedances of the CAAQS. During 1996 and 1997, the station averaged seven exceedances of the ozone NAAQS, while in 1999 the station recorded two exceedances of the ozone NAAQS. With regard to fine particulate matter (PM_{10}), the Livermore Station recorded one case in 1995, two cases during 1996 and 1997, and three cases in 1999 when it exceeded the CAAQS. The station did not record a violation of the NAAQS for PM_{10} during the four-year sample period. There were no state or national violations recorded for nitrogen dioxide or carbon monoxide.

Toxic Air Contaminants. Toxic air contaminants (TACs) are regulated because they are suspected or known to cause cancer, genetic mutations, birth defects, or other serious illnesses in exposed people. TACs are not regulated by the federal or state AAQS but are addressed by the National Emission Standards for Hazardous Air Pollutants (NESHAPs) and Title III of the 1990 Clean Air Act Amendments.

Table C.2-7 contains the mean concentrations of selected toxic pollutants that are monitored at the BAAQMD Livermore Old First Street Air Monitoring Station. This monitoring program was designed to determine the concentrations in air of various gaseous toxic pollutants that U.S. EPA has defined as being reasonably anticipated to result in increased deaths or serious illness, but are not already regulated. Trigger levels are also included in Table C.2-7, which are used by the BAAQMD in evaluating air contaminant emissions and risk levels of facilities within the San Francisco Bay Area. If the emissions from a single source are less than the listed trigger levels, it is assumed that the source would not cause any excess risks to the surrounding public. If the emissions are equal to or greater than one or more of the trigger levels, a risk screen should be completed to determine risk potential to the local community.

The concentrations of toxic pollutants are determined by the level of emissions at the source and the meteorological conditions encountered as these pollutants are transported away from the source. Thus, risks from toxic pollutant emissions tend to be site-specific and their intensity is subject to constantly changing meteorological conditions. The worst meteorological conditions that affect short-term impacts (low wind speed, highly stable air mass, and constant wind direction) occur relatively infrequently.

C.2-7 Toxic Air Pollutant Measurements (Livermore Old First Street Air Monitoring Station)

Parameter	Mean Concentrations (ppb) per Year				Trigger Level
	1996	1997	1998	1999	(lbs./year)
Benzene	0.46	0.55	0.68	0.51	6.70E+00
1,3-Butadiene	0.19	0.31	0.31	0.33	4.60E+00
Carbon Tetrachloride	0.10	0.10	0.10	0.11	4.60E+00
Chloroform	0.02	0.01	0.01	0.01	3.60E+01
Methyl Chloroform	0.22	0.24	0.24	0.58	6.18E+04
Methylene Chloride	0.34	0.46	0.39	0.27	1.90E+02
Perchloroethylene	0.11	0.14	0.15	0.16	3.30E+01
Toluene	1.27	1.55	1.78	1.34	3.86E+04
Trichloroethene	0.05	0.04	0.05	0.08	9.70E+01

Note: E + 00 is scientific notation that indicates how many places the decimal point should be to the right of its current position. For example 3.84E + 02 = 384.
NA = yearly mean concentration is currently not available
Source: BAAQMD, 2000c.

C.2.1.2 Applicable Regulations, Plans, and Standards

Federal, state, and regional agencies have established air quality standards, regulations, and plans that affect Proposed Projects. The following federal and state regulatory considerations may apply to the project and to all alternatives.

Federal Regulations and Standards

- The Federal Clean Air Act of 1970 directs the attainment and maintenance of National Ambient Air Quality Standards (NAAQS). The 1990 Amendments to this Act determine attainment and maintenance of NAAQS (Title I), motor vehicles and fuel reformulation (Title II), hazardous air pollutants (Title III), acid deposition (Title IV), operating permits (Titles V), stratospheric ozone protection (Title VI), and enforcement (Title VII).

- The U.S. Environmental Protection Agency (U.S. EPA) implements New Source Review (NSR) and Prevention of Significant Deterioration (PSD). PSD applies to major sources with annual emissions exceeding either 100 or 250 tons per year (TPY) depending on the source, or that cause or contribute adverse impacts to any Federally classified Class I area.

- The U.S. EPA implements the NAAQS and determines attainment of federal air quality standards on a short- and long-term basis.

- The Proposed Project would involve federal approval of a permit (Section 10/404), which may require evaluation for general conformity with the State Implementation Plan (SIP) as required by the 1990 Clean Air Act Amendments. Under 40 CFR (Code of Federal Regulations) Section 93.153 (Applicability), if the total estimated direct and indirect emissions from the Proposed Project are below the reactive organic compounds, nitrogen oxide, and carbon monoxide general conformity *de minimis* emission thresholds of 100 tons per year, the Proposed Project would be exempt from performing a comprehensive Air Quality Conformity Analysis, and would be considered to be in conformity with the SIP. PM_{10} emissions are not evaluated under general conformity requirements because the project area is located within an undefined area with respect to the NAAQS. This General Conformity evaluation has not been performed for this CEQA (state) document, but its appropriately left to the federal permitting agency (USACE).

State Regulations and Laws

- The California Air Resources Board (CARB) has established the California Ambient Air Quality Standards (CAAQS) and determines attainment status for criteria air pollutants.
- The California Clean Air Act (CCAA) went into effect on January 1, 1989 and was amended in 1992. The CCAA mandates achieving the health-based CAAQS at the earliest practicable date.

- The California Health and Safety Code, Division 26 Air Resources, Part 6 Air Toxics Hot Spots Information and Assessment, Section 44300, requires an inventory of air toxics emissions from individual existing facilities, an assessment of health risk, and notification of potential significant health risk when found to be present.

