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D.4 AIR QUALITY

This section addresses the South Bay Substation Relocation Project (Proposed Project) and alternatives as they would affect air quality. Section D.4.1 provides a description of the environmental setting, including existing air quality. Applicable air quality management plans, regulations, and requirements are discussed in Section D.4.2. An analysis of potential impacts as a result of the Proposed Project is provided in Section D.4.3, and the air quality impacts related to the project alternatives are described in Section D.4.4. Mitigation monitoring, compliance, and reporting are discussed in Section D.4.5.

D.4.1 Environmental Setting for the Proposed Project

D.4.1.1 Air Pollution Climatology

The project site is located within the San Diego Air Basin (SDAB) and is subject to the San Diego Air Pollution Control District (SDAPCD) guidelines and regulations. The SDAB is one of fifteen air basins that geographically divide the state of California. The SDAB is currently classified as a federal nonattainment area for ozone (O_3) and a state nonattainment area for particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and O_3.

The SDAB lies in the southwest corner of California and comprises the entire San Diego region, covering 4,260 square miles, and is an area of high air pollution potential. The SDAB experiences warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

The SDAB experiences frequent temperature inversions. Subsidence inversions occur during the warmer months as descending air associated with the Pacific High Pressure Zone meets cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. The other type of inversion, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses also can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce O_3, commonly known as smog.

Light and daytime winds, predominately from the west, further aggravate the condition by driving air pollutants inland, toward the mountains. During the fall and winter, air quality problems are created due to carbon monoxide (CO) and oxides of nitrogen (NO_x) emissions. CO concentrations are generally higher in the morning and late evening. In the morning, CO levels are relatively high due to cold temperatures and the large number of motor vehicles traveling. High CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is

produced almost entirely from automobiles, the highest CO concentrations in the SDAB are associated with heavy traffic. Nitrogen dioxide (NO_2) levels are also generally higher during fall and winter days.

Under certain conditions, atmospheric oscillation results in the offshore transport of air from the Los Angeles region to San Diego County (County). This often produces high O_3 concentrations, as measured at air pollutant monitoring stations within the County. The transport of air pollutants from Los Angeles to San Diego has also occurred within the stable layer of the elevated subsidence inversion, where high levels of O_3 are transported.

D.4.1.2 Air Quality Characteristics

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts upon those persons termed "sensitive receptors" are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by the California Air Resources Board (CARB), include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

Pollutants and Effects

Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, NO_2, CO, sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead. These pollutants are discussed below.[1] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

[1] The following descriptions of health effects for each of the criteria air pollutants associated with project construction and operations are based on the Environmental Protection Agency's (EPA's) Six Common Air Pollutants (EPA 2009) and the CARB "Glossary of Air Pollutant Terms" (CARB 2009) published information.

Ozone (O_3)

O_3 is the principal component of smog and is formed in the atmosphere through a series of reactions involving reactive organic gases (ROGs) (also referred to as volatile organic compounds or VOCs) and NO_x in the presence of sunlight. ROGs and NO_x are called precursors of O_3. NO_x includes various combinations of nitrogen and oxygen, primarily consisting of nitric oxide (NO) and NO_2. O_3 is a principal cause of lung and eye irritation in the urban environment. Significant O_3 concentrations are primarily produced in the summer, when atmospheric inversions are greatest and temperatures are high. ROG and NO_x emissions are both considered critical in O_3 formation. Control strategies for O_3 have focused on reducing emissions from motor vehicles; industrial processes using solvents and coatings; stationary combustion devices, such as boilers, engines, and gas turbines; and consumer products.

Nitrogen Dioxide (NO_2)[2]

NO_2 is a product of combustion and is generated in vehicles and in stationary sources such as power plants and boilers. NO_2 can cause lung damage. As noted above, NO_2 is part of the NO_x family and is a principal contributor to O_3 and smog.

Carbon Monoxide (CO)

CO is a colorless and odorless gas that is associated primarily with the incomplete combustion of fossil fuels in motor vehicles in the urban environment. Relatively high concentrations are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (300 to 600 feet) of heavily traveled roadways. Overall, CO emissions have decreased as a result of the state and federal motor vehicle control programs, which have mandated increasingly lower emission levels for vehicles manufactured since 1973, as well as inspection and maintenance programs and the use of reformulated gasoline. CO concentrations in the atmosphere are typically higher in winter. The use of oxygenated gasoline in the winter months is required to reduce CO emissions.

Respirable Particulate Matter (PM_{10})

Particulate matter includes both liquid and solid particles of a wide range of sizes and composition. While some PM_{10} comes from automobile exhaust, the principal source in Sacramento is dust from construction and from the action of vehicle wheels on paved and

[2] In this section, the term NO_2 will be used with respect to the presence of nitrogen dioxide in the atmosphere. The term NO_x will be used to refer to the *emissions* of oxides of nitrogen from stationary and mobile sources, which are primarily in the form of nitric oxide (NO) and, to a lesser extent, NO_2.

unpaved roads. Agriculture, wind-blown sand, and fireplaces can also be important sources. PM_{10} can cause increased respiratory disease, lung damage, and premature death. Control of PM_{10} is achieved through the control of dust at construction sites, the cleaning of paved roads, and the wetting or paving of frequently used unpaved roads.

Fine Particulate Matter ($PM_{2.5}$)

The sources, health effects, and control of $PM_{2.5}$ are similar to those of PM_{10}. In 1997, the U.S. Environmental Protection Agency (EPA) determined that the health effects of $PM_{2.5}$ were severe enough to warrant an additional standard, which was revised and made more stringent in 2006 (EPA 2006). In addition, CARB adopted an annual standard for $PM_{2.5}$ in June 2002.

Sulfur Dioxide (SO_2)[3]

SO_2 is a combustion product, with the primary source being power plants and heavy industry that use coal or oil as fuel. SO_2 is also a product of diesel engine combustion. The health effects of SO_2 include lung disease and breathing problems for asthmatics. SO_2 in the atmosphere contributes to the formation of acid rain. In the SDAB, there is relatively little use of coal and oil, and SO_2 is of lesser concern than in many other parts of the country.

Lead

Lead is a stable compound, which persists and accumulates both in the environment and in animals. The lead used in gasoline anti-knock additives represented a major source of lead emissions into the atmosphere. However, lead emissions have significantly decreased due to the near elimination of the use of leaded gasoline.

Toxic Air Contaminants

Toxic air contaminants (TACs) refer to a category of air pollutants that pose a present or potential hazard to human health but that tend to have more localized impacts than criteria pollutants. CARB has identified diesel particulate matter as the predominant TAC in California. Diesel particulate matter is emitted into the air by mobile vehicles that are diesel powered. Such vehicles include heavy-duty diesel trucks, construction equipment, and passenger vehicles. Certain ROGs may also qualify as TACs.

[3] In this section, the term SO_2 will be used with respect to the presence of sulfur dioxide in the atmosphere. The term SO_x will be used to refer to the *emissions* of sulfur oxides from stationary and mobile sources, which are primarily in the form of SO_2 and, to a lesser extent, sulfur trioxide (SO_3).

Local Air Quality

SDAB Attainment Designation

An area is designated in attainment when it is in compliance with the National Ambient Air Quality Standards (NAAQS) and/or California Ambient Air Quality Standards (CAAQS). These standards are set by the EPA or CARB for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare.

