D.10 Air Quality

This section addresses the Proposed Project and alternatives as they would affect air quality. Section D.10.1 provides a description of the environmental setting, and the applicable air quality management plans, regulations, and requirements are introduced in Section D.10.2. An analysis of the Proposed Project impacts is in Section D.10.3, and the air quality impacts related to the project alternatives are in Sections D.10.4 through D.10.6.

D.10.1 Environmental Setting for the Proposed Project

Climate and Meteorology

The study area is within the San Francisco Bay Area, an area of 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. The high pressure cell shifts northward or southward in response to seasonal changes or the presence of cyclonic storms. Along with the offshore high pressure cell, air quality in the Bay Area is affected by persistent temperature inversions, persistent onshore winds, coastal mountain and valley topography, and available sunlight.

Temperature and Precipitation. Ambient temperatures along the eastern slope of the peninsula are moderated because of its proximity to the San Francisco Bay. Average summertime high temperatures are between 70 and 80˚F in San Mateo and are below 75˚F at the San Francisco International Airport. Average wintertime low temperatures in San Mateo range from 40 to 45˚F. Annual rainfall (between 18 to 20 inches, on average) occurs almost exclusively between October and April (WRCC, 2003).

Wind. The prevailing winds along the eastern slope of the peninsula are generally from the west depending on the influence of local topography. Portions of the project traverse the San Bruno Gap, a passage between the Santa Cruz Mountains and San Bruno Mountain that allows marine air to flow to the bay from the northwesterly direction. Occasional winter storms and offshore flows reverse the winds so that they flow from the east.

Average wind speeds are greatest in the spring and summer and weakest in the fall and winter. Nighttime and early morning hours frequently have calm winds in all seasons, while summer afternoons and evenings are quite breezy. Strong winds are rare and mostly associated with the occasional winter storm. Annual average wind speeds close to the bay average around seven miles per hour, except for the areas influenced by the San Bruno Gap where the winds can be much higher (BAAQMD, 1999).

Existing Air Quality

Criteria Air Pollutants. With the assistance of the Bay Area Air Quality Management District (BAAQMD), the California Air Resources Board (CARB) compiles inventories and projections of emissions of the major pollutants and monitors air quality conditions. Air quality conditions are tracked for both "criteria air pollutants" and "toxic air contaminants." Criteria air pollutants refer to a group of pollutants for which regulatory agencies have adopted ambient air quality standards and region-wide pollution reduction plans. Criteria air pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter, and lead. Toxic air contaminants (TACs) refer to a category of air pollutants that pose a present or potential hazard to human health, but which tend to have more localized impacts than

criteria air pollutants. Reactive and volatile organic compounds and gases (ROG) are also regulated as criteria pollutants because they are precursors to ozone formation. Certain ROGs may also qualify as TACs. Two subsets of particulate matter are inhalable particulate matter less than ten microns in diameter (PM_{10}) and fine particulate matter less than 2.5 microns in diameter ($PM_{2.5}$).

Ambient Air Quality. Historically, violations of federal and State ambient air quality standards for ozone, particulate matter, and CO have occurred throughout the San Francisco Bay Area. Since the early 1970s, substantial progress has been made toward controlling these pollutants. Although some air quality improvements have occurred, violations of ambient air quality standards for particulate matter and ozone are persistent. The frequency of the violations and the current air quality conditions are summarized for ozone, PM_{10}, and CO in Table D.10-1. (The standards are discussed in more detail under Section D.10.2, Applicable Regulations, Plans, and Standards.)

Table D.10-1. Regional Ambient Air Quality Monitoring Data

Monitoring Location		Ozone Days Over 1-hr State Standard	Ozone Max 1-hr (ppm)	Ozone Max 8-hr (ppm)	PM_{10} Days Over 24-hr State Standard	PM_{10} Max 24-hr ($\mu g/m^3$)	PM_{10} Annual Average ($\mu g/m^3$)	CO Max 1-hr (ppm)	CO Max 8-hr (ppm)
San Mateo County	1997	0	0.09	0.073	2	69.8	23.9	10.7	4.2
	1998	0	0.07	0.053	0	48.6	22.4	8.7	4.1
	1999	0	0.08	0.063	3	84.8	24.6	8.0	3.8
	2000	0	0.08	0.063	1	53.3	21.2	9.8	4.4
	2001	1	0.11	0.067	4	64.5	22.5	7.1	3.9

Source: CARB Air Quality Data CD-R 2002.

Notes: State Standard = California Ambient Air Quality Standard (CAAQS)
ppm = parts per million
µg/m3 = micrograms per cubic meter; days over PM_{10} CAAQS is calculated based on monitoring every sixth day.
Station Location: All San Mateo County data is from the Redwood City monitoring station.

Emission Inventory. Existing emission sources in the project area include a diverse range of stationary sources, mobile sources, and smaller sources that are distributed area-wide. Notable stationary sources along the proposed route include the industry along the shoreline of the San Francisco Bay including electric power plants north of the project area. Mobile sources are commonplace throughout the suburban areas, including on-highway motor vehicles, heavy mobile equipment used for off-road purposes (e.g., construction equipment), aircraft, and railroad locomotives. CARB compiles regionwide emission inventories that include planning and forecast estimates for each of these groups of sources.

D.10.2 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.

Ambient Air Quality Standards

The environmental quality of ground-level air (air quality) is determined 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). Regulation of air quality began in California before being coordinated at the national level,

and the State-level standards established by the CARB are more stringent than those set forth by the U.S. EPA. The standards currently in effect in California are shown in Table D.10-2.

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 D.10-3 provides a summary of the health effects from the major criteria air pollutants.

Table D.10-2. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards
Ozone (O_3)	1-hour	0.09 ppm	0.12 ppm
	8-hour	—	0.08 ppm
Respirable particulate matter (PM_{10})	24-hour	50 µg/m^3	150 µg/m^3
	Annual mean	20 µg/m^3(*)	50 µg/m^3
Fine particulate matter ($PM_{2.5}$)	24-hour	—	65 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	0.25 ppm	—
	Annual mean	—	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
(*) These California standards for PM_{10} and $PM_{2.5}$ were approved in June 2002 and are expected to take effect in 2003.
Source: CARB Ambient Air Quality Standards Table, 2003.

Table D.10-3. Summary of Health Effects of the Major Criteria Pollutants

Air Pollutant	Primary Health Effects
Ozone (O_3)	• Aggravation of respiratory and cardiovascular diseases • Impairment of cardiopulmonary function • Eye irritation
Respirable and fine particulates (PM_{10} and $PM_{2.5}$)	• Increased risk of chronic respiratory disease • Reduced lung function • Increased cough and chest discomfort • Particulate matter 10 microns or less in size (PM_{10}) may lodge in and/or irritate the lungs
Carbon monoxide (CO)	• 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 (NO_2)	• Risk of acute and chronic respiratory disease
Sulfur dioxide (SO_2)	• Aggravation of respiratory diseases (asthma, emphysema) • Reduced lung function • Irritation of eyes

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

Attainment Status

The California Air Resources Board designates those portions of the State where federal or State ambient air quality standards are not met as "nonattainment" areas. Table D.10-4 summarizes the air quality attainment status for the Bay Area air basin. Where a pollutant exceeds standards, the federal and State Clean Air Acts require air quality management plans that demonstrate how the standards will be achieved. These laws also provide the basis for the implementing agencies to develop mobile and stationary source performance standards. The regulatory programs are discussed below.