- California Health and Safety Code, Division 26 Air Resources, Chapter 6 Facility Toxic Air Contaminant Risk Reduction Audit and Plan, Section 44390, provides guidelines to identify a more realistic health risk, requires high risk facilities to submit an air toxic emission reduction plan, holds air districts accountable for ensuring that the plans will achieve their objectives and that high risk facilities will be required to achieve their planned emission reduction.

- California Health and Safety Code, Division 26 Air Resources, Chapter 3.5 Toxic Air Contaminants, Article 2.5 Coordination with the Federal Act, Section 39656, sets forth provisions to implement the Federal program for hazardous air pollutants.

- California Health and Safety Code, Division 26 Air Resources, Part 4 Nonvehicular Air Pollution Control, Chapter 4 Enforcement, Section 42301.6, requires new or modified sources of air contaminants located within 1,000 ft. from the outer boundary of a school to give public notice to the parents of school children before an air pollution permit is granted.

- Section 21151.4 of the California Public Resources Code, Division 13 Environmental Quality, Chapter 4 Local Agencies, addresses Hazardous Air Pollutant releases within one-fourth mile of a school site.

BAAQMD and Other Regional Agencies Plans and Programs

- **Bay Area Air Quality Plan** (1979 and 1982). This BAAQMD plan is a regional plan required by the federal government to address how the Bay Area will attain the NAAQS.

- **Ozone Maintenance Plan** (1993). In June 1995, the U.S. EPA approved the request of BAAQMD, Metropolitan Transportation Commission (MTC), and Association of Bay Area Government (ABAG) to redesignate the Bay Area as an attainment area of the NAAQS for ozone. The U.S. EPA also approved the Ozone Maintenance Plan at that time. However, in 1998, the Bay Area was again redesignated to nonattainment for the national ozone standard.

- **Carbon Monoxide Maintenance Plan** (1994). A San Francisco Bay Area Redesignation Request and Maintenance Plan for the Carbon Monoxide NAAQS was adopted in 1994 by the three regional agencies. In 1998, U.S. EPA redesignated the Bay Area as an attainment area for the national CO standard.

- **Bay Area Clean Air Plan** (1997). Prepared by BAAQMD in cooperation with MTC and ABAG, its main objective is to attain the State air quality standards for ozone. The CAP presents a comprehensive strategy to reduce emissions from stationary, area, and mobile sources.

- **Toxic Air Contaminant Control Program**. The Toxic Air Contaminant Control Program is a regional program administered by the BAAQMD. Its main objective is to reduce public exposure to toxic air contaminants.

- **Odorous Substances Regulation.** The BAAQMD has enacted an odorous substance control program as part of its effort to control the use and emission of odorous substances within the Bay Area.
- **Regional Transportation Plan** (1994). The Metropolitan Transportation Commission's Regional Transportation Plan guides Bay Area transportation system improvement projects and shows how they will help attain regional air quality objectives.

- **Congestion Management Program.** The main goals of the Congestion Management Plan, which is prepared by the county Congestion Management Agencies, are to establish a political process through which countywide roadway congestion can be controlled or relieved, and to develop a comprehensive strategy to respond to countywide transportation needs.

C.2.2 ENVIRONMENTAL IMPACT ANALYSIS AND APPLICANT PROPOSED MEASURES

C.2.2.1 Introduction

Short-term construction impacts and long-term operational impacts would result from implementation of the Proposed Project. In this section, the potential impacts associated with the construction and operation of the Proposed Project are analyzed. Section C.2.2.2 presents the project significance criteria, and Section C.2.2.3 presents the Applicant Proposed Measures to reduce impacts. Impacts and mitigation measures are presented in Sections C.2.3 through C.2.9.

C.2.2.2 Definition and Use of Significance Criteria

Section 15002 of the California Environmental Quality Act has established guidelines for determining the significance of air quality and other environmental impacts (CEQA, 1992). Each air quality management/control district establishes its own significance criteria based on the specific conditions in its jurisdiction. The BAAQMD has established guidelines and thresholds to determine potentially significant adverse environmental impacts.

BAAQMD Significance Criteria

Construction. Construction equipment exhaust emissions contain a number of criteria pollutants including carbon monoxide (CO) and ozone precursors, nitrous oxides (NOx), and reactive organic compounds (ROC). However, CO, NOx, and ROC construction emissions are included in the BAAQMD emissions inventory that is the basis for regional air quality plans, and are not expected to impede attainment or maintenance of ozone and carbon monoxide standards in the Bay Area. Therefore, the BAAQMD does not have significance criteria for these pollutants and their emissions generated during construction projects which are considered less than significant.

BAAQMD has determined that fine particulate matter (PM_{10}) is the pollutant of greatest concern with respect to construction activities. The BAAQMD's approach to CEQA analyses of construction impacts is to emphasize implementation of effective and comprehensive PM_{10} control measures rather than detailed quantification of project emissions. The BAAQMD believes that determination of significance with respect to construction emissions should be based on consideration of the control measures to be implemented. These control measures are listed in Table C.2-8. As noted in the table, some measures should be used at all construction sites regardless of size. Additional measures should be used at larger construction sites (greater than 4 acres) where PM_{10} emissions generally would be higher. There are also optional mitigation measures that may be implemented if further emission reduction is deemed necessary.