The criteria pollutants of primary concern that are considered in this air quality assessment include O_3, NO_2, CO, SO_2, PM_{10}, and $PM_{2.5}$. Although there are no ambient standards for VOCs or NO_x, they are important as precursors to O_3.

The SDAB is designated as a former Subpart 1 nonattainment for the 8-hour NAAQS for O_3 pending redesignation by the EPA. The SDAB was designated in attainment for all other criteria pollutants under the NAAQS with the exception of PM_{10}, which was determined to be unclassifiable. The SDAB is currently designated nonattainment for O_3, both 1-hour and 8-hour, and PM_{10} and $PM_{2.5}$ under the CAAQS. It is designated attainment for CO, NO_2, SO_2, lead, and sulfates.

Table D.4-1 summarizes SDAB's federal and state attainment designations for each of the criteria pollutants.

Table D.4-1
San Diego Air Basin Attainment Classification

Pollutant	Federal Designation [a]	State Designation [b]
O_3 (1-hour)	Attainment*	Nonattainment
O_3 (8-hour)	Nonattainment (Subpart I)	Nonattainment
CO	Attainment (Maintenance Area)	Attainment
PM_{10}	Unclassifiable**	Nonattainment
$PM_{2.5}$	Attainment	Nonattainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(no federal standard)	Attainment
Hydrogen sulfide	(no federal standard)	Unclassified
Visibility	(no federal standard)	Unclassified

Source: [a]EPA 2011; [b]CARB 2010a.

* The federal 1-hour standard of 0.12 parts per million (ppm) was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in State Implementation Plans.

** At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.

Air Quality Monitoring Data

The SDAPCD operates a network of ambient air monitoring stations throughout the County that measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the CAAQS and NAAQS. The SDAPCD monitors air quality conditions at 10 locations throughout the SDAB. The Chula Vista monitoring station is the nearest location to the project site where criteria pollutant concentrations are monitored. Ambient concentrations of pollutants from 2007 through 2009 are presented in Table D.4-2 (CARB 2009). The number of days exceeding the AAQS is shown in Table D.4-3. Air quality within the project region is in compliance with both CAAQS and NAAQS for NO_2, CO, and SO_2.

Table D.4-2
Ambient Air Quality Data[1,2]

Pollutant	Averaging Time	2008	2009	2010	Most Stringent Ambient Air Quality Standard
O_3	8-hour	0.084	0.075	0.082	0.070
	1-hour	0.107	0.098	0.107	0.09
PM_{10}	Annual	26.7 µg/m^3	26.2 µg/m^3	24.6 µg/m^3	20 µg/m^3
	24-hour	54.0 µg/m^3	58.0 µg/m^3	45.0 µg/m^3	50 µg/m^3
$PM_{2.5}$	Annual	12.3 µg/m^3	11.4 µg/m^3	—	12 µg/m^3
	24-hour	32.9 µg/m^3	43.7 µg/m^3	22.7 µg/m^3	35 µg/m^3
NO_2	Annual	0.015	0.013	0.012	0.030
	1-hour	0.072	0.065	0.050	0.18 [3]
CO	8-hour	1.87	1.43	1.56	9.0
	1-hour [4]	2.0	2.1	—	20
SO_2	Annual	0.002	0.002	0.002	0.030
	24-hour	0.004	0.003	0.001	0.04

Source: CARB 2011
Data represent maximum values
µg/m^3 = micrograms per cubic meter
— = insufficient (or no) data available to determine the value.

Notes:
1 In parts per million unless otherwise indicated.
2 Monitoring Station is located at 80 E. J Street, Chula Vista, California.
3 A new 1-hour NAAQS for NO_2 became effective in April 2010. Data reflect compliance with the 1-hour CAAQS.
4 Data were taken from EPA 2010.

Table D.4-3
Frequency of Air Quality Standard Violations

Monitoring Site	Year	Number of Days Exceeding Standard					
		State 1-Hour O_3	*State 8-Hour O_3*	*National 8-Hour O_3*	*State 24-Hour PM_{10} [a]*	*National 24-Hour PM_{10} [a]*	*National 24-Hour $PM_{2.5}$*
Chula Vista	2008	1	4	3	6.1 (1)	0	0
	2009	1	3	0	12.2 (2)	0	3.1 (1)
	2010	1	3	2	0	0	0

Source: CARB 2011.
[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and 3 days, respectively. Number of days exceeding the standards is mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

D.4.2 Applicable Regulations, Plans, and Standards

D.4.2.1 Federal

The federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the CAA, including the setting of NAAQS for major air pollutants, hazardous air pollutant standards, approval of state attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions. NAAQS are established for "criteria pollutants" under the CAA, which are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The CAA requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a State Implementation Plan that demonstrates how those areas will attain the standards within mandated time frames. National and state ambient air quality standards are shown in Table D.4-5.

D.4.2.2 State

Criteria Air Pollutants

The federal CAA delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality

management districts (AQMDs) and air pollution control districts (APCDs) at the regional and county levels. CARB, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal CAA, and regulating emissions from motor vehicles and consumer products.

CARB has established the CAAQS, which are more restrictive than the NAAQS, consistent with the CAA, which requires state regulations to be at least as restrictive as the federal requirements. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, $PM_{2.5}$, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table D.4-4.

Table D.4-4
Ambient Air Quality Standards

Pollutant	Average Time	California Standards[1]	National Standards[2]	
		Concentration[3]	*Primary*[3,4]	*Secondary*[3,5]
O_3	1 hour	0.09 ppm (180 μg/m³)	—	Same as Primary Standard
	8 hours	0.070 ppm (137 μg/m³)	0.075 ppm (147 μg/m³)	
CO	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	None
	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	
NO_2	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)	0.053 ppm (100 μg/m³)	Same as Primary Standard
	1 hour	0.18 ppm (339 μg/m³)	0.100 ppm (188 μg/m³)	
SO_2	24 hours	0.04 ppm (105 μg/m³)	—	—
	3 hours	—	—	0.5 ppm (1300 μg/m³)
	1 hour	0.25 ppm (655 μg/m³)	0.075 ppm (196 μg/m³)	—
PM_{10}	24 hours	50 μg/m³	150 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	20 μg/m³	—	
$PM_{2.5}$	24 hours	No Separate State Standard	35 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	12 μg/m³	15.0 μg/m³	
Lead[6]	30-day Average	1.5 μg/m³	—	—
	Calendar Quarter	—	1.5 μg/m³	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 μg/m³	

ppm = parts per million by volume

μg/m³ = micrograms per cubic meter

mg/m³ = milligrams per cubic meter

Source: CARB 2010b

[1] California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter—PM_{10}, $PM_{2.5}$, and visibility reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For NO_2 and SO_2, the standard is attained when the 3-year average of the 98th and 99th percentile, respectively, of the daily maximum 1-hour average at each monitor within an area does not exceed the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[3] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr.

Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[5] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[6] CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

D.4.2.3 Local

While CARB is responsible for the regulation of mobile emission sources within the state, local AQMDs and APCDs are responsible for enforcing standards and regulating stationary sources. The project is located within the SDAB and is subject to SDAPCD guidelines and regulations. In the County, O_3 and particulate matter are the pollutants of main concern since exceedances of state ambient air quality standards for those pollutants are experienced here in most years. For this reason, the SDAB has been designated as a nonattainment area for the state PM_{10}, $PM_{2.5}$, and O_3 standards. The SDAB is also a federal O_3 nonattainment area and a CO maintenance area.