Table D.10-4. Attainment Status of Bay Area Air Basin

Air Basin	Ozone		PM_{10}		CO		NO_2		SO_2	
	State	Federal	State	Federal	State	Federal	State	Federal	State	Federal
Bay Area	Serious Nonattainment	Moderate Nonattainment	N	A	A	A	A	A	A	A

Source: CARB, 2002 (http://www.arb.ca.gov/desig/desig.htm) and U.S. EPA, 2002 (http://www.epa.gov/region09/air/).
Note: A = Attains Ambient Air Quality Standards; N = Nonattainment.

Toxic Air Contaminants

Toxic air contaminants are regulated because they are suspected or known to cause cancer, birth defects, neurological damage, or death. There are no established ambient air quality standards for toxic air contaminants. Instead they are managed on a case-by-case basis depending on the quantity and type of emissions and proximity of potential receptors. State-wide and local programs identify industrial and commercial emitters of toxic air contaminants and require reductions in these emissions. There are also federal programs that require control of certain categories of sources of TACs.

The BAAQMD monitors toxic air contaminants through a network of sixteen stations throughout the region. Of the pollutants for which monitoring data are available, contaminants that are emitted primarily from motor vehicles account for over one half of the average calculated cancer risk for Bay Area residents. Ambient benzene levels declined dramatically in 1996 with the advent of Phase 2 reformulated gasoline. Due largely to observed reductions in air toxics from motor vehicles, the calculated average cancer risk has been significantly reduced in recent years. Based on 2000 ambient monitoring data, the calculated cancer risk is 167 in one million, which is about 45 percent less than what was observed five years earlier (BAAQMD, 2001).

Asbestos is classified as a known human carcinogen and is a toxic air contaminant. Naturally occurring asbestos minerals may be found in serpentinite rock that is located in the region. Disruption, breaking, or crushing of serpentinite rock can therefore lead to airborne emissions of dusts that contain the mineral asbestos. To address the potential health hazards of this airborne substance, the Governor's Office of Planning and Research (OPR, 2000) and the CARB (17 Cal. Code Regs. 93105) have each established recommendations and requirements to minimize emissions of naturally occurring asbestos from construction and grading.

Federal Regulations and Standards

The Federal Clean Air Act directs local air quality management agencies to implement programs that lead to attainment and maintenance of NAAQS. The U.S. EPA establishes the NAAQS and reviews the plans and regulations developed by the local agencies in their efforts to attain the standards. The U.S. EPA also over-sees implementation of federal programs for permitting new and modified stationary sources, controlling toxic air contaminants, and reducing emissions from motor vehicles and other mobile sources.

All projects that depend on federal assistance or permits require a demonstration by the federal permitting agency that the project would comply with the General Conformity rule. Under 40 CFR (Code of Federal Regulations) Section 93.153 (Applicability), if the direct and indirect emissions related to the federal assistance or permitting exceed certain *de minimis* emission thresholds, then the federal agency providing the oversight would be required to perform a comprehensive conformity analysis. The analysis would be necessary to determine whether the federal action conforms with the local air quality management plans for attainment and maintenance of the NAAQS. In the San Francisco Bay Area, the *de*

minimis emission thresholds are 100 tons per year of either volatile organic compounds (VOC), nitrogen oxides (NOx), or CO. PM_{10} emissions are not considered by the General Conformity rule because the Bay Area Air Basin is federally designated as attainment for PM_{10}. Only small portions of the Proposed Project may require federal permits (e.g., for crossing waters regulated under Section 10/404 of the federal Clean Water Act). Water crossings are shown in Section D.7.1, Hydrology and Water Quality.

State Regulations and Laws

- CARB establishes and periodically updates the CAAQS and determines attainment status for criteria air pollutants.
- The California Clean Air Act went into effect on January 1, 1989, with the mandate that local air quality districts achieve the health-based CAAQS at the earliest practicable date.
- CARB requires special dust control measures known as Asbestos Airborne Toxic Control Measures for any construction and grading operations in areas known to contain serpentinite soils with naturally occurring asbestos.
- The Statewide Portable Equipment Registration Program established by CARB allows operation of portable equipment throughout California without having to obtain individual permits from local air districts.

Bay Area Regional Plans, Programs, and Requirements

The BAAQMD rules and regulations apply to all sources of emissions within the nine-county Bay Area region, including all of San Mateo County.

- **Bay Area Clean Air Plan.** Most recently updated in December 2000, this BAAQMD plan is a regional plan that is updated triennially as required by the State Clean Air Act to address how the region will attain the ozone CAAQS. The State Clean Air Act does not require a plan for addressing nonattainment of the State PM_{10} or $PM_{2.5}$ standards, but many of the measures to reduce ozone precursors will also reduce ambient particulate matter.
- **Ozone Attainment Plan.** Most recently updated in 2001, this plan is a regional strategy to achieve the federal one-hour ozone standard by 2006. The U.S. EPA requires an update to this plan by December 2003. The BAAQMD, Metropolitan Transportation Commission (MTC), and Association of Bay Area Governments (ABAG) are working throughout 2003 to assess progress toward the ozone standards, review air pollution control strategies, and determine what additional control strategies will be needed.
- **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. Contaminants are monitored around the region, and stationary sources that could emit notable quantities of air toxics are required to conduct detailed risk assessments and limit emissions.
- **Nuisances.** BAAQMD Regulation 2, Rule 1, General Requirements, prohibits any source from causing a public nuisance.
- **Odorous Substances Regulation.** The BAAQMD manages an odor control program to minimize nuisances. Sources that generate odors which travel into adjacent properties are regulated by the provisions of BAAQMD Regulation 7, Odorous Substances.
- **Asbestos Demolition, Renovation and Manufacturing.** BAAQMD Regulation 11, Rule 2 requires appropriate emission control methods, handling, disposal, and record-keeping for handling asbestos-containing material.

D.10.3 Environmental Impacts and Mitigation Measures for the Proposed Project

D.10.3.1 Significance Criteria

BAAQMD Significance Criteria for Construction. Controlling dust in the form of PM_{10} during construction is useful in minimizing nuisance conditions and avoiding violations of the State ambient air quality standards. The BAAQMD recommends that a standard set of feasible dust control measures be implemented for all construction activities. Emissions of other contaminants (NOx, VOC, CO, SO_2, and diesel-related PM_{10}) that would occur in the exhaust from heavy equipment are included in the regionwide inventory that is the basis for regional attainment and are not expected to impede attainment of maintenance of the ambient air quality standards. The BAAQMD does not recommend quantification of construction-related emissions but rather recommends implementation of specific measures that can reduce the potential impacts to a level that would be considered less than significant (BAAQMD, 1999). Similarly, emissions of naturally occurring asbestos in serpentinite soils can be reduced to less than significant levels with implementation of State-recommended measures for dust control during work in these areas (OPR, 2000).