Table C.2-8 BAAQMD Control Measures For Construction Emissions of PM_{10}

Basic Control Measures (to be implemented at all construction sites)
Water all active construction areas at least twice daily
Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard
Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites
Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites
Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets
Enhanced Control Measures (to be implemented at construction sites greater than four acres in area)
Hydroseed or apply (non-toxic) soil stabilizers to inactive construction area (previously graded areas inactive for ten days or more)
Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles (dirt, sand, etc)
Limit traffic speeds on unpaved roads to 15 mph
Install sandbags or other erosion control measures to prevent silt runoff to public roadways
Replant vegetation in disturbed areas as quickly as possible
Optional Control Measures (strongly encouraged at construction sites that are large in area, located near sensitive receptors or for any other reason that may warrant additional emissions reductions)
Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site
Install wind breakers, or plant trees/vegetative wind breaks at windward side(s) of construction areas
Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph
Limit the area subject to excavation, grading and other construction activity at any one time

Source: BAAQMD, 1999

Operations. The BAAQMD recommends that project operations be compared to the thresholds provided in Table C.2-9. Total operational emissions evaluated under these thresholds should include all emissions from motor vehicle use associated with a project. A project that generates criteria pollutant emissions in excess of the annual or daily thresholds in Table C.2-9 would be considered to have a significant air quality impact. In addition to the operational thresholds listed below, the BAAQMD has thresholds of significance for local carbon monoxide concentrations and for odors.

Table C.2-9 Thresholds of Significance for Project Operations

Pollutant	tons/year	lbs/day	kgm/day
ROC	15	80	36
Nox	15	80	36
PM10	15	80	36

ROC = reactive organic compounds
Source: BAAQMD, 1999.

C.2.2.3 Applicant Proposed Measures

Table C.2-10 contains measures that are proposed by PG&E Co. to reduce the potential air quality impacts associated with the Proposed Project. Potential construction impacts are evaluated assuming that the applicant proposed measures will be implemented.

C.2.3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES: PLEASANTON AREA

C.2.3.1 Proposed Project

C.2.3.1.1 *Construction*

Please refer to Section B.3 (Proposed Project Construction) for detailed discussions of the project components (overhead transmission line, underground transmission line, and the Vineyard Substation Upgrade). The following paragraphs provide descriptions of construction equipment that would be used for the main phases of project construction (overhead transmission line, underground transmission line, and substation modification (South Area) and development (North Area).

Overhead Transmission Line

Equipment that would be used to construct the overhead transmission line would include machinery such as trucks, backhoes, cranes, bulldozers, etc. Table C.2-11 lists the construction equipment that

Table C.2-10 Applicant Proposed Measures

#	Measure Text
10.1a	All personnel working on the project will be trained prior to starting construction on methods for minimizing air quality impacts during construction.
10.1b	Water all active construction areas, access roads, and staging areas at least twice daily.
10.1c	Cover all trucks hauling soil and other loose material, or require at least 2 feet of freeboard.
10.1d	Construction vehicles will use paved roads to access the construction site when possible.
10.1e	Limit vehicle speeds to 15 mph on unpaved roads.
10.1f	Sweep streets daily with water sweepers if visible soil material is carried onto adjacent public streets.
10.1g	Apply soil stabilizers to inactive construction areas on an as-needed basis.
10.1h	Enclose, cover, water twice daily, or add soil binders to exposed stockpiles of soil and other excavated materials.
10.1i	Replant vegetation in disturbed areas following the completion of construction.
10.1j	Construction workers will carpool when possible.
10.1k	Vehicle idling time will be minimized.

Source: PEA, 1999

would be used during each major overhead transmission line construction activity. The Proposed Project in the Pleasanton area calls for 2.8 miles of overhead line. PG&E Co. has estimated that overhead transmission line construction would take approximately 10 months to complete.

Table C.2-11 Overhead Transmission Line Construction Equipment by Phase

Access Roads	Foundations	Tower Erection	Conductor Installation	Cleanup and Landscaping
2 Pickup Trucks 2 Mechanic Trucks 1 Backhoe 1 Grader 1 Air Compressor	8 ¾-ton pickup trucks 1 one-ton trucks 2 truck mounted diggers 2 crawler backhoes 2 concrete trucks	4 ¾-ton pickup trucks 2 boom tucks 2 mobile cranes	2 1-ton-ton trucks 10 ¾-ton pickup trucks	2 2-ton flat-bed truck 8 ¾-ton pickup trucks 2 1-ton trucks D-3 bulldozer 2 concrete trucks

Source: PEA, 1999; and PG&E Co., 1998

Underground Transmission Line

Construction equipment would include machinery such as trucks, backhoes, cranes, bulldozers, etc. Table C.2-12 lists the construction equipment that would be used during each major overhead transmission line construction activity. The Proposed Project calls for 2.7 miles of underground line in the Pleasanton area. PG&E Co. has estimated that underground transmission line construction would take approximately three months to complete (see Section B.3.2.1).

Table C.2-12 Underground Transmission Line Construction Equipment by Phase

Trenching, Installation of the Concrete Duct Bank, and Valt Installation	Cable Installation, Splicing, and Terminating
2 Crawler-Backhoes 1 2-Ton Trucks 3 Cement Trucks 3 Dump Trucks 2 Mobile Cranes 1 Drilling Rig 1 Dewatering Rig	1 Cable Puller Truck 1 Winch Truck 1 Boom Truck

Substations

Substation modification activities at the existing Vineyard Substation would be minor in scope with respect to potential air quality impacts. However, two substations are proposed in the North Area of the Proposed Project. Equipment that would be used to construct the new substations would be essentially the same as the equipment described in Table C.2-11. PG&E Co. has estimated that substation construction activities would take approximately six months to complete.

Exhaust Emissions

Exhaust emission sources associated with construction of the Proposed Project would include the mobile diesel and gasoline-powered construction equipment and trucks presented in Tables C.2-11 and C.2-12. Construction exhaust emissions can be distinguished as onsite or offsite. On-site emissions are generated by activities such as trenching and tower erection. Off-site exhaust emissions would result from the workers commuting to staging areas, transporting workers from staging areas to the work sites, trucks hauling materials to the construction sites, dump trucks hauling away construction debris (e.g., dirt displaced by the tower foundations and the underground line), and trucks hauling concrete to the tower foundation sites. Because the BAAQMD includes construction CO, NOx, and ROC emissions in the BAAQMD emissions inventory that is the basis for regional plans, the BAAQMD considers construction exhaust emissions to be less than significant (**Class III**).