As stated previously, the SDAPCD is responsible for planning, implementing, and enforcing federal and state ambient standards in the SDAB. The following rules and regulations apply to all sources in the jurisdiction of SDAPCD:

- **SDAPCD Regulation IV: Prohibitions; Rule 51: Nuisance.** Prohibits the discharge from any source such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property (SDAPCD 1969).
- **SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust.** Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site (SDAPCD 2009).
- **SDAPCD Regulation IV: Prohibitions; Rule 67.0: Architectural Coatings.** Requires manufacturers, distributors, and end users of architectural and industrial maintenance

coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories (SDAPCD 2001).

- **SDAPCD Regulation XI: National Emission Standards for Hazardous Air Pollutants; Subpart M, Rule 361.145: Standard for Demolition and Renovation.** Requires owners and operators of a demolition or renovation activity to provide written notification of planned asbestos stripping or removal to the Control Officer no less than 10 days prior to demolition and/or asbestos removal. A Notification of Demolition and Renovation form and fee is required with written notification. Procedures for asbestos emission control are provided under Rule 361.145 and must be followed in accordance with this regulation (SDAPCD 1995).

D.4.3 Environmental Impacts and Mitigation Measures

D.4.3.1 Definition and Use of Significance Criteria

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provides guidance for evaluating whether a project may result in significant impacts. Appendix G suggests that a project could have a significant impact on air quality if the project would:

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

The project emissions are evaluated based on thresholds established by the County (County of San Diego 2007). The County sets forth quantitative emission significance thresholds below which a project would not have a significant impact on ambient air quality. Project-related air quality impacts would be considered significant if any of the applicable significance thresholds presented in Table D.4-5 are exceeded.

Table D.4-5
County of San Diego Air Quality Significance Thresholds

Pollutant	Construction (pounds/day)	Operation (tons/year)
Criteria Pollutants Mass Daily Thresholds		
VOC	75	13.7
NO_x	250	40
CO	550	100
SO_x	250	40
PM_{10}	100	15
$PM_{2.5}$	55	10

Sources: SDAPCD 1999; Rule 20.2(d)(2) for all pollutants except VOC and $PM_{2.5}$; County of San Diego 2007 for VOC and $PM_{2.5}$.
VOC – volatile organic compounds
NO_x – oxides of nitrogen
CO – carbon monoxide
SO_x – sulfur oxides
PM_{10} – particulate matter less than 10 microns
$PM_{2.5}$ – particulate matter less than 2.5 microns

D.4.3.2 Applicant Proposed Measures

Table D.4-6 shows the applicant proposed measures (APMs) proposed by San Diego Gas & Electric (SDG&E) to reduce air quality impacts associated with construction.

Table D.4-6
APMs for Air Quality

APM No.	Description
APM-AIR-01	All active construction areas, unpaved access roads, parking areas, and staging areas would be watered or stabilized with non-toxic soil stabilizers as needed to control fugitive dust.
APM-AIR-02	Traffic speeds on unpaved roads and the right-of-way (ROW) would be limited to 15 miles per hour.
APM-AIR-03	SDG&E would limit actively graded areas to a cumulative total of 8 acres per day. The total area of disturbance can exceed this acreage so long as the actively graded portion is below this threshold.

D.4.3.3 Bay Boulevard Substation

Impact AIR-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants.

Construction emissions generated from dust and exhaust emissions evaluated under Impact AIR-1 include construction emissions generated throughout all phases of construction (Bay Boulevard Substation, dismantling of the South Bay Substation, and construction of the transmission interconnections). All phases of construction have been evaluated under Impact

AIR-1 to provide the worst-case emissions that would result from the Proposed Project construction activities.

Construction of the Proposed Project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts. Fugitive dust (PM_{10} and $PM_{2.5}$) emissions would primarily result from grading and site preparation activities for the Bay Boulevard Substation. NO_x and CO emissions would primarily result from the use of construction equipment and motor vehicles.

Off-site exhaust emissions would result from workers commuting to the project site; transporting materials and equipment from staging areas to the work sites; trucks hauling materials (e.g., concrete, steel, hardware); and dump trucks hauling away demolition debris, soil, and construction debris.

Construction of the Proposed Project is anticipated to be completed within 38 months, beginning with grading and site development activities associated with the proposed Bay Boulevard Substation, and would end with demolition of the South Bay Substation. Emissions from all construction phases of the Proposed Project were estimated through the use of emission factors from the URBEMIS 2007, Version 9.2.4, land use and air emissions model (Jones & Stokes 2007).

For modeling purposes, it was generally assumed that heavy construction equipment would be operating at the site for approximately 4 to 8 hours per day (limited to 12 hours per 24-hour period), 6 days per week (26 days per month) during project construction. As stated in the South Bay Substation Relocation Project Deficiency Response letter submitted by SDG&E on August 16, 2010, SDG&E has committed to using off-road equipment that is 2005 model year or newer (i.e., off-road equipment using Tier 2 or newer engines) during construction of the Proposed Project (SDG&E 2010a). Therefore, a customized equipment fleet was created in URBEMIS 2007 to represent the anticipated vehicle fleet. Additional details of the construction schedule and equipment are included in Section B, Project Description.

The Proposed Project would also be subject to SDAPCD Rule 55 – Fugitive Dust Control. This requires that the project take steps to restrict visible emissions of fugitive dust beyond the property line. Compliance with Rule 55 would limit any fugitive dust (PM_{10} and $PM_{2.5}$) that may be generated during grading and construction activities. To account for dust control measures in the calculations, it was assumed that the active sites would be watered at least twice daily,

resulting in an approximately 55% reduction of particulate matter; and on-road vehicles would reduce speeds to below 15 miles per hour, reducing fugitive dust emissions by 44% (SDG&E 2010b, URBEMIS Simulation Results, p.11). These assumptions are reflected in the URBEMIS output results, and measures to reduce fugitive dust during construction are included in APMs AIR-01 through AIR-03.

For purposes of the URBEMIS modeling, it was assumed that site development of the proposed Bay Boulevard Substation, as well as the underground duct bank installation, would require importation of soils and transportation of existing materials, soil, and vegetation off site. Truck trips calculations associated with site development hauling activity assumed the importation of 140,000 cubic yards of soil and approximately 7,500 cubic yards of material to be transported off site. For underground duct bank installation, truck trip calculations assumed approximately 1,650 cubic yards of import, and 4,900 cubic yards of export would be required. It was also assumed that each truck would transport approximately 15 cubic yards of material, with an average round trip of 30 miles, and that truck trips would be evenly distributed throughout the construction process (SDG&E 2010b).

On-road vehicle emissions were calculated using two separate approaches. Emissions from the import of soil and export of soil during the grading and site development phases, as well as the delivery of concrete during foundation installation activities, were calculated using the default assumptions and emission rates contained within the URBEMIS model. The remainder of the on-road emissions—including material deliveries, excavated material removal during duct bank installation, and worker trips—were calculated using emission rates obtained from CARB's EMFAC2007 motor vehicle emission inventory model. The County rates from the BURDEN output of EMFAC2007 were examined for a composite fleet of light-, medium-, and heavy-duty vehicle classes between 1990 and 2011. It was also assumed that materials delivery and daily commutes would involve approximately 60 construction workers and/or personnel on site daily. Transport of waste materials from the demolition of the South Bay Substation would require 1,254 truck trips (6 trips per day).

Table D.4-7 shows the estimated maximum daily construction emissions associated with the construction phase of the Proposed Project including all project components.