Table D.10-5. Significant Project-Related Emissions

Pollutant	Pounds Per Day	Tons Per Year
NOx	80	15
VOC	80	15
PM_{10}	80	15

Source: BAAQMD 1999.

BAAQMD Significance Criteria for Operations. The BAAQMD recommends that emissions from project operations be quantified and compared to the thresholds provided in Table D.10-5. Total operational emissions for comparison with these thresholds should include all emissions from motor vehicle use and stationary sources associated with the project. A project that generates criteria pollutant emissions in excess of the annual or daily thresholds in Table D.10-5 would be considered to have a significant air quality impact.

D.10.3.2 Applicant Proposed Measures

PG&E has committed to implementing the Applicant Proposed Measures (APMs) presented in Table D.10-6 and D.10-7 to reduce air quality impacts associated with construction. These APMs are incorporated into additional more specific mitigation measures that are recommended to ensure that all impacts would be reduced to less than significant levels (see Section D.10.3.3).

Table D.10-6. Applicant Proposed Measures – Air Quality

APM	Description
APM 14.1	All personnel working on the project will be trained prior to starting construction on methods for minimizing air-quality impacts during construction. This means that construction workers will be trained regarding the minimization of emissions during construction. Specific training will be focused on minimizing dust and volatile organic compound emissions (especially from solvent and gasoline vapors). Workers will be encouraged to carpool whenever possible, refill gasoline fuel tanks in the afternoon, and minimize idling of engines. Workers will be directed to the importance of the Spare the Air program in helping to maintain air quality within the Bay Area.
APM 14.2	The measures shown in Table D.10-7 will be implemented to minimize PM_{10} emissions.
APM 14.3	The following measures will be implemented to reduce short-term construction vehicle emissions: construction workers will carpool when possible, and vehicle idling time will be minimized.

Sources: PG&E, 2002 and PG&E, 2003

Table D.10-7. 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 10 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

Source: BAAQMD 1999.

D.10.3.3 230 kV/60 kV Overhead Transmission Line

Impacts During Construction

Construction activities can be grouped into those occurring on-site and off-site. Air pollutant emissions during on-site construction would principally consist of fugitive particulate matter (dust) generated from travel on unpaved surfaces and material handling and exhaust emissions from mobile diesel and gasoline-powered construction equipment. 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 (e.g., concrete, tower materials, and conductors) to the work sites, and dump trucks hauling away construction debris (e.g., dirt displaced by new tower foundations and underground excavation).

PG&E proposes to use a range of equipment to construct the project. Although some pieces of equipment may be powered electrically, each piece of heavy equipment could be a source of exhaust emissions and much of the equipment would be operating simultaneously at various points along the project route. Project Description Table B-3 (in Section B) shows how the various equipment could be used during construction. Table D.10-8 lists the type and quantity of equipment anticipated for construction of the overhead and underground portions of the transmission line and construction of the transition station.

Table D.10-8. Construction Equipment Inventory, Overhead and Underground Transmission Line and Transition Station Work

Construction Activity	Equipment (Quantity)
Overhead General Construction	Rigging Truck (2) Mechanic Truck (1)
Structure Foundation Excavation	3/4-Ton Pickup Truck (2) 1-Ton Truck (1) Truck Mounted Digger (2) Crawler Backhoe (1) Concrete Truck (2)
Structure Delivery and Setup	Helicopter 3/4-Ton Pickup Truck (2) Boom Truck (2) Mobile Crane (2)
Underground Delivery and Setup	Rigging Truck (1) Mechanics Truck (1) Small Mobile Crane (1) Shop Van (2) 2-Ton Flat Bed Truck (1)
Excavation and Construction	Crawler Backhoe (1) Cement Truck (2) Dump Truck (2) Mobile Crane (1) Transport Truck (1)
Wire Installation	Cable Puller Truck (1) Wench Truck (1) 1-Ton Truck (2) Mobile Crane (1)

Source: PG&E, 2002.

Emission rates for the inventory of equipment in Table D.10-8 would vary depending on the actual construction rate of progress. PG&E estimates that the duration of overhead transmission line work, transition station work, and substation modifications would be 13 months using approximately 24 separate crews.

Table D.10-9 shows PG&E's estimates of the unabated emissions from all equipment and excavation operations during overhead and underground transmission line construction and construct to build the transition station. Table D.10-9 may overestimate the daily emissions because some of the construction activities must actually occur in sequence, which precludes the activities from overlapping. The estimates in Table D.10-9 are considered to be the maximum daily emission rates for these activities.

Impact A-1: Construction Activities Would Create Dust Emissions

Many construction activities associated with installation of the overhead line, especially site preparation and installing structure foundations, would require travel on unpaved roads and surfaces that would create fugitive dust (PM_{10}). Any soil disturbance from construction equipment would generate PM_{10} emissions. The quantity of PM_{10} emissions can very greatly depending on the level of activity, the specific activities taking place, and weather and soil conditions. An estimate of the fugitive dust from construction of the transmission line and transition station is shown in Table D.10-9.

Table D.10-9. Emissions from Construction of Transmission Line and Transition Station

Construction Activity	NOx (lb/day)	VOC (lb/day)	CO (lb/day)	SOx (lb/day)	PM_{10} (lb/day)
Overhead and Underground Line and Transition Station Work					
Overhead General Construction	1.3	0.7	10.9	0.0	0.0
Structure Foundation Excavation	138.4	9.1	91.5	16.1	9.9
Structure Delivery and Setup	54.6	20.1	561.2	0.6	1.8
Underground Delivery and Setup	68.5	4.1	44.2	7.3	4.1
Excavation and Construction	163.8	13.5	230.5	19.2	10.9
Wire Installation	90.4	11.0	222.1	13.0	7.1
Fugitive Dust	---	---	---	---	2,983.5
Line Activity Totals	**516.9**	**58.4**	**1,160.4**	**56.1**	**3,017.3**

Source: PG&E, 2002

As stated in Section D.10.3.2, PG&E proposes to implement several APMs to reduce PM_{10} emissions. Although the APMs would reduce the severity of the impact, there are additional measures recommended by the BAAQMD. Without implementing all of the BAAQMD recommendations, construction activities could cause a significant air quality impact because the dust emissions could cause a nuisance. Implementation of APMs 14.1 and 14.2 along with the remaining BAAQMD recommendations, shown in Mitigation Measure A-1a, would reduce this potentially significant impact to a level that is less than significant (Class II).

