SECTION 3.2
AIR QUALITY AND GLOBAL CLIMATE CHANGE

3.2 AIR QUALITY AND GLOBAL CLIMATE CHANGE

3.2.1 INTRODUCTION

This section is based on the Air Quality Technical Report (June 2010) and Global Climate Change Technical Report (May 2010), prepared by Scientific Resources Associated. These reports analyze the potential air quality and global climate change impacts of the Plaza Linda Verde Project. Each technical report is presented in its entirety in **Appendix 3.2** of this EIR.

3.2.2. METHODOLOGY

3.2.2.1 Air Quality

The methodology for preparing the impact analysis identifies the existing conditions, including background ambient air quality levels. To gauge the potential significance of air quality impacts associated with the Proposed Project, emissions associated with construction-related and operational-related activities were calculated using the URBEMIS 2007 model, and then compared with the applicable air quality significance thresholds. To evaluate the potential for impacts associated with Project-generated traffic, emissions associated with vehicles were estimated, and air dispersion modeling was conducted to estimate ground-level concentrations attributable to traffic. The concentrations, together with existing background air quality levels, then were measured against applicable air quality standards.

3.2.2.2 Global Climate Change

To gauge the potential significance of global climate change impacts associated with the Proposed Project, emissions associated with construction and operation of the Proposed Project were estimated. With respect to operational-related activities, the emissions inventory considered electricity, natural gas, water and vehicle use. Emissions were evaluated based on their consistency with the goals of Assembly Bill 32 ("AB 32").

3.2.3 EXISTING CONDITIONS

3.2.3.1 Traditional Air Quality Pollutants

The following section provides information about the existing air quality regulatory framework, and the climate, air pollutants and sources, and sensitive receptors in the Project area.

3.2.3.1.1 Regulatory Framework

Federal Regulations

Overview Of The Federal Clean Air Act

The United States Environmental Protection Agency ("EPA") is responsible for enforcing the Federal Clean Air Act ("CAA") of 1970, and the 1977 and 1990 Amendments thereto. The CAA requires the EPA to establish National Ambient Air Quality Standards ("NAAQS"), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated. The EPA has established both primary and secondary standards for seven "criteria" pollutants: ozone ("O_3"), carbon monoxide ("CO"), nitrogen dioxide ("NO_2"), respirable particulate matter ("PM_{10}"), fine particulate matter ("$PM_{2.5}$"), sulfur dioxide ("SO_2"), and lead ("Pb"). Primary standards are designed to protect human health with an adequate margin of safety. Secondary standards are designed to protect property and the public welfare from air pollutants in the atmosphere. Areas that do not meet the NAAQS for a particular pollutant are considered to be "nonattainment areas" for that pollutant.

In April 2004, the San Diego Air Basin ("SDAB"), the basin in which the Project site is located, was designated as a nonattainment area for the 8-hour O_3 NAAQS. The SDAB is in attainment with all other NAAQS.

In addition to the seven criteria pollutants identified above, volatile organic compounds ("VOCs") and hazardous air pollutants ("HAPs") also are subject to federal control. With respect to VOCs, while the EPA has not set ambient air quality standards for these ozone precursors, VOCs are regulated through limitations on VOC emissions from solvents, paints, and other sources. With respect to HAPs, these pollutants, which also are referred to as toxic air contaminants ("TACs"), are known or suspected to result in adverse health effects upon exposure through inhalation or other exposure routes. HAPs emitted from stationary sources are regulated via the federal National Emission Standards for Hazardous Air Pollutants ("NESHAPs") program. HAPs from mobile sources, such as vehicles and other off-road equipment, are regulated through emission standards implemented by the EPA and/or state regulatory agencies.

Health Effects Of Criteria Pollutants

The following discussion identifies the potential health effects of each criteria pollutant, and is based on data provided by the EPA and California Air Resources Board ("ARB"). (EPA 2007a; ARB 2005.)

- **Ozone:** O_3 is considered a photochemical oxidant, and is formed when reactive organic gases ("ROG") and oxides of nitrogen ("NOx"), both by-products of combustion, react in the presence of ultraviolet light. O_3 is considered a respiratory irritant and prolonged exposure can reduce lung function, aggravate asthma and increase susceptibility to respiratory infections. Children and those with existing respiratory diseases are at greatest risk from exposure to O_3.