Table D.4-7
Estimated Maximum Daily Construction Emissions (Mitigated)

	Pounds per Day					
Pollutant	*VOC*	*NO_x*	*CO*	*SO_x*	*PM_{10}*	*$PM_{2.5}$*
Emission Rate	19.2	231.1	120.3	2.2	98.9	27.0
Significance Threshold	75	250	550	250	100	55
Exceed Threshold?	No	No	No	No	No	No

Source: SDG&E 2010b
Note: Construction emission calculations include all project components including demolition activities associated with the existing South Bay Substation.

As shown, daily construction emissions would not exceed the significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. As such, construction of the Proposed Project would result in a less-than-significant impact (Class III).

Impact AIR-2: Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants.

Following the completion of Proposed Project operational emissions associated with the Bay Boulevard Substation would be limited to maintenance vehicles used for periodic inspection, maintenance, and repair of the active project components. No stationary emissions sources would be associated with the project. Minor mobile source emissions would be the only direct source of emissions related to project operation. General inspections presently occur at the South Bay Substation and for transmission lines within SDG&E's ROW and presently result in limited light-duty 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. Total emissions resulting from vehicular traffic required during operational inspection and maintenance activities would have no identifiable effect on air quality.

Moreover, operation and maintenance activities for the Bay Boulevard Substation would not differ substantially from that of the current South Bay Substation. Therefore, due to absence of any increase in operational emissions compared to existing conditions, the Proposed Project would not violate any air quality standards, and impacts would be considered less than significant (Class III).

Impact AIR-3: Construction and operational activities would not conflict with or obstruct the implementation of applicable local air quality plans.

Construction

Construction of the proposed Bay Boulevard Substation would begin with site development activities, and would end with demolition of the South Bay Substation. During this time, construction activities associated with the proposed Bay Boulevard Substation would include the following phases: grading and site development (7 months total); below-grade construction (7 months); above-grade construction (10 months); 230-kilovolt (kV) loop-in (11 months); substation electrical work, commissioning, and testing (8 months); 69 kV relocation and cutovers (12 months); 138 kV extension (19 months); and decommissioning of the South Bay Substation (6 months).

The applicable air quality plan for the County is the Regional Air Quality Strategy (RAQS). The RAQS is based on SANDAG growth forecasts for the region, and it incorporates measures to meet state and federal requirements. The significance of this air quality impact is based on the degree to which the project is consistent with SANDAG's growth forecasts. If a project is consistent with growth forecasts and its resulting impacts are anticipated in the RAQS, then project emissions would be considered less than significant. Growth forecast in the RAQS is based on approved general plans, community plans, and redevelopment plans.

The types and quantities of construction equipment that would be used for the Proposed Project would be typical of the industry and would not be of sufficient magnitude in quantity to exceed those assumptions used in the preparation of construction equipment emissions in the RAQS. Because the RAQS has accounted for construction-related emissions, construction emissions generated by the Proposed Project would be consistent with those included in the emissions inventory of the RAQS and, therefore, would be consistent with construction-related emissions projected in the RAQS. Impacts would be less than significant (Class III).

Operation and Maintenance

Following completion of Proposed Project construction activities, including demolition of the existing South Bay Substation, operational emissions associated with the Bay Boulevard Substation would be limited to maintenance vehicles used for periodic inspection, maintenance, and repair of active project components. No stationary emissions sources would be associated with the project. Minor mobile source emissions would be the only direct source of emissions related to project operation. General inspections presently occur at the South Bay Substation and for existing transmission lines within SDG&E's right-of-way and result in very limited light-duty 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. Total emissions resulting from vehicular traffic required during operational inspection and maintenance activities would not conflict with the RAQS.

Moreover, operation and maintenance activities for the Bay Boulevard Substation would not differ substantially from that of the current South Bay Substation, nor would the Proposed Project require new transmission lines, generators, or emission-generating equipment for operation. Therefore, due to absence of any increase in operational emissions compared to existing conditions, the Proposed Project would not conflict with a local air quality plan, and impacts would be considered less than significant (Class III).

Impact AIR-4: Construction and operational activities would not expose sensitive receptors to substantial pollutant concentrations.

Construction

Sensitive receptors located within the vicinity of the Proposed Project site include Pima Medical Institute approximately 0.65 mile northeast, Marina View Park located 0.75 mile north, residential developments approximately 0.25 mile east on the opposite side of Interstate 5, Harborside Elementary School approximately 0.44 mile east also on the opposite side of Interstate 5, and the San Diego National Wildlife Refuge located approximately 0.5 mile northwest (see Figure D.12-2, Sensitive Receptors, in Section D.12, Noise).

Diesel exhaust particulate matter would be emitted from heavy equipment used in the construction process for the Proposed Project. Because diesel exhaust particulate matter is considered carcinogenic, long-term exposure to diesel exhaust emissions could result in adverse health impacts. Implementation of the Proposed Project would result in short-term, temporary emissions of diesel exhaust from construction equipment. The emissions would not occur 24 hours per day, 7 days per week, but instead would more likely occur during working hours with varying uses over that time of equipment and vehicles dependent on diesel fuel. The project would not require the extensive use of heavy-duty construction equipment, which is subject to a CARB Airborne Toxics Control Measure for in-use diesel construction equipment to reduce diesel particulate emissions, and would not involve extensive use of heavy-duty diesel trucks, which are also subject to an Airborne Toxics Control Measure. Moreover, use of 2005 model year or newer (i.e., Tier 2) off-road equipment would tend to minimize equipment exhaust emissions, further reducing impacts to nearby sensitive receptors. Total construction of the Proposed Project would last for approximately 38 months, after which project-related TAC emissions would cease. With regard to TACs, health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SDAPCD recommends an incremental cancer risk

threshold of 10 in a million. "Incremental cancer risk" is the likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 70-year lifetime will contract cancer based on the use of standard risk-assessment methodology. Thus, the Proposed Project would not result in a long-term (i.e., 70 years) source of TAC emissions. No residual TAC emissions and corresponding cancer risk are anticipated after construction. As such, the exposure of project-related TAC emission impacts to sensitive receptors during construction would be less than significant (Class III).

Sensitive receptors as identified previously would also not be significantly affected by particulate matter emissions or other air emissions associated with construction activities. The nearest sensitive receptor to the project site is the Pima Medical Institute located approximately 0.65 mile northeast from the proposed Bay Boulevard Substation site, and approximately 0.25 mile from the existing South Bay Substation site. Due to the temporary, short-term nature and frequency of construction emissions and APMs AIR-01 through AIR-03 for dust control, as well as sufficient distance between sensitive receptors and the project site, particulate matter emissions would not expose sensitive receptors to substantial pollutant concentrations and, therefore, would result in a less-than-significant impact (Class III).

Operation and Maintenance

No identifiable impacts associated with diesel exhaust particulate matter or other emissions affecting sensitive receptors would result from the infrequent maintenance, patrolling inspection, and occasional repairs associated with operational activities. Impacts would be less than significant (Class III).

Impact AIR-5: Construction and operational activities would not create objectionable odors affecting a substantial number of people.

Construction

Odors would be generated from vehicles and/or equipment exhaust emissions during construction of the Proposed Project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment. Such odors are temporary and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be considered less than significant (Class III).