Mitigation Measure for Impact A-1

A-1a Control Dust Emissions. APMs 14.1 and 14.2 shall be implemented at all construction sites. PG&E shall identify all areas of the approved route that are within 300 feet of residences, schools, convalescent facilities, and hospitals in a report submitted to the CPUC at least 60 days before construction. The following BAAQMD PM_{10} control measures shall be implemented at construction sites within these areas:

- Install wind breakers, or plant trees/vegetative wind breaks at windward side(s) of construction staging or parking areas if activity at the staging or parking area causes persistent visible emissions of fugitive dust beyond the work area.
- Suspend excavation, trenching, and grading activity ~~when~~ if winds ~~(instantaneous gusts)~~ exceed 25 mph and the activity causes persistent visible emissions of fugitive dust beyond the work area.
- Limit the area subject to excavation, grading and other construction activity at any one time.

Impact A-2: Construction Equipment Would Generate Exhaust Emissions

Use of construction equipment and emissions from motor vehicles used to mobilize the workforce and materials for construction would cause a potentially significant air quality impact by emitting pollutants that would contribute to existing regional violations of the PM_{10} and/or ozone standards. In APM 14.1 (incorporated into Mitigation Measure A-1a) and APM 14.3, PG&E would reduce these emissions by encouraging carpooling and limiting vehicle idling time. The BAAQMD recommendations provide more detail than is proposed in Mitigation Measure A-2a, which supersedes APM 14.3. Implementation of the following measure would reduce this potentially significant impact to a level that is less than significant (Class II).

Mitigation Measure for Impact A-2

A-2a Control Exhaust Emissions. The following measures shall be implemented during construction (supersedes APM 14.3):

- Construction workers shall carpool when possible.
- Vehicle idling time shall be minimized (i.e., 5-minute maximum).
- Alternatively fueled construction equipment shall be used where feasible.
- Equipment shall be properly tuned and maintained.

PG&E shall document compliance with this measure by submitting an exhaust emission reduction plan to the CPUC for review and approval at least 60 days before the start of construction. The plan shall document the approach for ensuring carpooling, use of alternatively fueled vehicles, and shall define how and where records of equipment tuning and maintenance will be kept for CPUC review during construction. PG&E shall ensure that all construction workers are aware of the vehicle idling restriction by including explanation of this requirement in the Worker Training Program.

Impact A-3: Construction Activity Could Encounter Naturally Occurring Asbestos

Naturally occurring asbestos minerals may be found in serpentinite rock that is located in the region. The soils and ground surfaces that are known to contain serpentinite rock are described in Section D.6.1, Geology. ~~The extent of the serpentinite rock is limited mainly to areas near the Jefferson Substation,~~

~~the Ralston Substation, and San Bruno Mountain.~~ Approximately 85% of the extent of the serpentinite rock along the proposed route is south of the proposed transition station at MP 14.7. Both fractured serpentinite bedrock and sheared rock containing a large component of sheared serpentinite occur along the route. No serpentinite occurs along the proposed route north of the transition station.

Construction activity that involves travel on serpentinite soils or disturbing serpentinite surfaces can lead to airborne emissions of dusts that contain the mineral asbestos. The Governor's Office of Planning and Research (OPR, 2000) and the CARB (17 Cal. Code Regs. 93105) have each established recommendations and requirements that would minimize the likelihood of this material becoming airborne, which would reduce the potential health hazards. The strategies to manage asbestos made airborne by working on serpentinite soils would be similar to, but more aggressive than, the strategies implemented for routine dust control. Mitigation Measure A-3a would implement the CARB requirements and reduce this impact to a less than significant level (Class II).

Mitigation Measure for Impact A-3

A-3a **Asbestos Dust Mitigation Plan.** An Asbestos Dust Mitigation Plan shall be prepared by PG&E, or its contractor, and submitted to and approved by the Bay Area Air Quality Management District before the start of any construction or grading activity. A copy of the approved plan shall be submitted to the CPUC for documentation. The plan shall be prepared and implemented according to the requirements of 17 Cal. Code Regs. 93105 (CARB Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations).

Impact A-4: Operational Air Quality Impacts Associated With Maintenance and Inspections

Once construction is complete, operational emissions would result from vehicle use that would be necessary for periodic inspection, maintenance, and repair of the project components. No stationary emissions sources would be associated with the project, and the minor mobile source emissions would be the only direct source of emissions related to project operation. General inspections presently occur for the existing 60 kV line and presently cause small amounts of light and medium-heavy duty truck traffic. The Proposed Project would not require a substantial number of new vehicle trips compared to the existing conditions. It is anticipated that no new permanent employees would be needed to operate the Proposed Project. The quantity of emissions that would be caused by project vehicular traffic for inspection and maintenance activities would be minor.

Direct emissions from project vehicular traffic for maintenance activities would cause a negligible impact, and there would be no stationary sources of emissions related to the project. Therefore, potential impacts associated with project operation are considered to be less than significant, and mitigation measures are not required (Class III).

D.10.3.4 Transition Station

Construction of the transition station would cause emissions of dust and equipment exhaust, as discussed in Section D.10.3.3 above. The heavy equipment that would be used is similar to that needed for overhead transmission line work, and it is included in Table D.10-8, above. The associated emissions from equipment exhaust and dust are also included in the emission estimates for the entire transmission line work, shown in Table D.10-9.

Air quality Impacts A-1 and A-2 described in Section D.10.3.3 are also applicable to the construction work that would be conducted at the transition station site. APMs 14.1 and 14.2 and Mitigation

Measures A-1a (dust control) and A-2a (exhaust emissions control) (for Impacts A-1 and A-2) would also be applicable to construction of the transition station. Potentially significant impacts would be mitigable to less than significant levels (Class II). Impact A-3, above, would not apply to the transition station because no serpentinite rock is expected at the transition station site.

No permanent or stationary sources of emissions would be associated with operations of the transition station. Air quality impacts during operation would be caused by vehicular traffic for maintenance and inspections, similar to the overhead transmission line in Impact A-4 above (Class III).

D.10.3.5 230 kV Underground Transmission Line

Construction of the underground portion of the transmission line would cause emissions of dust and equipment exhaust, as discussed in Section D.10.3.3 above. Trenching and excavation would involve earth moving operations and any soil disturbance from construction equipment would generate PM_{10} emissions. Equipment exhaust could contribute to ongoing regional violations of the ambient air quality standards for particulate matter and ozone. The equipment that would be used for underground work, including excavation and wire installation, is shown in Table D.10-8, and the associated emissions are quantified in Table D.10-9, above. The estimated duration for construction of the underground transmission line portion of the project is 12 months.

Air quality Impacts A-1 and A-2 described in Section D.10.3.3 are also applicable to the construction work that would be required for the underground transmission line. APMs 14.1 and 14.2 and Mitigation Measures A-1a (dust control) and A-2a (exhaust emissions control) would be appropriate for construction of the proposed underground segment. Potentially significant impacts would be mitigated to less than significant levels (Class II). Impact A-3, above, would apply to portions of the underground transmission line work on San Bruno Mountain because serpentinite rock may be encountered there. As such, Mitigation Measure A-3a (asbestos dust reduction) would be necessary to mitigate impacts to less than significant levels (Class II).

No permanent or stationary sources of emissions would be associated with operations of the underground transmission line. Air quality impacts associated with the operations of the underground line would be caused by vehicular traffic for maintenance and inspections, similar to those described for the overhead line in Impact A-4 above (Class III).