- **Carbon Monoxide:** CO (an odorless, colorless gas) is a product of combustion, the main source of which in the SDAB is motor vehicle exhaust. CO affects red blood cells in the body by binding to hemoglobin and reducing the amount of oxygen that can be carried to the body's organs and tissues. CO can cause health effects to those with cardiovascular disease, and can also affect mental alertness and vision.

- **Nitrogen Dioxide:** NO_2 is a by-product of fuel combustion, and is formed both directly as a product of combustion and in the atmosphere through the reaction of nitrogen oxide ("NO") with oxygen. NO_2 is a respiratory irritant and may affect those with existing respiratory illness, including asthma. NO_2 also can increase the risk of respiratory illness.

- **Respirable and Fine Particulate Matter:** Respirable particulate matter, or PM_{10}, refers to particulate matter with an aerodynamic diameter of 10 microns or less. Fine particulate matter, or $PM_{2.5}$, refers to particulate matter with an aerodynamic diameter of 2.5 microns or less. Particulate matter in this size range has been determined to have the potential to lodge in the lungs and contribute to respiratory problems. PM_{10} and $PM_{2.5}$ arise from a variety of sources, including road dust, diesel exhaust, combustion, tire and brake wear, construction operations and windblown dust. PM_{10} and $PM_{2.5}$ can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases such as asthma and chronic bronchitis. $PM_{2.5}$ also is considered to have the potential to lodge deeper in the lungs.

- **Sulfur Dioxide:** SO_2 is a colorless, reactive gas that is produced from the burning of sulfur-containing fuels such as coal and oil, and by other industrial processes. Generally,

the highest concentrations of SO_2 are found near large industrial sources. SO_2 is a respiratory irritant that can cause narrowing of the airways leading to wheezing and shortness of breath. Long-term exposure to SO_2 can cause respiratory illness and aggravate existing cardiovascular disease.

- **Lead:** Pb in the atmosphere occurs as particulate matter. Pb has historically been emitted from vehicles combusting leaded gasoline, as well as from industrial sources. With the phase-out of leaded gasoline, large manufacturing facilities are the sources of the largest amounts of lead emissions. Pb has the potential to cause gastrointestinal, central nervous system, kidney and blood diseases upon prolonged exposure; this pollutant also is classified as a probable human carcinogen.

State and Local Regulations

Overview Of The California Clean Air Act

The California Clean Air Act was signed into law on September 30, 1988, and became effective on January 1, 1989. The Act requires that local air districts implement regulations to reduce emissions from mobile sources through the adoption and enforcement of transportation control measures. Further, the California Clean Air Act requires local air districts to implement a Best Available Control Technology ("BACT") rule and require emission offsets for nonattainment pollutants. With respect to the SDAB, the California Clean Air Act specifically requires the basin to achieve a five percent annual reduction in ozone precursor emissions from 1987 until the standards are attained. If this reduction cannot be achieved, all feasible control measures must be implemented.

The ARB is the state regulatory agency with authority to enforce regulations to both achieve and maintain air quality in the state. Accordingly, the ARB is responsible for the development, adoption, and enforcement of the state's motor vehicle emissions program, as well as the adoption of the California Ambient Air Quality Standards ("CAAQS"). The ARB also reviews operations and programs of the local air districts, and requires each air district with jurisdiction over a nonattainment area to develop its own strategy for achieving the NAAQS and CAAQS.

The federal CAA allows states to adopt ambient air quality standards, provided they are *at least* as stringent as the NAAQS and other federal standards. The ARB has established more stringent CAAQS for six criteria pollutants, and also has established CAAQS for additional pollutants, including sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles.

The SDAB currently is classified as a nonattainment area under the CAAQS for O_3, PM_{10}, and $PM_{2.5}$. Notably, the ARB does not differentiate between the 1-hour and 8-hour CAAQS for O_3; therefore, if an air basin records exceedances of either standard, then the area is considered a nonattainment area for the O_3 CAAQS. The SDAB has recorded exceedances of both the 1-hour and 8-hour O_3 CAAQS.