That said, on a comparative basis, underground construction activities would create more emissions on a mile to mile basis along the transmission line route because it would require excavating a trench six to eight feet deep and about three to five feet wide for the length of the underground line, compared to the overhead transmission line segment that would require only four four-foot (width) by 11 to 15-foot (depth) pole foundation excavations for lattice steel towers or one five-foot (width) by 15 to 30-foot (depth) pole foundation excavation for the tubular steel poles, approximately every 1,000 feet. In general, construction of one mile of the underground transmission line would generate approximately 10 times the exhaust emissions generated by construction of one mile of the overhead transmission line because underground construction would involve more hours of heavy equipment operation. This estimate is based on comparing the emissions displayed in Table C.2-13 with the mileages of overhead (10.8 miles) and underground (2.7 miles) construction of the Proposed Project.

PM_{10} Emissions. Many construction activities associated with the Proposed Project, such as earth-moving operations (e.g., trenching, augering, grading) and soil disturbance from construction equipment (especially over unpaved roads), would generate PM_{10} emissions. PM_{10} emissions can vary greatly depending on the level of activity, the specific activities taking place, and weather and soil conditions. As shown in Section C.2.2.3, PG&E Co. has committed to implementing several BAAQMD mitigation measures to reduce PM_{10} emissions (10.1a through 10.1k). However, four of the required BAAQMD measures were not referenced by PG&E Co. Implementation of the four remaining BAAQMD measures in addition to the Applicant Proposed Measures listed in Table C.2-10 would reduce potentially significant PM_{10} emission impacts to levels that are less than significant (**Class II**).

Similar to what was described above under exhaust emissions, construction of one mile of the underground transmission line would generate approximately 60 times the PM_{10} emissions that would be generated by construction of one mile of the overhead transmission line, because underground construction activities would involve approximately 60 times the volume of disturbed soil that could be dispersed by wind.

Mitigation Measures for PM_{10}

Impact 2-1: Construction PM_{10} levels would violate BAAQMD significance criteria if all of BAAQMD PM_{10} basic and enhanced control measures are not implemented.

The following BAAQMD PM_{10} control measures are not included with PG&E Co.'s Applicant Proposed Measures and shall be implemented during project construction to reduce potential PM_{10} impacts from significant to less than significant (**Class II**). It should be noted that as designed by BAAQMD, Mitigation Measure A-1 includes the option of paving unpaved roads and areas. However, for this project, this option has been removed from Mitigation Measure A-1 because it could induce impacts (e.g., increased surface water) in other environmental issue areas.

A-1 Apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.

A-2 Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.

A-3 Install sandbags or other erosion control measures to prevent silt runoff to public roadways.

A-4 Replant vegetation in disturbed areas within 30 days of completion of construction.

C.2.3.1.2 *Proposed Operations*

Impacts associated with operations of the Proposed Project would be essentially the same for the alternatives analyzed, except for the Local Generation Alternative (see Section C.13). Therefore, impacts associated with proposed operations that are discussed in this section, also apply to the North Area of the Proposed Project, as well as all of the Alternatives, and are not discussed in subsequent sections.

Operation of the Proposed Project would include general system monitoring and control, maintenance and facility inspections. The existing Vineyard Substation would continue to be unstaffed, as would the proposed Dublin and North Livermore Substations, but would require periodic maintenance checks by PG&E Co. staff. Emission sources associated with operations of the proposed 230kV transmission line would be related to inspection and maintenance of the transmission line, instrumentation and control, and support systems. PG&E Co. would inspect all of the structures from the surface annually for corrosion, misalignment, and excavations. Ground inspection would occur on selected lines to check the condition of hardware, insulators, and conductors. Emissions generated by routine periodic maintenance and inspection activities occurring at various times are considered to be adverse, but less than significant short-term impacts **(Class III)**.

In the event that PG&E Co. would need to conduct substantial construction repairs to the transmission line and or substations, construction fugitive dust emissions would be considered significant unless PG&E Co. complies with all applicable BAAQMD construction control measures (**Class II**).

The increased electrical power delivered to the project area would require increased electrical generation at power plants in the region. The additional power generated as a result of this project would likely be provided by a network of power plants (hydroelectric, nuclear, natural gas fired) located throughout Northern California. The air emissions resulting from increased power generation are dispersed throughout Northern California and are difficult to quantify due to the dynamic nature of today's electricity generation market place. The BAAQMD considers potential operational impacts associated with generation of additional power by the regional power plants to be a negligible impact (BAAQMD, 2000c). Therefore, these potential impacts are considered to be less than significant (**Class III**). Because potential air quality impacts during project operations are considered to be less than significant, mitigation measures are not required. It bears noting that all California power plants are subject to Air District and other conditions to control air emissions.

The estimated total construction period for the Proposed Project would be approximately 12 months. However, project construction would be conducted in several phases. For overhead transmission line construction, tower foundations would be constructed first, followed by tower erection, and conductor

installation. For underground transmission line construction, trenching activities would be followed by wire installation and clean up and landscaping. For substation construction, the foundation would be the first component constructed, followed by delivery and setup of the substation hardware, wire installation, cleanup, and landscaping. PG&E Co. has estimated the approximate number of days each construction activity would take to complete (PG&E Co., 2000), and total estimated construction days are listed in Table C.2-13. Total project emissions where calculated by multiplying maximum daily emissions listed in Table 10-7 of PG&E Co.'s Proponent's Environmental Assessment by the total construction days.