D.10.3.6 Substations, Switchyard, and Taps

Construction activities at the substations, switchyard, and taps would involve many of the same types of construction equipment that would be associated with construction of the transmission line and transition station. Table D.10-10 lists the types and quantities of equipment anticipated for construction of the substation modifications. Table D.10-11 shows PG&E's estimates of the unabated emissions from all equipment related to substation work.

Table D.10-10. Construction Equipment Inventory, Substation Modifications

Construction Activity	Equipment (Quantity)
General Construction	Rigging Truck (1) Mechanic Truck (1)
Structure Foundation Excavation	3/4-Ton Pickup Truck (4) 1-Ton Truck (1) Truck Mounted Digger (1) Crawler Backhoe (1) Concrete Truck (1)
Structure Delivery and Setup	3/4-Ton Pickup Truck (2) Boom Truck (1) Mobile Crane (1)
Wire Installation	1-Ton Truck (1) 3/4-Ton Pickup Truck (10)
Cleanup and Landscaping	2-Ton Flat Bed Truck (2) 3/4-Ton Pickup Truck (2) 1-Ton Truck (2) D-3 Bulldozer Concrete Truck (2)

Source: PG&E, 2002.

Table D.10-11. Emissions from Construction of Substation Modifications

Construction Activity	NOx (lb/day)	VOC (lb/day)	CO (lb/day)	SOx (lb/day)	PM_{10} (lb/day)
Substation Modifications					
General Construction	0.7	0.4	6.3	0.0	0.0
Structure Foundation Excavation	69.4	6.9	95.5	10.4	5.7
Structure Delivery and Setup	7.8	10.6	281.2	0.4	0.9
Wire Installation	72.1	6.0	74.8	7.3	4.1
Cleanup and Landscaping	202.3	11.0	104.4	20.9	11.6
Fugitive Dust	0.0	0.0	0.0	0.0	77.0
Substation Construction Total	**352.4**	**34.9**	**562.3**	**39.0**	**99.2**

Source: PG&E, 2002.

Air quality Impacts A-1 and A-2 described in Section D.10.3.3 are also applicable to the construction that would be required for the substation and switchyard modifications and taps. APMs 14.1 and 14.2 and Mitigation Measures A-1a and A-2a would be appropriate for construction work at these facilities.

No permanent or stationary sources of emissions would be associated with operations of the substations, switchyard, or taps. Air quality impacts during operations of these facilities would be caused by vehicular traffic for maintenance and inspections, similar to those described for the transmission line in Impact A-4 above (Class III).

Impact A-5: Substation and Switchyard Work Could Encounter Asbestos-Containing Materials

Building materials containing asbestos could be encountered during work at the substations and the switchyard. Insulating material and coatings used in building construction sometimes contain asbestos. Proper management of asbestos-containing materials would be necessary to avoid potential health risks from airborne asbestos fibers. All construction, demolition, or renovation activities would be required to comply with BAAQMD Regulation 11, Rule 2. The regulation requires filing a notification to the BAAQMD prior to commencement of any work that may encounter asbestos-containing materials. The filing requires an asbestos survey to be performed acknowledging if there is a presence or not. Compliance with this regulation would ensure that this impact is less than significant (Class III).

D.10.4 Southern Area Alternatives

The air quality impacts for the alternative alignments and substation work would not be significantly different from the Proposed Project. Localized short-term construction emissions would occur in the same manner as the Proposed Project (Impacts A-1, A-2, A-3, and A-5). Implementation of Mitigation Measures A-1a, A-2a, and A-3a in addition to APMs 14.1 and 14.2 would reduce potentially significant impacts during the construction phase to a level less than significant (Class II).

Operational air quality impacts for all alternatives (Impact A-4) would be essentially the same for each alternative because each alternative would require some level of maintenance and inspection. Air quality impacts during the operations phase of the project would be insignificant (Class III) and would not require mitigation under any alternative.

D.10.4.1 PG&E Route Option 1B – Underground

Environmental Setting

Section D.10.1 describes the air quality characteristics of the region. Because this alternative would occur in the same air basin as the Proposed Project, the existing air quality conditions would be the same as described for the Proposed Project.

Environmental Impacts and Mitigation Measures

This alternative would substantially increase the amount of underground work, increasing the adverse effects of dust emissions and equipment emissions (Impacts A-1 and A-2, respectively), but it would eliminate work related to tower structures and overhead construction. The location of this route would reduce the amount of work near sensitive receptors in the San Mateo Highlands and the southern portion of Hillsborough. Increased emissions would occur for the underground work near residences in Hillsborough and Burlingame along Skyline Boulevard south of Trousdale Drive and near residences, the Franklin Elementary School, and Mills-Peninsula Hospital on Trousdale Drive, which would increase the likelihood that it would create a nuisance in these communities. It should be noted that six possible options were considered in the Draft EIR for crossing the Crystal Springs Dam area (see Section 4.2.1 of Appendix 1). These options all involved crossings near or at the dam. In its comments on the Draft EIR, PG&E suggested consideration of an additional overhead crossing of San Mateo Creek as an option to avoid a crossing at Crystal Springs Dam. The option (illustrated in Appendix 1, Figure Ap.1-2c) would require a bore from Skyline Boulevard to the vicinity of Hillsdale Junction Substation, where a new transition tower would be installed. From the transition tower, the overhead line would follow the proposed overhead route crossing San Mateo Creek to Tower 6/38. A transition tower would be located below Tower 6/38 adjacent to Crystal Springs Road. From this transition tower the underground line would be installed in Crystal Springs Road for approximately 1,000 feet to Skyline Boulevard where it would rejoin the originally defined Route Option 1B. Implementation of this overhead creek crossing option would result in construction activities being conducted closer to the northern end of the San Mateo Highlands and the southern portion of Hillsborough, potentially increasing the likelihood of a nuisance.

Because more excavation would occur, there would be a higher likelihood of encountering asbestos in serpentinite soil (Impact A-3). Implementation of the Mitigation Measures A-1a, A-2a and A-3a, in addition to APMs 14.1 and 14.2 would be necessary to reduce potentially significant impacts during the construction phase to a level less than significant (Class II).

Comparison to Proposed Route Segment

Underground transmission line construction generates more exhaust and dust emissions per mile than overhead line construction. PG&E's Route Option 1B would substantially increase the amount of underground construction near residences in Hillsborough and Burlingame compared to the Proposed Project, which could increase the likelihood of air emissions causing a nuisance. PG&E's suggested overhead crossing of San Mateo Creek is not preferred over the other six crossing methods because it would potentially result in more of a nuisance to residents of the northern portion of the San Mateo Highlands and southern Hillsborough.

D.10.4.2 Partial Underground Alternative

Environmental Setting

Section D.10.1 describes the air quality characteristics of the region. Because this alternative would occur in the same air basin as the Proposed Project, the existing air quality conditions would be the same as described for the Proposed Project.