Operation and Maintenance

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The Proposed Project entails industrial uses associated with operation of a new substation; thus, the project would not result in the creation of a land use that is commonly associated with odors. Therefore, Proposed Project operations would result in a less-than-significant odor impact (Class III).

D.4.3.4 South Bay Substation Dismantling

Impact AIR-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants.

As described in Section D.4.3.3, construction of the Proposed Project, which includes dismantling of the South Bay Substation, would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from trucks hauling construction materials. Dismantling of the existing South Bay Substation would commence once the Bay Boulevard Substation is energized and all existing transmission lines have been relocated.

As shown in Table D.4-7, daily construction emissions would not exceed the significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. As such, construction activities associated with the South Bay Substation dismantling in combination with the Proposed Project would result in a less-than-significant impact (Class III).

Impact AIR-2: Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants.

No operation emissions would result subsequent to dismantling the South Bay Substation. Therefore, due to absence of any operational emissions, the Proposed Project would not violate any air quality standards, and no impacts would result.

Impact AIR-3: Construction and operational activities would not conflict with or obstruct the implementation of applicable local air quality plans.

Demolition equipment required for the South Bay Substation would include the use of various types of heavy- and light-load trucks (flatbed, pickup, dump/haul, rigging, line, mechanic, and water), as well as a small mobile crane, forklift, boom truck, large crane, loader, oil-processing truck, backhoe, bulldozer, and compactor. Demolition activities would take approximately 6 months to complete. Dismantling would commence once the Bay Boulevard Substation is

energized and all existing transmission lines have been relocated. The following phases would be completed to dismantle the South Bay Substation: decommissioning, equipment removal, oil removal and processing, and foundation removal and site restoration.

With regard to demolition activities, the SDAPCD's Regulation XI, Subpart M, Rule 361.145, requires that the SDAPCD be notified in writing at least 10 days before the start of any demolition or renovation activities involving the presence of asbestos-containing material. Considering the age of the substation and its historic construction in 1961, the potential exists for the presence of regulated asbestos-containing material. Subpart M requires that all regulated asbestos-containing material be removed prior to demolition activities. SDG&E would comply with this regulation by notifying the SDAPCD in writing at least 10 days before the start of the demolition of the existing South Bay Substation. Compliance with the SDAPCD's Rule 361.145 would reduce asbestos-related impacts to a less-than-significant level (Class III).

Impact AIR-4: Construction and operational activities would not expose sensitive receptors to substantial pollutant concentrations.

Construction

As described in Section D.4.3.3, sensitive receptors located within the vicinity of the Proposed Project site include Pima Medical Institute, approximately 0.65 mile northeast; Marina View Park, located 0.75 mile north; residential developments, approximately 0.25 mile east on the opposite side of Interstate 5 (I-5); Harborside Elementary School, approximately 0.44 mile east, also on the opposite side of I-5; and the San Diego National Wildlife Refuge, located approximately 0.5 mile northwest (see Figure D.12-2, Sensitive Receptors, in Section D.12, Noise).

Due to the temporary, short-term nature and frequency of construction emissions and APMs AIR-01 through AIR-03 for dust control, as well as sufficient distance between sensitive receptors and the project site, particulate matter emissions would not expose sensitive receptors to substantial pollutant concentrations and, therefore, would result in a less-than-significant impact (Class III).

Operation and Maintenance

No operation emissions would result subsequent to dismantling the South Bay Substation. Therefore, due to absence of any operational emissions, the Proposed Project would not expose sensitive receptors to substantial pollutant concentrations.

Impact AIR-5: Construction and operational activities would not create objectionable odors affecting a substantial number of people.

Construction

Odors would be generated from vehicles and/or equipment exhaust emissions during construction of the Proposed Project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment. Such odors are temporary and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be considered less than significant (Class III).

Operation and Maintenance

No operation emissions would result subsequent to dismantling the South Bay Substation. Therefore, due to absence of any operational emissions, the Proposed Project would not create objectionable odors affecting a substantial number of people.

D.4.3.5 Transmission Interconnections

Impact AIR-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants.

As described in Section D.4.3.3, construction of the Proposed Project, which includes construction of the transmission interconnections to the Bay Boulevard Substation, would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. As shown in Table D.4-7, daily construction emissions would not exceed the significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. Therefore, construction activities associated with the transmission interconnections in combination with the Proposed Project would result in a less-than-significant impact (Class III).

Impact AIR-2: Operation, maintenance, and inspections would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants.

As described in Section D.4.3.3, operational emissions associated with maintaining the transmission interconnections to the Bay Boulevard Substation would be limited to maintenance vehicles used for periodic inspection, maintenance, and repair of the active project components. No stationary emissions sources would be associated with the project. Minor mobile source emissions would be the only direct source of emissions related to project operation. General inspections presently occur at the South Bay Substation and for transmission lines within

SDG&E's ROW and presently result in limited light-duty 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 transmission interconnections. Total emissions resulting from vehicular traffic required during operational inspection and maintenance activities would have no identifiable effect on air quality.

Impact AIR-3: Construction and operational activities would not conflict with or obstruct the implementation of applicable local air quality plans.

Construction

As described in Section D.4.3.3, construction of the 69 kV relocation and cutovers is anticipated to be completed in 12 months, and construction of the 138 kV extension is anticipated to be completed in 19 months.

The applicable air quality plan for the County is the Regional Air Quality Strategy (RAQS). The RAQS is based on San Diego Association of Governments (SANDAG) growth forecasts for the region, and it incorporates measures to meet state and federal requirements. The significance of this air quality impact is based on the degree to which the project is consistent with SANDAG's growth forecasts. If a project is consistent with growth forecasts and its resulting impacts are anticipated in the RAQS, then project emissions would be considered less than significant. Growth forecast in the RAQS is based on approved general plans, community plans, and redevelopment plans.

The types and quantities of construction equipment that would be used for the Proposed Project would be typical of the industry and would not be of sufficient magnitude in quantity to exceed those assumptions used in the preparation of construction equipment emissions in the RAQS. Because the RAQS has accounted for construction-related emissions, construction emissions generated by the Proposed Project would be consistent with those included in the emissions inventory of the RAQS and, therefore, would be consistent with construction-related emissions projected in the RAQS. Impacts would be less than significant (Class III).

Operation and Maintenance

Following completion of Proposed Project construction activities, operational emissions associated with the Bay Boulevard Substation would be limited to maintenance vehicles used for periodic inspection, maintenance, and repair of transmission facilities. No stationary emissions sources would be associated with the project. Minor mobile source emissions would be the only direct source of emissions related to project operation. General inspections presently occur for

existing transmission lines within SDG&E's right-of-way and result in very limited light-duty 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. Total emissions resulting from vehicular traffic required during operational inspection and maintenance activities would not conflict with the RAQS. Therefore, due to the absence of any increase in operational emissions compared to existing conditions, the Proposed Project would not conflict with a local air quality plan, and impacts would be considered less than significant (Class III).

Impact AIR-4: Construction and operational activities would not expose sensitive receptors to substantial pollutant concentrations.

Construction

As described in Section D.4.3.3, sensitive receptors located within the vicinity of the Proposed Project site include Pima Medical Institute, approximately 0.65 mile northeast; Marina View Park, located 0.75 mile north; residential developments, approximately 0.25 mile east on the opposite side of I-5; Harborside Elementary School, approximately 0.44 mile east also on the opposite side of I-5; and the San Diego National Wildlife Refuge, located approximately 0.5 mile northwest (see Figure D.12-2, Sensitive Receptors, in Section D.12, Noise).