Health Effects Of Additional California-Specific Pollutants

The following specific descriptions of health effects for the additional California criteria air pollutants (i.e., pollutants that are not federally-designated criteria pollutants) are based on ARB data. (ARB, 2001.)

- **Sulfates:** Sulfates are the fully oxidized ionic form of sulfur. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and subsequently converted to sulfate compounds in the atmosphere. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms and an increased risk of cardio-pulmonary disease. Sulfates also degrade visibility, and, due to the fact that they are usually acidic, can harm ecosystems and damage materials and property.

- **Hydrogen Sulfide:** H_2S is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. This gas also can be present in sewer and natural gases, and can be emitted as the result of geothermal energy exploitation. Breathing H_2S at levels above the standard would result in exposure to a very disagreeable odor. In 1984, an ARB committee concluded that the ambient standard for H_2S is adequate to protect public health and to significantly reduce odor annoyance.

- **Vinyl Chloride:** Vinyl chloride, a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride ("PVC") plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air causes central nervous system effects, such as dizziness, drowsiness and headaches. Long-term exposure to vinyl chloride through inhalation and oral exposure causes liver damage. Cancer is a major

concern from exposure to vinyl chloride via inhalation. (Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer, in humans.)

- **Visibility Reducing Particles:** Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. The CAAQS is intended to limit the frequency and severity of visibility impairment due to regional haze.

Table 3.2-1, Ambient Air Quality Standards, presents a summary of the ambient air quality standards adopted by the federal and California Clean Air Acts.

Table 3.2-1
Ambient Air Quality Standards

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS		NATIONAL STANDARDS		
		Concentration	Measurement Method	Primary	Secondary	Measurement Method
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	0.12 ppm (235 µg/m³)	0.12 ppm (235 µg/m³)	Ethylene Chemiluminescence
	8 hour	0.070 ppm (137 µg/m³)		0.075 ppm (147 µg/m³)	0.075 ppm (147 µg/m³)	
Carbon Monoxide (CO)	8 hours	9.0 ppm (10 mg/m³)	Non-Dispersive Infrared Spectroscopy (NDIR)	9 ppm (10 mg/m³)	None	Non-Dispersive Infrared Spectroscopy (NDIR)
	1 hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		
Nitrogen Dioxide (NO_2)	Annual Average	0.030 ppm (56 µg/m³)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m³)	0.053 ppm (100 µg/m³)	Gas Phase Chemiluminescence
	1 hour	0.18 ppm (338 µg/m³)		--	--	
Sulfur Dioxide (SO_2)	Annual Average	--	Ultraviolet Fluorescence	0.03 ppm (80 µg/m³)	--	Pararosaniline
	24 hours	0.04 ppm (105 µg/m³)		0.14 ppm (365 µg/m³)	--	
	3 hours	--		--	0.5 ppm (1300 µg/m³)	
	1 hour	0.25 ppm (655 µg/m³)		--	--	

Table 3.2-1
Ambient Air Quality Standards

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS		NATIONAL STANDARDS		
		Concentration	Measurement Method	Primary	Secondary	Measurement Method
Respirable Particulate Matter (PM_{10})	24 hours	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	150 µg/m³	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		--	--	
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	15 µg/m³	15 µg/m³	Inertial Separation and Gravimetric Analysis
	24 hours	--		35 µg/m³	35 µg/m³	
Sulfates	24 hours	25 µg/m³	Ion Chromato-graphy	--	--	--
Lead (Pb)	30-day Average	1.5 µg/m³	Atomic Absorption	--	--	Atomic Absorption
	Calendar Quarter	--		1.5 µg/m³	1.5 µg/m³	
	3-month Rolling Average	--		0.15 µg/m³	0.15 µg/m³	
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence	--	--	--
Vinyl Chloride	24 hours	0.010 ppm (26 µg/m³)	Gas Chromato-graphy	--	--	--

Notes:
ppm= parts per million
µg/m³ = micrograms per cubic meter
mg/m³= milligrams per cubic meter
Source: California Air Resources Board 2009

Toxic Air Contaminants

In 1983, the California Legislature enacted a program to: (i) identify the health effects of TACs, and (ii) reduce exposure to these contaminants to protect the public health. (AB 1807; Health and Safety Code, §§39650-39674.) The Legislature established a two-step process to address the

potential health effects from TACs. The first step is the risk assessment (or identification) phase. The second step is the risk management (or control) phase.