Environmental Impacts and Mitigation Measures

This alternative would substitute a portion of the work related to tower structures and overhead construction with increased underground work, which would increase the adverse effects of dust emissions and equipment emissions (Impacts A-1 and A-2, respectively). The method of construction (i.e., more underground work) associated with this alternative would cause more excavation activities near residences of the San Mateo Highlands and Hillsborough between the Ralston and Carolands Substations, which could increase the likelihood of a nuisance. Because more excavation would occur, there would be a higher likelihood of encountering asbestos in serpentinite soil (Impact A-3). Implementation of Mitigation Measures A-1a, A-2a and A-3a, in addition to APMs 14.1 and 14.2, would be necessary to reduce potentially significant impacts during the construction phase to a level less than significant (Class II).

It is noted that two new mitigation measures presented in this Final EIR would require two pole locations to be moved. Biology Mitigation Measure B-2b (see Figure D.4-9) would require that the transition tower originally sited at Tower 6/37 to be moved approximately 100 feet north of the existing Tower 6/36 location (reducing the extent of undergrounding). Visual Resources Mitigation Measure V-24a (see Figure D.3-20g) requires Tower 7/39 to be relocated approximately 100 feet north of its proposed location. Implementation of Mitigation Measure B-2b would result in slightly less underground construction emissions then the originally identified alternative as would Mitigation Measure V-24a.

Comparison to Proposed Route Segment

Underground transmission line construction generates more exhaust and dust emissions per mile than overhead line construction. The Partial Underground Alternative would increase the amount of underground construction near residences in the San Mateo Highlands and Hillsborough compared to the Proposed Project, which could increase the likelihood of a nuisance.

D.10.5 Northern Area Alternatives

D.10.5.1 West of Skyline Transition Station Alternative

Environmental Setting

Section D.10.1 describes the air quality characteristics of the region. The existing air quality conditions for these options would be the same as described for the Proposed Project.

Environmental Impacts and Mitigation Measures

Alternatives that would locate the transition station west of Skyline Boulevard would alter the area of localized air quality impacts during construction of the transition station, but not the actual construction activity. For any underground route with the West of Skyline transition station, the air quality impacts would be similar to those presented in Section D.10.3: construction activities would create dust emissions

(Impact A-1, Class II); and construction activities would cause exhaust emissions from construction equipment (Impact A-2, Class II). Construction activities would not be expected to encounter naturally occurring asbestos in the soil at this location (Impact A-3, Class III). Implementation of Mitigation Measures A-1a and A-2a, in addition to APMs 14.1 and 14.2, would be necessary to reduce potentially significant impacts during the construction phase to a level that is less than significant (Class II).

Comparison to Proposed Transition Station

Compared to the Proposed Project, the West of Skyline transition station would be less likely to cause a nuisance from construction-related dust or equipment emissions because the transition station would be located about 500 feet from residences.

D.10.5.2 Sneath Lane Transition Station Alternative

Environmental Setting

Section D.10.1 describes the air quality characteristics of the region. The existing air quality conditions for these options would be the same as described for the Proposed Project.

Environmental Impacts and Mitigation Measures

Construction of the transition station at Sneath Lane would alter the location of localized air quality impacts during construction of the transition station, but not the actual construction activity. For any underground route with the Sneath Lane Transition Station, the air quality impacts would be similar to those presented in Section D.10.3: construction activities would create dust emissions (Impact A-1, Class II); construction activities would cause exhaust emissions from construction equipment (Impact A-2, Class II). Construction activities would not be expected to encounter naturally occurring asbestos in the soil at this transition station location (Impact A-3, Class III). Implementation of Mitigation Measures A-1aand A-2a, in addition to APMs 14.1 and 14.2, would be necessary to reduce potentially significant impacts during the construction phase of the project to a level that is less than significant (Class II).

Comparison to Proposed Transition Station

Compared to the Proposed Project, the Sneath Lane Transition Station would be less likely to cause a nuisance from construction-related dust or equipment emissions because the transition station would be located further from residences.

D.10.5.3 Glenview Drive Transition Tower Alternative

The Glenview Drive Transition Tower would allow an overhead crossing of Skyline Boulevard approximately 0.5 miles south of San Bruno Avenue, with a transition tower east of Skyline and the underground route following Glenview Drive north to San Bruno Avenue where the proposed route is located. This site could also be used with the Sneath Lane underground route or the Westborough Drive underground route.

Environmental Setting

Section D.10.1 describes the air quality characteristics of the region. The existing air quality conditions for these options would be the same as described for the Proposed Project.

Environmental Impacts and Mitigation Measures

Construction of the transition tower at Glenview Drive would alter the location of localized air quality impacts during construction of the transition tower, but not the actual construction activity. For any underground route with the Glenview Drive Transition Tower, the air quality impacts would be similar to those presented in Section D.10.3: construction activities would create dust emissions (Impact A-1, Class II); construction activities would cause exhaust emissions from construction equipment (Impact A-2, Class II). Construction activities could encounter naturally occurring asbestos in the soil at this transition station location (Impact A-3, Class III). Implementation of Mitigation Measures A-1a and A-2a, in addition to APMs 14.1 and 14.2, would be necessary to reduce potentially significant impacts during the construction phase of the project to a level that is less than significant (Class II).

Comparison to Proposed Transition Station

Compared to the Proposed Project, the Glenview Drive Transition Tower would be more likely to cause a nuisance from construction-related dust or equipment emissions because the alternative transition tower would be located closer to residences.

D.10.5.4 Trousdale Drive Transition Tower Alternatives

There are two alternative transition tower locations west of the end of Trousdale Drive: one would connect the Partial Underground Alternative with the Route Option 1B,and the other would connect the Proposed Project with Route Option 1B. Both alternative transition tower locations lie within Water-shed Lands near the existing right-of-way (ROW).

Environmental Setting

Section D.10.1 describes the air quality characteristics of the region. The existing air quality conditions for this alternative transition tower sites and Route Option 1B that would be associated with them would be the same as described for the Proposed Project.

Environmental Impacts and Mitigation Measures

Construction of a transition tower west of the western end of Trousdale Drive would alter the location of localized air quality impacts during construction of the transition tower, but not the actual construction activity. Air quality impacts would be similar to those presented in Section D.10.3: construction activities would create dust emissions (Impact A-1, Class II); construction activities would cause exhaust emissions from construction equipment (Impact A-2, Class II). Construction activities could encounter naturally occurring asbestos in the soil at this transition station location (Impact A-3, Class III). Implementation of Mitigation Measures A-1aand A-2a, in addition to APMs 14.1 and 14.2, would be necessary to reduce potentially significant impacts during the construction phase of the project to a level that is less than significant (Class II).

Comparison to Proposed Transition Station

Compared to the Proposed Project, the Trousdale Drive Transition Tower sites would be less likely to cause a nuisance from construction-related dust or equipment emissions because the transition tower sites would be located farther from residences.