Table C.2-13 presents PG&E Co.'s daily construction emissions estimates broken down according to construction activity, approximate days it would take to complete each construction activity, total project emissions, and a comparison of total project emissions to the general conformity *de minimis* thresholds. The information in this table applies to Phase 1 only because Phase 2 construction would occur at a later date. Days to complete construction activities are based on a discussion with PG&E Co.'s Project Manager (PG&E Co., 2000) and estimates from the CPUC's recent Draft EIR on PG&E Co.'s Northeast San Jose Project (Aspen, 2000). The assumptions are as follows: pole line access activities such as constructing service roads would be limited to only a few foundation sites (i.e., most of the foundation sites are accessible from existing roads), hence, 20 days is a relatively conservative assumption. For the 4-legged tower foundations, it would take approximately 1 day to construct 1.5 tower foundations and Phase 1 of the project consists of 32 towers. With regard to the tubular steel pole tower foundations, 2.5 tower foundations can be constructed in one day, and there are 18 tubular steel pole towers proposed. It takes approximately two days to raise and secure one 4-legged tower, while 2 tubular steel poles can be erected in one day. It would take approximately 2 days of active construction to install one mile of conductor and there is approximately 11 miles of overhead line associated with Phase 1. It would take approximately 130 days to construct the underground line. Substation construction would take about six months to complete. Structure foundation excavation, delivery and setup, and wire installation would each take approximately 60 days to complete. Cleanup and landscaping would last for approximately 40 days.

As documented in Table C.2-13, project emission levels are estimated to fall below the *de minimis* thresholds (100 tons for each pollutant) for reactive organic compounds, nitrogen oxides, and carbon monoxide. Therefore, the project appears that it would be exempt from the detailed Conformity Analysis, and considered to be in conformance with the State Implementation Plan (SIP). It should be noted that the emission estimates presented in Table C.2-13 are not to be used by a federal permitter as a substitute for a general conformity analysis. Emissions listed in Table C.2-13 are meant solely as a tool to compare the Alternatives of this CEQA Project.

C.2.3.2 Alternative S1: Vineyard-Isabel-Stanley

This alternative alignment is about 6.7 miles long with 1.1 miles of underground construction. Impacts under Alternative S1 would be similar to the impacts described for the Proposed Project (see Section C.2.3.1). Exhaust emissions from construction equipment would create adverse, but less than significant impacts (**Class III**). PM_{10} levels from construction would violate BAAQMD significance criteria unless all of BAAQMD PM_{10} control measures are implemented. Implementation of Mitigation

Table C.2-13 Estimated Construction Emissions (Daily and Total Project)

Construction Activity	Maximum Daily Emissions[1] (pounds)			Days to Complete Activity[2]	Total Project Emissions[3] (pounds)		
	ROC	NO_2	CO		ROC	NO_2	CO
Overhead Transmission Line Construction Emissions							
General Construction	0.73	1.25	10.93	143	104	179	1,563
Access Roads	4.20	48.46	74.34	20	84	969	1,487
Tower Foundation	12.37	151.76	147.90	28	346	4,249	4,141
Tower Setup and Delivery	19.10	15.64	562.47	73	1,394	1,142	41,060
Conductor Installation	6.00	72.12	74.82	22	132	1,587	1,646
Cleanup and Landscaping	13.01	237.84	137.18	20	260	4,757	2,744
Underground Transmission Line Construction Emissions							
Trenching, Installation of the Concrete Duct Bank, and Valt Installation	29.08	343.69	551.2	105	3,053	36,087	57,876
Cable Installation, Splicing, and Terminating	4.24	80.24	33.92	126	534	10,110	4,274
Substations Construction Emissions							
General Construction	0.73	1.25	10.93	60	44	75	820
Access Roads	4.20	48.46	74.34	10	42	485	743
Structure Foundation Excavation	12.37	151.76	147.90	60	742	9,106	8,874
Structure Delivery and Setup	19.10	15.64	562.47	60	1,146	938	33,748
Wire Installation	6.00	72.12	74.82	64	384	4,616	4,788
Cleanup and Landscaping	13.01	237.84	137.18	40	520	9,514	5,487
Total Project Emissions (pounds)					**8,785**	**83,814**	**169,251**
Total Project Emissions (tons)					**4.4**	**41.9**	**84.6**
***De Minimis* Threshold (tons)**					**100**	**100**	**100**

Notes: 1 Maximum daily construction emissions are taken from Table 10-7 of PG&E Co.'s PEA and supplemental air quality data provided by PG&E Co. The PEA did not present emissions for access road construction, so daily emissions associated with access road construction are from PG&E Co.'s Northeast San Jose Project (PG&E Co., 1998) were used for this project.

2 Days to complete activities were collected from the following sources: Overhead Transmission Line Construction days are from personal communication with PG&E Co.'s Project Manager (PG&E Co., 2000); Underground Construction days were taken from the PEA (PEA, 1999); and Substation Construction days are from a similar project regulated by the commission (Aspen, 2000).

3 Total project emissions are calculated by multiplying daily emissions by days. Emissions do not include emissions from workers commuting to and the job sites. Emissions associated with workers commuting are considered negligible and would not raise total project emissions to near the *de minimis* thresholds.

Measures A1 through A4 in addition to Applicant Proposed Measures 10.1a through 10.1k would reduce potential PM_{10} impacts from significant, to less than significant (**Class II**).

Although construction impacts under Alternative S1 would be similar in type to those under the Proposed Project, there would be a difference in total construction emissions between this alternative and the Proposed South Area route. The main factor in such a difference is whether the alternative involves more or less underground transmission line construction. Another less pertinent factor that could cause a difference in emissions is if the alternative is significantly longer or shorter than the proposed route. Alternative S1 involves 1.6 fewer miles of underground transmission line construction. Thus, construction of Alternative S1 would involve less exhaust and PM_{10} emissions than the Proposed Project in the South Area.