California has identified diesel particulate matter ("diesel PM") as a TAC. Diesel PM is emitted from on- and off-road vehicles that utilize diesel as fuel. Since identification of diesel PM as a TAC in 1998, the ARB has worked on developing strategies and regulations aimed at reducing the emissions and associated risk from diesel PM. The overall strategy for achieving these reductions is found in the *Risk Reduction Plan to Reduce Particulate Matter from Diesel-Fueled Engines and Vehicles*. (State of California, 2000.) A stated goal of the plan is to reduce the cancer risk statewide arising from exposure to diesel PM by 75 percent by 2010, and by 85 percent by 2020. The *Risk Reduction Plan* contains the following three components:

1. New regulatory standards for all new on-road, off-road and stationary diesel-fueled engines and vehicles to reduce diesel PM emissions by about 90 percent overall from current levels;

2. New retrofit requirements for existing on-road, off-road and stationary diesel-fueled engines and vehicles where determined to be technically feasible and cost-effective; and

3. New Phase 2 diesel fuel regulations to reduce the sulfur content levels of diesel fuel to no more than 15 ppm to provide the quality of diesel fuel needed by the advanced diesel PM emission controls.

A number of programs and strategies to reduce diesel PM are in place or are in the process of being developed as part of the ARB's Diesel Risk Reduction Program. Some of these programs and strategies include those that would apply to the construction and operation of the Proposed Project:

- In 2001, the ARB adopted new PM and NOx emission standards to clean up large diesel engines that power big-rig trucks, trash trucks, delivery vans and other large vehicles. The new standard for PM took effect in 2007 and reduces emissions to 0.01 gram of particulate matter per brake horsepower-hour ("g/bhp-hr"). This is a 90 percent reduction from the existing particulate matter standard. New engines will meet the 0.01 g/bhp-hr PM standard with the aid of diesel particulate filters that trap the PM before exhaust leaves the vehicle.

- ARB has worked closely with the EPA on developing new PM and NOx standards for engines used in offroad equipment, such as backhoes, graders, and farm equipment. The

EPA has proposed new standards that would reduce the emissions from off-road engines to similar levels to the on-road engines discussed above by 2010 - 2012. These new engine standards were adopted as part of the Clean Air Nonroad Diesel Final Rule in 2004. Once approved by the EPA, the ARB will adopt these as the applicable state standards for new off-road engines. These standards will reduce diesel PM emissions by over 90 percent from new off-road engines currently sold in California.

- The ARB has adopted several regulations that will reduce diesel PM emissions from in-use vehicles and engines throughout California. In some cases, the PM reduction strategies also reduce smog-forming emissions, such as NOx.

San Diego Air Pollution Control District

The local air pollution control district ("APCD") is primarily responsible for the: (i) development and implementation of rules and regulations designed to attain the NAAQS and CAAQS; (ii) permitting of new or modified sources; (iii) development of air quality management plans; and, (iv) adoption and enforcement of air pollution regulations. The San Diego APCD is the local agency responsible for the administration and enforcement of air quality regulations in San Diego County.

The San Diego APCD and the San Diego Association of Governments ("SANDAG") are jointly responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The region's clean air plan -- the San Diego County Regional Air Quality Strategy ("RAQS") -- was adopted in 1991, and is updated on a triennial basis. (Accordingly, the RAQS was updated in 1995, 1998, 2001, 2004 and, most recently, in 2009.) The RAQS outlines the plans and control measures designed to attain the state air quality standards for O_3. The RAQS does *not* address the state air quality standards for PM_{10} or $PM_{2.5}$.