D.10.5.5 Golf Course Drive Transition Station Alternative

The Golf Course Drive Transition Station would allow implementation of two scenarios. First, the Route Option 1B alternative in which the 230 kV line would be installed underground in Cañada Road and Skyline Boulevard could transition to overhead at this location. From there, it would connect with the Partial Underground Alternative or the Proposed Project, continuing north to one of the four transition station options near San Bruno Avenue. This would eliminate the use of the portion of Route Option 1B route north of Hayne Road (including Trousdale Drive and El Camino Real).

The second option for the use of the Golf Course Drive Transition Station would be to allow an underground crossing of the 230 kV line below the I-280 in the Partial Underground Alternative. In the original definition of the Partial Underground Alternative, both the 60 and 230 kV lines would be underground from the transition tower north of San Mateo Creek (Tower 7/39) to another transition tower south of Carolands Substation (Tower 8/50). A 60/230 kV transition tower at the 8/50 location would create a significant visual impact, as defined in Section D.3.4.2. However, this transition station will allow the 230 kV line to turn west when the line reaches Hayne Road and cross below the I-280 freeway, so there will be a need only for a single-circuit 60 kV transition tower at the 8/50 location so the visual impact would be substantially reduced. The 60 kV line would then enter Carolands Substation and cross the I-280 freeway overhead from Tower 8/50 to the west.

Environmental Setting

Section D.10.1 describes the air quality characteristics of the region. The existing air quality conditions for these options would be the same as described for the Proposed Project.

Environmental Impacts and Mitigation Measures

Construction of the transition station at Golf Course Drive would alter the location of localized air quality impacts during construction of the transition station, but not the actual construction activity. With implementation of the Golf Course Drive Transition Station and any of the applicable route options, the air quality impacts would be similar to those presented in Section D.10.3: construction activities would create dust emissions (Impact A-1, Class II); construction activities would cause exhaust emissions from construction equipment (Impact A-2, Class II). Construction activities could encounter naturally occurring asbestos in the soil at this transition station location (Impact A-3, Class III). Implementation of Mitigation Measures A-1a and A-2a, in addition to APMs 14.1 and 14.2, would be necessary to reduce potentially significant impacts during the construction phase of the project to a level that is less than significant (Class III).

D.10.5.6 Cherry Avenue Alternative

Environmental Setting

Section D.10.1 describes the air quality characteristics of the region. The existing air quality conditions for this alternative route would be the same as described for the Proposed Project.

Environmental Impacts and Mitigation Measures

This alternative would not change the amount of underground work, but it would somewhat increase the amount of underground work near multi-family residences, which could increase the likelihood of a nuisance. Impacts would be similar to those presented in Section D.10.3. Construction activities would

create dust emissions (Impact A-1, Class II) and exhaust emissions (Impact A-2, Class II), and the work could encounter naturally occurring asbestos (Impact A-3, Class II). Implementation of Mitigation Measures A-1a, A-2a, and A-3a, in addition to APMs 14.1 and 14.2, would be necessary to reduce potentially significant impacts during the construction phase of the project to a level that is less than significant (Class II).

Comparison to Proposed Route Segment

The Cherry Avenue Alternative would avoid work near commercial uses, but would somewhat increase the number of residences that would be near the work. Because more residences would be exposed to construction impacts under this alternative, this alternative would be more likely to cause a nuisance.

D.10.5.7 PG&E's Route Option 4B – East Market Street

Environmental Setting

Section D.10.1 describes the air quality characteristics of the region. The existing air quality conditions for this alternative route would be the same as described for the Proposed Project.

Environmental Impacts and Mitigation Measures

This alternative would not change the amount of underground work, but it would increase the amount of underground construction near schools. Conversely, it would somewhat reduce the amount of underground work near high-density residences in Daly City, which could decrease the likelihood of a nuisance. Impacts would be similar to those presented in Section D.10.3. Construction activities would create dust emissions (Impact A-1, Class II) and exhaust emissions (Impact A-2, Class II), and the work could encounter naturally occurring asbestos (Impact A-3, Class II). Implementation of Mitigation Measures A-1a, A-2a and A-3a, in addition to APMs 14.1 and 14.2, would be necessary to reduce potentially significant impacts during the construction phase of the project to a level that is less than significant (Class II).

Comparison to Proposed Route Segment

The Option 4B alternative would increase the amount of work near schools, but would somewhat decrease the number of residences that would be near the work. Because fewer residences would be exposed to construction impacts, the Option 4B alternative would be less likely to cause a nuisance.

D.10.5.8 Junipero Serra Alternative

Environmental Setting

Section D.10.1 describes the air quality characteristics of the region. The existing air quality conditions for this alternative route would be the same as described for the Proposed Project.

Environmental Impacts and Mitigation Measures

This alternative would not change the amount of underground work, but it would somewhat reduce the amount of work near residential neighborhoods and schools in San Bruno and South San Francisco, which could decrease the likelihood of a nuisance. Increased impacts would occur due to the proximity of the route to some residential uses along Westborough Boulevard, the Westborough Middle School,

and Westborough Park. Impacts would be similar to those presented in Section D.10.3. Construction activities would create dust emissions (Impact A-1, Class II) and exhaust emissions (Impact A-2, Class II), and the work could encounter naturally occurring asbestos (Impact A-3, Class II). Implementation of Mitigation Measures A-1a, A-2a, and A-3a, in addition to APMs 14.1 and 14.2, would be necessary to reduce potentially significant impacts during the construction phase of the project to a level that is less than significant (Class II).

Comparison to Proposed Route Segment

The Junipero Serra alternative would somewhat decrease the number of high-density residences and schools that would be near the work. Because fewer sensitive receptors would be exposed to construction impacts, the Junipero Serra alternative would be less likely to cause a nuisance.

D.10.5.9 Modified Existing 230 kV Underground ROW

Environmental Setting

Section D.10.1 describes the air quality characteristics of the region. The existing air quality conditions for this alternative ~~route~~, including Route Options A through F, would be the same as described for the Proposed Project.

Environmental Impacts and Mitigation Measures

This alternative would ~~not~~ significantly reduce~~change~~ the total amount of underground construction (by about 30% in comparison with the Proposed Project's 12.4 miles), and ~~work, but~~ it would ~~somewhat reduce the amount of~~eliminate work near high-density residences in Daly City~~South San Francisco~~ and a large number of schools in ~~, the~~ South San Francisco ~~High School~~ and Daly City, as well as many cemeteries and memorial parks, ~~Orange Memorial Park, and residences and schools in Colma and Daly City,~~ which would decrease the likelihood of a nuisance. Increased impacts would occur due to the proximity of the route to some additional residential uses in San Bruno, on the east side of ~~El Camino Real~~Seventh Avenue. The Proposed Project's underground segment would result in approximately 10.6 more tons of NOx and 13.2 more tons of PM10 than the Modified Existing Underground Alternative over the 12-month duration of construction for the underground transmission line.

Impacts would be similar to those presented in Section D.10.3. Construction activities would create dust emissions (Impact A-1, Class II) and exhaust emissions (Impact A-2, Class II), and the work could encounter naturally occurring asbestos (Impact A-3, Class II). Implementation of Mitigation Measures A-1a, A-2a, and A-3a, in addition to APM 14.1 and 14.2, would be necessary to reduce potentially significant impacts during the construction phase of the project to a level that is less than significant (Class II).