Due to the temporary, short-term nature and frequency of construction emissions and APMs AIR-01 through AIR-03 for dust control, as well as sufficient distance between sensitive receptors and the transmission interconnections, particulate matter emissions would not expose sensitive receptors to substantial pollutant concentrations and, therefore, would result in a less-than-significant impact (Class III).

Operation and Maintenance

Operational emissions associated with the transmission interconnections would be limited to maintenance vehicles used for periodic inspection, maintenance, and repair of active project components. No stationary emissions sources would be associated with the project. Minor mobile source emissions would be the only direct source of emissions related to project operation. General inspections presently occur at the South Bay Substation and for existing transmission lines within SDG&E's ROW and result in very limited light-duty and medium heavy-duty truck traffic. The Proposed Project would not require a substantial number of new vehicle trips compared to the existing conditions. Total emissions resulting from vehicular traffic required during operational inspection and maintenance activities would have no identifiable effect on air quality and would not conflict with the RAQS.

Moreover, operation and maintenance activities for the transmission interconnections would not differ substantially from that of the current South Bay Substation, nor would the Proposed Project require new transmission lines, generators, or emission-generating equipment for operation. Therefore, due to absence of any increase in operational emissions compared to existing conditions, the Proposed Project would not conflict with a local air quality plan, and impacts would be considered less than significant (Class III).

Impact AIR-5: Construction and operational activities would not create objectionable odors affecting a substantial number of people.

Construction

Odors would be generated from vehicles and/or equipment exhaust emissions during construction of the Proposed Project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment. Such odors are temporary and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be considered less than significant (Class III).

Operation and Maintenance

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The operation of the transmission interconnections would not result in the creation of a land use that is commonly associated with odors. Therefore, Proposed Project operations would result in a less-than-significant odor impact (Class III).

D.4.4 Project Alternatives

D.4.4.1 Gas Insulated Substation Technology Alternative

Environmental Setting

Section D.4.1 describes the air quality characteristics of the region. Because SDG&E's Gas Insulated Substation Technology Alternative would occur in the same air basin as the Proposed Project, the existing air quality conditions would be the same as described in Section D.4.1.

Environmental Impacts and Mitigation Measures

The Gas Insulated Substation Technology Alternative would utilize Gas Insulated Substation technology for the 69/230 kV switchyard at the Bay Boulevard Substation site and would

reduce the overall footprint of the project by reducing the A-frame structures required for air insulated substations.

Due to its smaller footprint, substantially less earthwork would be required for the Gas Insulated Substation Technology Alternative in comparison to the Proposed Project, which would result in a reduction in construction air emissions. The Gas Insulated Substation design would reduce the amount of imported fill by approximately 75,000 cubic yards, which would result in a reduction in truck trips of approximately 9,335 to 5,000 total trips. Therefore, it is anticipated that a reduction in construction emissions would result under the Gas Insulated Substation Technology Alternative.

Construction of the Gas Insulated Substation Technology Alternative is anticipated to take approximately 18 to 24 months, which is similar to the approximately 21-month construction period for the Proposed Project.

The air quality impacts for this alternative would not be significantly different from the Proposed Project. Localized short-term construction emissions would be reduced in comparison to the Proposed Project due to the reduction in earthwork activities required. Implementation of APMs AIR-01 through AIR-03 would reduce air quality impacts associated with construction of the Gas Insulated Substation Technology Alternative to less than significant (Class III). Air quality impacts resulting from operational impacts (Impacts A-1 and A-5) would remain unchanged from impacts described in Section D.4.3 for the Proposed Project, which were determined to be less than significant (Class III).

Comparison to the Proposed Project

Air quality impacts resulting from the construction of SDG&E's Gas Insulated Substation Technology Alternative would not be significantly different from the Proposed Project. Localized short-term construction emissions would overall be reduced due to the reduction in earthwork activities. Operational air quality impacts would remain unchanged from the Proposed Project.

D.4.4.2 Tank Farm Site Alternative

Environmental Setting

Section D.4.1 describes the air quality characteristics of the region. Because the Tank Farm Site Alternative is located approximately 250 feet north of the existing South Bay Substation and would occur in the same air basin as the Proposed Project, the existing air quality conditions would be the same as those described in Section D.4.1. Under this alternative, sensitive receptors, including the Pima Medical Institute immediately adjacent to the east and Marina View Park immediately north of the Tank Farm site, would be located in closer proximity than the Proposed Project site.

D.4.4.2.1 Tank Farm Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Because this alternative site is located in the same air basin, similar construction and operational activities would take place as the Proposed Project. Short-term construction emissions to sensitive receptors may be slightly greater than the Proposed Project due to the closer proximity of sensitive receptors at the Pima Medical Institute and Marina View Park. However, due to the temporary, short-term nature and frequency of construction emissions and APMs AIR-01 through AIR-03 for dust control, particulate matter emissions would not expose sensitive receptors to substantial pollutant concentrations and, therefore, would result in a less-than-significant impact (Class III). Operational impacts would remain unchanged from impacts described in Section D.4.3 for the Proposed Project, which were determined to be less than significant (Class III).

Comparison to the Proposed Project

Air quality impacts resulting from construction of the Tank Farm Site – Air Insulated Substation Alternative would not be significantly different from the Proposed Project. Localized short-term construction emissions would be slightly greater than the Proposed Project due to the proximity of sensitive receptors. Operational air quality impacts would remain unchanged from the Proposed Project.

D.4.4.2.2 Tank Farm Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, a similar development footprint and layout as identified for the Gas Insulated Substation Technology Alternative in Section D.4.4.1 would be required for the new substation and would be constructed at the Tank Farm site. As under the Tank Farm Site – Air Insulated Substation Alternative, short-term construction impacts may be slightly greater due to the proximity of sensitive receptors. Air quality impacts resulting from construction and operation of the Tank Farm Site – Gas Insulated Substation Alternative would be the same as those described in Section D.4.4.2.1, which were determined to be less than significant (Class III).

Comparison to the Proposed Project

Air quality impacts resulting from construction of the Tank Farm Site – Gas Insulated Substation Alternative would not be significantly different from the Proposed Project. Localized short-term construction emissions would be slightly greater than the Proposed Project due to the proximity of sensitive receptors. Operational air quality impacts would remain unchanged from the Proposed Project.

D.4.4.3 Existing South Bay Substation Site Alternative

Environmental Setting

Section D.4.1 describes the air quality characteristics of the region. Because the Existing South Bay Substation Site Alternative would occur in the same air basin as the Proposed Project, the existing air quality conditions would be the same as those described in Section D.4.1.

D.4.4.3.1 Existing South Bay Substation Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

The removal of existing equipment and construction of the Air Insulated Substation Alternative at the existing South Bay Substation site would result in a slightly longer construction period when compared to the Proposed Project. However, the construction processes and the number and type of construction vehicles and equipment anticipated at the site under this alternative would be less than those described in Section B of this EIR due to the elimination of the proposed new Bay Boulevard Substation. Therefore, a longer overall construction period would not result in substantially different estimated daily construction emissions, pollutant concentrations, or odors as previously described for the Proposed Project. Air quality emissions associated with construction and operation of the Existing South Bay Substation Site – Air Insulated Substation Alternative are anticipated to be below the relevant thresholds and would, therefore, be less than significant (Class III).