C.2.3.3 Alternative S2: Vineyard Avenue

This alternative alignment is about 5.8 miles long with 4.7 miles of underground construction. Impacts under Alternative S2 would be similar to the impacts described for the Proposed Project (Section C.2.3.1). Exhaust emissions from construction equipment would create adverse, but less than significant impacts (**Class III**). Construction PM_{10} levels would violate BAAQMD significance criteria unless all of the required BAAQMD PM_{10} control measures are implemented. Implementation of Mitigation Measures A1 through A4 in addition to Applicant Proposed Measures 10.1a through 10.1k would reduce potential PM_{10} impacts from a level that is significant to less than significant (**Class II**).

Although construction impacts under Alternative S2 would be similar in type to those described under the Proposed Project, Alternative S2 involves 2.0 more miles of underground transmission line construction. Thus, construction of Alternative S2 would involve more exhaust and PM_{10} emissions than the Proposed Project in the South Area.

C.2.3.4 Alternative S4: Eastern Open Space

This alternative alignment is about 6.6 miles long, with approximately 3.2 miles of underground construction. Impacts under Alternative S4 would be similar to the impacts described for the Proposed Project (Section C.3.2.1). Exhaust emissions from construction equipment would create adverse, but less than significant impacts (**Class III**). Construction PM_{10} levels would violate BAAQMD significance criteria unless all of the required BAAQMD PM_{10} control measures are implemented. Implementation of Mitigation Measures A1 through A4 in addition to Applicant Proposed Measures 10.1a through 10.1k would reduce potential PM_{10} impacts to a level that is significant to less than significant (**Class II**).

Although construction impacts under Alternative S4 would be similar in type to those described under the Proposed Project, Alternative S4 involves approximately 0.5 mile more of underground transmission line construction. In addition, the overhead route associated with Alternative S4 involves 0.6 mile more of overhead transmission construction than the proposed southern route. Thus, it is anticipated that construction of Alternative S2 would involve slightly more exhaust and PM_{10} emissions than the proposed southern route.

C.2.4 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES: DUBLIN AREA

C.2.4.1 Proposed Project

This proposed alignment in the Dublin area is approximately 4.9 miles (all overhead line). The Proposed Project also consists of construction of the Dublin Substation on a 5-acre site just north of the Contra Costa/Alameda County line. Impacts associated with the Proposed Project in the Dublin area would be similar to the impacts described in Section C.2.3.1 for the Proposed Project in the Pleasanton area. Exhaust emissions from construction equipment would create adverse, but less than significant impacts (**Class III**). PM_{10} levels from construction activities would violate BAAQMD significance criteria unless all of the required BAAQMD PM_{10} control measures are implemented. Implementation

of Mitigation Measures A1 through A4 in addition to Applicant Proposed Measures 10.1a through 10.1k would reduce potential PM_{10} impacts from significant, to less than significant (**Class II**).

C.2.4.2 Alternative D1: South Dublin

This alternative alignment is about 2.8 miles long with 0.5 miles of underground transmission line leading to the Alternative D1 substation. Impacts under Alternative D1 would be similar to the impacts described for the Proposed Project in the South Area (Section C.2.3.1). Exhaust emissions from construction equipment would create adverse, but less than significant impacts (**Class III**). PM_{10} levels from construction would violate BAAQMD significance criteria unless all of the required BAAQMD PM_{10} control measures are implemented. Implementation of Mitigation Measures A1 through A4 in addition to Applicant Proposed Measures 10.1a through 10.1k would reduce potential PM_{10} impacts from significant, to less than significant (**Class II**).

Although construction impacts under Alternative D1 would be similar in type to those under the Proposed Project in the Dublin area, there would be a difference in total construction emissions between Alternative D1 and the Proposed Project in the Dublin area. The main factor that could cause a difference in emissions from transmission line construction in the Dublin area is if the alternative would involve any underground transmission line construction. Another less pertinent factor that could cause a difference in emissions is if the alternative is significantly longer or shorter than the proposed route. Although Alternative D1 is about 2.1 miles shorter than the Proposed Project (Dublin Area), because Alternative D1 involves construction of 0.5 mile of underground transmission line, it is anticipated that Alternative D1 would involve more exhaust and PM_{10} emissions than the proposed Dublin route.

C.2.4.3 Alternative D2: Dublin-San Ramon

This alternative alignment is about 4.6 miles long, with approximately 0.6 mile of underground transmission line leading to the proposed Dublin Substation. This alternative may also involve about 20 miles of reconductoring for the existing San Ramon-Pittsburg line. Impacts under Alternative D2 would be similar to the impacts described for the Proposed Project in the South Area (Section C.2.3.1). Exhaust emissions from construction equipment would create adverse, but less than significant impacts (**Class III**). PM_{10} levels from construction would violate BAAQMD significance criteria unless all required BAAQMD PM_{10} control measures are implemented. Implementation of Mitigation Measures A-1 through A-4 in addition to Applicant Proposed Measures 10.1a through 10.1k would reduce potential PM_{10} impacts from significant, to less than significant (**Class II**).

Mitigation Measure A-5 is suggested to eliminate the 0.6 mile underground portion of this route to reduce the emissions associated with construction of it. In this mitigation measure, a route is suggested that would require no new transmission line into the San Ramon Substation, because the existing San Ramon Pittsburg line would be tapped at a point about one-half mile northeast of the substation. The impact conclusion would be the same: impacts would be less than significant with implementation of Mitigation Measures A-1 through A-4. However, air emissions would be substantially less than the D2

alternatives as currently defined. The impacts of this mitigation measure in other issue areas are addressed in Section C.13.

A-5 Modify the route of the D2 Alternative (as shown in Figure C.2-2) so it connects with the existing San Ramon-Pittsburg 230 kV line approximately one-half mile northeast of the San Ramon Substation.