Impacts of Route Options A through F. Impacts would be similar to those presented in Section D.10.3. Construction activities would create dust emissions (Impact A-1, Class II) and exhaust emissions (Impact A-2, Class II), and the work could encounter naturally occurring asbestos (Impact A-3, Class II). Implementation of Mitigation Measures A-1a, A-2a, and A-3a, in addition to APM 14.1 and 14.2, would be necessary to reduce potentially significant impacts during the construction phase of the project to a level that is less than significant (Class II).

Comparison to Proposed Route Segment

The Modified Existing 230 kV Underground alternative would ~~somewhat~~ substantially decrease the number of residences and schools that would be near the work and would result in fewer construction emissions. Fewer sensitive receptors would, therefore, be exposed to construction impacts with the Modified Existing 230 kV Underground alternative when compared to the Proposed Project. Route Options A, D, and F would result in essentially the same amount of underground construction work as the applicable segments of the original alternative route. Rout Options B, C, and E would result in slightly more underground construction work than the applicable segments of the original alternative route.

D.10.6 Environmental Impacts of the No Project Alternative

Under the No Project Alternative, PG&E could be forced to upgrade other existing facilities or add new transmission and generation capacity elsewhere to compensate for existing system limitations and anticipated future loads. Construction of any alternative PG&E facilities would occur in the San Francisco Bay Area air basin. The localized, short-term construction activities related to new transmission or generation facilities would cause potentially significant air quality impacts related to dust (Impact A-1) and exhaust emissions (Impact A-2) described in Section D.10.3. If new generation facilities would be needed, the air quality impacts caused by any new power plant could be significant.

The No Project Alternative scenario includes installing new generation capacity in the City and County of San Francisco or elsewhere to compensate for existing transmission system limitations and anticipated loads. New generation built within San Francisco Bay Area Air Basin would need to comply with New Source Review permitting requirements of the BAAQMD, or the equivalent California Energy Commission licensing process. The steps that any developer must complete before permitting or licensing new generation units include preparing a location-specific air quality impacts modeling analysis, designing the system to achieve lowest achievable emission rates through use of the Best Available Control Technology, and surrendering emission reduction credits that fully offset new emissions. Compliance with the permitting and licensing requirements would probably reduce air quality impacts to a less than significant level, but impacts would vary case-by-case. Other possible scenarios under the No Project Alternative (such as curtailment of electrical service) could also result in air quality impacts if excessive use of emergency back-up generation systems would occur. Attempting to predict the extent of such impacts would be speculative.

D.10.7 Mitigation Monitoring, Compliance, and Reporting Table

Table D.10-12 on the following pages presents the mitigation monitoring recommendations for air quality. These measures along with Applicant Proposed Measures 14.1 and 14.2 would be applicable to construction on the proposed route and all alternative route segments.

Table D.10-12. Mitigation Monitoring Program – Air Quality

IMPACT A-1	**Construction Activities Would Create Dust Emissions (Class II)**
MITIGATION MEASURE	**A-1a: Control Dust Emissions.** APMs 14.1 and 14.2 shall be implemented at all construction sites. PG&E shall identify all areas of the approved route that are within 300 feet of residences, schools, convalescent facilities, and hospitals in a report submitted to the CPUC at least 60 days before construction. The following BAAQMD PM10 control measures shall be implemented at construction sites within these areas: • Install wind breakers, or plant trees/vegetative wind breaks at windward side(s) of construction staging or parking areas if activity at the staging or parking area causes persistent visible emissions of fugitive dust beyond the work area. • Suspend excavation, trenching, and grading activity ~~when~~ if winds (instantaneous gusts) exceed 25 mph and the activity causes persistent visible emissions of fugitive dust beyond the work area. • Limit the area subject to excavation, grading and other construction activity at any one time. **APM 14.1**: All personnel working on the project will be trained prior to starting construction on methods for minimizing air-quality impacts during construction. This means that construction workers will be trained regarding the minimization of emissions during construction. Specific training will be focused on minimizing dust and volatile organic compound emissions (especially from solvent and gasoline vapors). Workers will be encouraged to carpool whenever possible, refill gasoline fuel tanks in the afternoon, and minimize idling of engines. Workers will be directed to the importance of the Spare the Air program in helping to maintain air quality within the Bay Area. **APM 14.2:** PG&E shall implement the following 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 10 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.
Location	Entire project site.
Monitoring / Reporting Action	Inspect activities for dust control.
Effectiveness Criteria	PM_{10} emissions are reduced. Effectiveness can be monitored by monitoring implementation of the control measures.
Responsible Agency	CPUC and BAAQMD
Timing	During construction

Table D.10-12. Mitigation Monitoring Program – Air Quality

IMPACT A-2	**Construction Activities Would Cause Emissions from Construction Equipment (Class II)**
MITIGATION MEASURE	**A-2a: Control Exhaust Emissions.** The following measures shall be implemented during construction (supersedes APM 14.3): • Construction workers shall carpool when possible • Vehicle idling time shall be minimized (i.e., 5-minute maximum) • Alternatively fueled construction equipment shall be used where feasible • Equipment shall be properly tuned and maintained. PG&E shall document compliance with this measure by submitting an exhaust emission reduction plan to the CPUC for review and approval at least 60 days before the start of construction. The plan shall document the approach for ensuring carpooling, use of alternatively fueled vehicles, and shall define how and where records of equipment tuning and maintenance will be kept for CPUC review during construction. PG&E shall ensure that all construction workers are aware of the vehicle idling restriction by including explanation of this requirement in the Worker Training Program.
Location	Entire project site.
Monitoring / Reporting Action	Inspect activities and equipment for exhaust emissions control.
Effectiveness Criteria	Exhaust emissions are reduced. Effectiveness can be monitored by monitoring implementation of the control measures.
Responsible Agency	CPUC and BAAQMD
Timing	During construction
IMPACT A-3	**Construction Activity Could Encounter Naturally Occurring Asbestos (Class II)**
MITIGATION MEASURE	**A-3a: Asbestos Dust Mitigation Plan.** An Asbestos Dust Mitigation Plan shall be prepared by PG&E, or its contractor, and submitted to and approved by the Bay Area Air Quality Management District before the start of any construction or grading activity. A copy of the approved plan shall be submitted to the CPUC for documentation. The plan shall be prepared and implemented according to the requirements of 17 Cal. Code Regs. 93105 (CARB Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations).
Location	Limited mainly to areas around MP 1 near the Jefferson Substation, MP 5 and 6 north of the Ralston Substation, and San Bruno Mountain
Monitoring / Reporting Action	Review finding of the Asbestos Dust Mitigation Plan. Verify BAAQMD concurrence with the Plan.
Effectiveness Criteria	Limit airborne asbestos to the most feasible extent possible. Effectiveness can be monitored by monitoring implementation of the plan.
Responsible Agency	CPUC and BAAQMD
Timing	Before construction