Comparison to the Proposed Project

Construction of the Air Insulated Substation at the existing South Bay Substation site would not result in substantially different air quality impacts compared to the Proposed Project. While the increased duration of construction activities would expose receptors to construction emissions and odors for a greater amount of time, short-term construction emissions would be similar to those described in Section D.4.4.3.1 and, therefore, are not anticipated to exceed significance thresholds and would be considered less than significant (Class III). The operational air quality impacts of this alternative would be the same as those of the Proposed Project.

D.4.4.3.2 Existing South Bay Substation Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, a similar development footprint and layout as identified for the Gas Insulated Substation Technology Alternative in Section D.4.4.1 would be required for the new substation and would be constructed at the existing South Bay Substation site (the existing

substation would be dismantled and removed). Air quality impacts (Impacts A-1 through A-5) resulting from construction and operation of the Existing South Bay Substation Site – Gas Insulated Substation Alternative would be the same as those described in Section D.4.4.1, which were determined to be less than significant (Class III).

Comparison to the Proposed Project

Air quality impacts resulting from construction of the Existing South Bay Substation Site – Gas Insulated Substation Alternative would not be significantly different from the Proposed Project. While localized short-term construction emissions would be reduced overall due to the reduction in earthwork activities, the duration of construction activities would be slightly longer in order to facilitate the removal of existing equipment and construction of the substation (which would be staged to keep existing circuits in place). Operational air quality impacts would remain unchanged from the Proposed Project.

D.4.4.4 Power Plant Site Alternative

Environmental Setting

Section D.4.1 describes the air quality characteristics of the region. Because the Power Plant Site Alternative is approximately 570 feet north of the proposed Bay Boulevard Substation site and would occur in the same air basin as the Proposed Project, the existing air quality conditions would be the same as those described in Section D.4.1.

D.4.4.4.1 Power Plant Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Because this alternative site is located in the same air basin, and similar construction and operational activities would take place as the Proposed Project, the air quality impacts for this alternative would be similar to the Proposed Project. Air quality impacts resulting from construction emissions and operational impacts (Impacts A-1 through A-5) would remain unchanged from impacts described in Section D.4.3 for the Proposed Project, which were determined to be less than significant (Class III).

Comparison to the Proposed Project

Air quality impacts resulting from construction of the Power Plant Site – Air Insulated Substation Alternative would not be significantly different from the Proposed Project. Construction emissions and operational air quality impacts would remain unchanged from the Proposed Project.

D.4.4.4.2 Power Plant Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, a similar development footprint and layout as identified for the Gas Insulated Substation Technology Alternative in Section D.4.4.1 would be required for the new substation and would be constructed at the Power Plant site. Air quality impacts (Impacts A-1 through A-5) resulting from construction and operation of the Power Plant Site – Gas Insulated Substation Alternative would be the same as those described in Section D.4.4.1, which were determined to be less than significant (Class III).

Comparison to the Proposed Project

Air quality impacts resulting from construction of the Existing Power Plant Site – Gas Insulated Substation Alternative would not be significantly different from the Proposed Project. Localized short-term construction emissions would be reduced overall due to the reduction in earthwork activities. Operational air quality impacts would remain unchanged from the Proposed Project.

D.4.4.5 Broadway and Palomar Site Alternative

Environmental Setting

Section D.4.1 describes the air quality characteristics of the region. Because the Broadway and Palomar Site Alternative would occur in the same air basin as the Proposed Project, the existing air quality conditions would be the same as those described in Section D.4.1.

D.4.4.5.1 Broadway and Palomar Site – Air Insulated Substation Alternative

The 9-acre Broadway and Palomar site is not physically large enough to accommodate the 10-acre Air Insulated Substation Alternative. As such, the Air Insulated Substation Alternative is not technically feasible at this site.

D.4.4.5.2 Broadway and Palomar Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Because this alternative site is located in the same air basin, and similar construction and operational activities would take place as the proposed Bay Boulevard Substation, the air quality impacts for construction of the substation under this alternative would be similar to the Proposed Project. Air quality impacts resulting from construction emissions and operational impacts for

the substation (Impacts A-1 through A-5) would remain unchanged from impacts described in Section D.4.1.1, which were determined to be less than significant (Class III).

As described in Section C.6.7, the Broadway and Palomar Site Alternative would require construction of approximately 2.9 miles of transmission corridors to provide connections to the SDG&E grid, which includes construction of 69 kV lines that would need to cross I-5 via horizontal directional drilling. Establishment of additional corridors would entail the installation of new overhead transmission structures that would create additional construction emissions beyond those identified under the Proposed Project.

Comparison to the Proposed Project

Air quality impacts resulting from construction of the Broadway and Palomar Site – Gas Insulated Substation Alternative would not be significantly different from the Proposed Project. Localized short-term construction emissions would be similar because under this alternative there is a reduction in earthwork at the substation site, but there would be an increase in construction emissions for development of the transmission lines.

D.4.4.6 Goodrich South Campus Site Alternative

Environmental Setting

Section D.4.1 describes the air quality characteristics of the region. Because the Goodrich South Campus Site Alternative would occur in the same air basin as the Proposed Project, the existing air quality conditions would be the same as those described in Section D.4.1.

D.4.4.6.1 Goodrich South Campus Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Because this alternative site is located in the same air basin, and similar construction and operational activities would take place as the proposed Bay Boulevard Substation, the air quality impacts for construction of the substation under this alternative would be similar to the Proposed Project. Air quality impacts resulting from construction emissions and operational impacts for the substation (Impacts A-1 and A-5) would remain unchanged from impacts described in Section D.4.3 for the Proposed Project, which were determined to be less than significant (Class III).

As seen in Section C.6.8, the Goodrich South Campus Site Alternative would require construction of approximately 0.6 mile of 69 kV lines that would need to be extended from the existing terminus at the South Bay Substation to the Goodrich Campus site. Establishment of additional corridors would entail the installation of new overhead transmission structures that

would create additional construction emissions beyond those identified under the Proposed Project. Although slightly greater impacts to construction emissions would occur, impacts would be less than significant (Class III).

Comparison to the Proposed Project

Overall, implementation of the Goodrich South Campus Site – Air Insulated Substation Alternative would have greater impacts than the Proposed Project due to increased construction activities required for the new transmission facilities that would interconnect with the new substation at this location.

D.4.4.6.2 Goodrich South Campus Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, a similar development footprint and layout as identified for the Gas Insulated Substation Technology Alternative in Section D.4.4.1 would be required for the new substation and would be constructed at the Goodrich South Campus site. The impacts would be the same as under the Goodrich South Campus Site – Air Insulated Substation because new transmission facilities would be required as discussed in Section D.4.4.6.1. Although slightly greater impacts to construction emissions would occur, impacts would be less than significant (Class III).

Comparison to the Proposed Project

Air quality impacts resulting from construction of the Goodrich South Campus Site – Gas Insulated Substation Alternative would not be significantly different from the Proposed Project. Localized short-term construction emissions would be similar because under this alternative there is a reduction in earthwork at the substation site, but there would be an increase in construction emissions for development of the transmission lines.

D.4.4.7 H Street Yard Site Alternative

Environmental Setting

Section D.4.1 describes the air quality characteristics of the region. Because the H Street Yard Site Alternative would occur in the same air basin as the Proposed Project, the existing air quality conditions would be the same as those described in Section D.4.1.