Although construction impacts under this alternative would be similar in type to those under the Proposed Project in the Dublin area, a difference in total construction emissions between Mitigation Measure A-5 and the Proposed Project (Dublin area) would occur. Because Mitigation Measure A-5 is approximately 0.7 miles longer that the proposed route and includes 20 miles of reconductoring along the existing San Ramon-Pittsburg line, it is anticipated that the Alternative D2, as mitigated, would involve more exhaust and PM_{10} emissions than the Proposed Project in the Dublin area.

C.2.5 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES: NORTH LIVERMORE AREA

C.2.5.1 Proposed Project

This proposed alignment is approximately 3.1 miles (all overhead line). The Proposed Project in the North Livermore area also consists of construction of the North Livermore Substation on a 5-acre site off North Livermore Road. Impacts associated with the Proposed Project in the North Livermore area would be similar to the impacts described in Section C.2.3.1 for the Proposed Project in the Pleasanton area. Exhaust emissions from construction equipment would create adverse, but less than significant impacts (**Class III**). PM_{10} levels from construction activities would violate BAAQMD significance criteria unless all of the required BAAQMD PM_{10} control measures are implemented. Implementation of Mitigation Measures A1 through A4 in addition to Applicant Proposed Measures 10.1a through 10.1k would reduce potential PM_{10} impacts from significant, to less than significant (**Class II**).

C.2.5.2 P1 Variant Alternative

Construction impacts under the PI Variant Alternative would be similar in type to those under the Proposed Project. However, a difference in total construction emissions between this alternative and the proposed route would occur because this alternative involves 1.0 mile of underground transmission line construction. For this reason, it is anticipated that the PI Variant Alternative would involve more exhaust and PM_{10} emissions than the Proposed Project in the North Livermore area.

The PI Variant Alternative involves replacing the mile of proposed overhead transmission line along North Livermore Road with underground transmission line. Exhaust emissions from construction equipment would create adverse, but less than significant impacts (**Class III**). PM_{10} levels from construction would violate BAAQMD significance criteria unless all of the required BAAQMD PM_{10} control measures are implemented. Implementation of Mitigation Measures A1 through A4 in addition to Applicant Proposed Measures 10.1a through 10.1k would reduce potential PM_{10} impacts from significant, to less than significant (**Class II**).

Figure C.2-2 Placeholder

Mitigation Measure A-5 (D2 reroute)

C.2.5.3 P2 Variant Alternative

The P2 Variant Alternative would replace about 3.8 miles of proposed overhead transmission line with underground transmission line (including the one mile in P1). Construction impacts under the P2 Variant Alternative would be similar in type to those under the Proposed Project (both would result in exhaust emissions and dust). However, because this alternative includes approximately 3.8 miles of underground transmission line construction, the Proposed Project Variant P2 would cause more exhaust and PM_{10} emissions than the Proposed Project in the North Livermore area. Construction emissions from 3.8 miles of underground construction associated with the P2 Variant Alternative would be reduced by nearly one-half with implementation of Mitigation Measure A-6, which would shorten the underground route (see Figure C.2-3). The impacts of this mitigation measure in other issue areas are addressed in Section C.13.

Exhaust emissions from construction equipment would create adverse, but less than significant impacts (**Class III**). PM_{10} levels from construction would violate BAAQMD significance criteria unless all of the required BAAQMD PM_{10} control measures are implemented. Implementation of Mitigation Measures A-1 through A-4 in addition to Applicant Proposed Measures 10.1a through 10.1k would reduce potential PM_{10} impacts from significant, to less than significant (**Class II**).

A-6 The 230 kV transmission line to the proposed North Livermore Substation shall begin at a tap to the existing Contra Costa-Newark 230kV transmission line at a point due east of the proposed North Livermore Substation. The nearly two-mile long underground route would include approximately one-half mile of line installation across open space, and the remaining 1.5 miles would follow May School Road.

C.2.5.4 Alternative L1: Raymond Road

This alternative alignment is an approximately 1.0-mile underground route, and includes the L1 Substation. Although construction impacts under Alternative L1 would be similar in type to those under the Proposed Project in the North Livermore area, a difference in total construction emissions between the Alternative L1 route and the Proposed North Livermore area would occur. Although the Proposed Project in the North Livermore area is 2.1 miles longer than Alternative L1, because Alternative L1 involves construction of 1.0 mile of underground transmission line, it is anticipated that Alternative L1 would involve more exhaust and PM10 emissions than the Proposed Project in the North Livermore area.

Exhaust emissions from construction equipment would create adverse, but less than significant impacts (**Class III**). PM_{10} levels from construction activities would violate BAAQMD significance criteria unless all of the required BAAQMD PM_{10} control measures are implemented. Implementation of Mitigation Measures A1 through A4 in addition to Applicant Proposed Measures 10.1a through 10.1k would reduce potential PM_{10} impacts from significant, to less than significant (**Class II**).

Placeholder: Figure C.2-3 Mitigation Measure A-6 (May School Road)

C.2.5.5 Alternative L2: Hartman Road

This alternative alignment is approximately 7.3 miles long, with approximately 3.6 miles underground. Although construction impacts under Alternative L2 would be similar in type to those under the Proposed Project in the North Livermore area, a difference in total construction emissions between the Alternative L2 route and the Proposed Project in the North Livermore area would occur. Because Alternative L2 involves construction of 3.6 miles of underground transmission line (including a bore under I-580) and is approximately 4.2 miles longer than the Proposed Project in the North Livermore area, construction of Alternative L2 would produce more exhaust and PM_{10} emissions than the Proposed Project in the North Livermore area.