D.4.4.7.1 H Street Yard Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Because this alternative site is located in the same air basin, and similar construction and operational activities would take place as the proposed Bay Boulevard Substation, the air quality impacts for construction of the substation under this alternative would be similar to the Proposed Project. Air quality impacts resulting from construction emissions and operational impacts for the substation (Impacts A-1 through A-5) would remain unchanged from impacts described in Section D.4.3 for the Proposed Project, which were determined to be less than significant (Class III).

As seen in Section C.6.9, the H Street Yard Site Alternative would require construction of approximately 0.8 mile of 69 kV lines that would need to be extended from the existing terminus at the South Bay Substation to the H Street Yard site. Establishment of additional corridors would entail the installation of new overhead transmission structures, which would create additional construction emissions beyond those identified under the Proposed Project. Although slightly greater impacts to construction emissions would occur, impacts would be less than significant (Class III).

Comparison to the Proposed Project

Overall, implementation of the H Street Yard Site – Air Insulated Substation Alternative would have greater impacts than the Proposed Project due to increased construction and operation and maintenance activities required for the new transmission facilities that would interconnect with the new substation at this location.

D.4.4.7.2 H Street Yard Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, a similar development footprint and layout as identified for the Gas Insulated Substation Technology Alternative in Section D.4.4.1 would be required for the new substation and would be constructed at the H Street Yard site. The impacts would be the same as under the H Street Yard Site – Air Insulated Substation because new transmission facilities would be required as discussed in Section D.4.4.7.1.

Comparison to the Proposed Project

Air quality impacts resulting from construction of the H Street Yard Site – Gas Insulated Substation Alternative would not be significantly different from the Proposed Project. Localized short-term construction emissions would be similar because under this alternative there is a reduction in earthwork at the substation site, but there would be an increase in construction

emissions for development of the transmission lines. Although slightly greater impacts to construction emissions would occur, impacts would be less than significant (Class III).

D.4.4.8 Bayside Site Alternative

Environmental Setting

Section D.4.1 describes the air quality characteristics of the region. Because the Bayside Site Alternative would occur in the same air basin as the Proposed Project, the existing air quality conditions would be the same as described in Section D.4.1.

D.4.4.8.1 Bayside Site – Air Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Because this alternative site is located in the same air basin, and similar construction and operational activities would take place as the proposed Bay Boulevard Substation, the air quality impacts for construction of the substation under this alternative would be similar to the Proposed Project. Air quality impacts resulting from construction emissions and operational impacts for the substation (Impacts A-1 through A-5) would remain unchanged from impacts described in Section D.4.3 for the Proposed Project, which were determined to be less than significant (Class III).

As seen in Section C.6.10, the Bayside Site Alternative would require construction of approximately 1.8 miles of 69 kV and 230 kV transmission lines. Establishment of additional corridors would entail the installation of new overhead transmission structures, which would create additional construction emissions beyond those identified under the Proposed Project. Although slightly greater impacts to construction emissions would occur, impacts would be less than significant (Class III).

Comparison to the Proposed Project

Overall, implementation of the Bayside Site – Air Insulated Substation Alternative would have greater impacts than the Proposed Project due to increased construction activities required for the new transmission facilities that would interconnect with the new substation at this location.

D.4.4.8.2 Bayside Site – Gas Insulated Substation Alternative

Environmental Impacts and Mitigation Measures

Under this alternative, a similar development footprint and layout as identified for the Gas Insulated Substation Technology Alternative in Section D.4.4.1 would be required for the new substation and would be constructed at the Bayside site. The impacts would be the same as

under the Bayside Site – Air Insulated Substation because new transmission facilities would be required as discussed in Section D.4.4.8.1. Although slightly greater impacts to construction and operation emissions would occur, impacts would be less than significant (Class III).

Comparison to the Proposed Project

Air quality impacts resulting from construction of the Bayside Site – Gas Insulated Substation Alternative would not be significantly different from the Proposed Project. Localized short-term construction emissions would be similar because under this alternative there is a reduction in earthwork at the substation site, but there would be an increase in construction emissions for development of the transmission lines.

D.4.4.9 Environmental Impacts of the No Project Alternative

Under the No Project Alternative, none of the facilities associated with the project would be constructed, and therefore, none of the impacts in this section would occur. The Bay Boulevard Substation would not be built, thereby requiring the existing South Bay Substation to remain in operation. Under the No Project Alternative, SDG&E may be required to develop additional transmission upgrades as described in Section C.7 of this EIR, which would generate potential short-term, construction-related air quality impacts. However, overall impacts to air quality would be reduced due to the elimination of construction activities associated with the Bay Boulevard Substation.

D.4.5 Mitigation Monitoring, Compliance, and Reporting

Table D.4-8 shows the mitigation monitoring, compliance, and reporting program (MMCRP) for air quality. CPUC with assistance from the SDAPCD is responsible for ensuring compliance with the monitoring program. The APMs that SDG&E has made part of the Proposed Project are listed in the table. Neither the Proposed Project nor any alternatives would result in air quality impacts requiring mitigation measures beyond the APMs incorporated into the project.

Table D.4-8
MMCRP for Air Quality

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact AIR-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants. Impact AIR-4: Construction and operational activities would not expose sensitive receptors to substantial pollutant concentrations.	—	APM-AIR-01	All active construction areas, unpaved access roads, parking areas, and staging areas would be watered or stabilized with non-toxic soil stabilizers as needed to control fugitive dust.	SDG&E to implement measure as defined and incorporate commitments into construction contracts.	CPUC to inspect periodically for dust control within and outside of the work area in order to ensure that fugitive dust has been controlled outside the work area.	During construction at all active construction areas, unpaved access roads, parking area, and staging areas.
Impact AIR-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants. Impact AIR-4: Construction and operational activities would not expose sensitive receptors to substantial pollutant concentrations.	—	APM-AIR-02	Traffic speeds on unpaved roads and the right-of-way (ROW) would be limited to 15 miles per hour.	SDG&E to implement measure as defined and incorporate commitment into construction contracts.	CPUC to periodically inspect traffic speeds within the work area in order to ensure that fugitive dust has been controlled outside the work area.	During construction on all unpaved access roads and along the ROW.

Table D.4-8
MMCRP for Air Quality

Impact	MM	APM No.	Mitigation Measure/ Applicant Proposed Measure	Implementation Actions	Monitoring Requirements and Effectiveness Criteria	Timing of Action and Location
Impact AIR-1: Construction would generate dust and exhaust emissions of criteria pollutants and toxic air contaminants. Impact AIR-4: Construction and operational activities would not expose sensitive receptors to substantial pollutant concentrations.	—	APM-AIR-03	SDG&E would limit actively graded areas to a cumulative total of 8 acres per day. The total area of disturbance can exceed this acreage so long as the actively graded portion is below this threshold.	SDG&E to implement measure as defined and incorporate commitment into construction contracts.	CPUC to verify in the field. Effectiveness criteria – actively graded areas do not exceed a cumulative total of eight acres per day.	During construction at actively graded areas.

D.4.6 References

14 CCR 15000–15387 and Appendix A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

17 CCR 70200. "Table of Standards." In Chapter 1, Air Resources Board, Subchapter 1.5, Air Basins and Air Quality Standards.

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SDG&E. 2010a. South Bay Substation Relocation Project: First Deficiency Response Letter in Response to Completeness Review. August 16, 2010.

SDG&E. 2010b. *Proponent's Environmental Assessment (PEA) for the South Bay Substation Relocation Project*. Volume II, Part A. Attachment 4.3-A: Proposed Project Emissions Calculation Methodology.

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