Exhaust emissions from construction equipment would create adverse, but less than significant impacts (**Class III**). PM_{10} levels from construction would violate BAAQMD significance criteria unless all of the required BAAQMD PM_{10} control measures are implemented. Implementation of Mitigation Measures A1 through A4 in addition to Applicant Proposed Measures 10.1a through 10.1k would reduce potential PM_{10} impacts from significant, to less than significant (**Class II**).

C.2.6 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES: TESLA CONNECTION (PHASE 2)

C.2.6.1 Proposed Project - Phase 2

The Proposed Project - Phase 2 is approximately 10.0 miles long (all overhead line) located in PG&E Co.'s vacant easement through the Altamont Pass. Impacts associated with the Proposed Project – Phase 2 would be similar to the impacts described in Section C.2.3.1 for the Proposed Project in the Pleasanton area. Exhaust emissions from construction equipment would create adverse, but less than significant impacts (**Class III**). PM_{10} levels from construction would violate BAAQMD significance criteria unless all of the required BAAQMD PM_{10} control measures are implemented. Implementation of Mitigation Measures A1 through A4 in addition to Applicant Proposed Measures 10.1a through 10.1k would reduce potential PM_{10} impacts from significant, to less than significant (**Class II**).

C.2.6.2 Brushy Peak Alternative

This alternative alignment for the Proposed Project – Phase 2 route is approximately 0.3 miles longer than the proposed route (all overhead line). Although construction impacts under the Brushy Peak Alternative would be similar in type to those that would occur along the portion of the Proposed Project - Phase 2 alignment that it would replace, a difference in total construction emissions would occur. Because the Brushy Peak Alternative is approximately 0.3 miles longer than the portion of the Proposed Project – Phase 2 route that it is replacing, and because the Brushy Peak Alternative involves sharper angles that require deeper pole foundation excavations, construction of the Brushy Peak Alternative would produce more exhaust and PM_{10} emissions than the portion of the Proposed Project - Phase 2 alignment that it would replace.

Exhaust emissions from construction equipment would create adverse, but less than significant impacts (**Class III**). PM_{10} levels from construction would violate BAAQMD significance criteria unless all of the required BAAQMD PM_{10} control measures are implemented. Implementation of Mitigation

Measures A1 through A4 in addition to Applicant Proposed Measures 10.1a through 10.1k would reduce potential PM_{10} impacts from significant, to less than significant (**Class II**).

C.2.6.3 Stanislaus Corridor

This alternative alignment is approximately 14.2 miles long (if combined with the S1 or L2 alternatives) or 17.3 miles (if combined with the proposed route or the S4 Alternative). Although construction impacts under the Stanislaus Corridor Alternative would be similar in type to those that would occur for the Proposed Project - Phase 2, a difference in total construction emissions would occur. Because the Stanislaus Corridor Alternative is approximately 4 to 7 miles longer than the Proposed Project – Phase 2 route, and because the Stanislaus Corridor Alternative also involves the removal two sets of existing towers, construction of the Stanislaus Corridor Alternative would produce more exhaust and PM_{10} emissions than the Proposed Project - Phase 2.

Exhaust emissions from construction equipment would create adverse, but less than significant impacts (**Class III**). PM_{10} levels from construction would violate BAAQMD significance criteria unless all of the required BAAQMD PM_{10} control measures are implemented. Implementation of Mitigation Measures A1 through A4 in addition to Applicant Proposed Measures 10.1a through 10.1k would reduce potential PM_{10} impacts from significant, to less than significant (**Class II**).

C.2.7 MITIGATION MONITORING PROGRAM

Table C.2-14 presents the Mitigation Monitoring Program for air quality.

Table C.2-14 Mitigation Monitoring Program

Impact	Mitigation Measure	Location	Monitoring/ Reporting Action	Effectiveness Criteria	Responsible Agency	Timing
Proposed Project, Alternatives, and Project Variants						
Construction PM_{10} levels would violate BAAQMD significance criteria if all of BAAQMD PM_{10} control measures are not implemented.	**A-1:** Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.	All unpaved access roads, parking areas and staging areas at construction sites	Construction plan; monitor construction activities	PM10 emissions are reduced, Effectiveness can not be monitored in the field	CPUC and the BAAQMD	During construction and operations, if applicable
	A-2: Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.	All transmission line and substation construction	Construction plan; monitor construction activities	PM10 emissions are reduced, Effectiveness can not be monitored in the field	CPUC and the BAAQMD	During construction and operations, if applicable
	A-3: Install sandbags or other erosion control measures to prevent silt runoff to public roadways.	All transmission line and substation construction	Construction plan; monitor construction activities	PM10 emissions are reduced, Effectiveness can not be monitored in the field	CPUC and the BAAQMD	During construction and operations, if applicable
	A-4: Replant vegetation in disturbed areas within 30 days of completion of construction.	All transmission line and substation construction	Construction plan; monitor construction activities	PM10 emissions are reduced, Effectiveness can not be monitored in the field	CPUC and the BAAQMD	During construction and operations, if applicable
Alternative D2 only						
Underground construction activities produce elevated levels of emissions compared to construction of overhead lines	**A-5:** Modify route D2 to connect approx. 0.5 miles northeast of the San Ramon Substation with no underground lines	0.5 miles northeast of the San Ramon Substation	Verify project plans; confirm consistency during construction	Reduction of construction pollutant emissions	CPUC	Confirm plans prior to construction; verify plans are implemented during construction
P2 Variant Alternative only						
Underground construction activities produce elevated levels of emissions compared to construction of overhead lines	**A-6:** Install the underground line along May School Road and in open space from the North Livermore Substation to the Contra Costa-Newark line	North Livermore Substation to the Contra Costa-Newark line	Verify project plans; confirm consistency during construction	Reduction of construction pollutant emissions	CPUC	Confirm plans prior to construction; verify plans are implemented during construction

C.2.8 REFERENCES

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