The San Diego APCD also has developed the air basin's input to the State Implementation Plan ("SIP"), which is required under the Federal CAA for nonattainment areas and updated on a triennial basis. The SIP includes the San Diego APCD's plans and control measures for attaining the NAAQS for O_3. The latest SIP update was submitted by the ARB to the EPA in 1998, and the APCD is in the process of updating its SIP to reflect the new 8-hour O_3 NAAQS.

To that end, the San Diego APCD has developed its *Eight-Hour Ozone Attainment Plan for San Diego County* ("Attainment Plan"). (APCD, 2007.) The Attainment Plan forms the basis for the SIP update, as it contains documentation on emission inventories and trends, the San Diego

APCD's emission control strategy, and an attainment demonstration that shows that the SDAB will meet the NAAQS for O_3. Emission inventories, projections, and trends in the Attainment Plan are based on the latest O_3 SIP planning emission projections compiled and maintained by the ARB. Supporting data were developed jointly by stakeholder agencies, including the ARB, San Diego APCD, South Coast Air Quality Management District ("SCAQMD"), Southern California Association of Governments ("SCAG"), and SANDAG. Each agency plays a role in collecting and reviewing data as necessary to generate comprehensive emission inventories. The supporting data include socio-economic projections, industrial and travel activity levels, emission factors, and emission speciation profiles.

Statewide Emissions Inventory

The ARB compiles annual statewide emission inventories in its emission-related information database, the California Emission Inventory Development and Reporting System ("CEIDARS"). Emission projections for past and future years are generated using the California Emission Forecasting System ("CEFS"), which was developed by the ARB to project emission trends and track progress towards meeting emission reduction goals and mandates. CEFS utilizes the most current growth and emissions control data available and agreed upon by the stakeholder agencies to provide comprehensive projections of anthropogenic (human activity-related) emissions for any year from 1975 through 2030.

Local air districts are responsible for compiling emissions data for all point sources and many stationary area-wide sources. For mobile sources, CEFS integrates emission estimates from the ARB's EMFAC2007 and OFFROAD models. SCAG and SANDAG incorporate data regarding highway and transit projects into their Travel Demand Models for estimating and projecting vehicle miles traveled ("VMT") and speed. The ARB's on-road emissions inventory in EMFAC2007 relies on these VMT and speed estimates. To complete the inventory, estimates of biogenic (naturally occurring) emissions are developed by the ARB using the Biogenic Emissions Inventory Geographic Information System ("BEIGIS") model.

Because the ARB mobile source emission and SANDAG growth projections are based on population and vehicle trends and land use plans developed by cities and counties during the development of general plans, a project that proposes development that is consistent with the growth anticipated by a general plan is consistent with the RAQS and Attainment Plan. In the event that a project proposes development that is less dense than anticipated by the general plan, the project likewise would be consistent with the RAQS and Attainment Plan. If a project proposes development that is more dense/greater than that anticipated in the general plan, the

project may conflict with the RAQS and SIP, and may have a potentially significant impact on air quality.

3.2.3.1.2 Climate And Meteorology

The climate of the SDAB is dominated by a semi-permanent high pressure cell located over the Pacific Ocean. This cell influences the direction of prevailing winds (westerly to northwesterly) and maintains clear skies for much of the year. The high pressure cell also creates two types of temperature inversions that may act to degrade local air quality.

The climate in the Project area is characterized by a repetitive pattern of frequent early morning cloudiness, hazy afternoon sunshine, clean daytime onshore breezes and little temperature change throughout the year. Limited rainfall occurs in the winter, while summers are often completely dry. An average of 10 inches of rain falls each year from mid-November to early April.

The same atmospheric conditions that create a desirable living climate combine to limit the ability of the atmosphere to disperse the air pollution generated by the large population attracted by the climate. The onshore winds across the coastline diminish quickly when they reach the foothill communities east of San Diego, and the sinking air within the offshore high pressure system forms a massive temperature inversion that traps all air pollutants near the ground. The resulting horizontal and vertical stagnation, in conjunction with ample sunshine, cause a number of reactive pollutants to undergo photochemical reactions and form smog that degrades visibility and irritates tear ducts and nasal membranes. High smog levels in coastal communities occasionally occur when polluted air from the South Coast Air Basin (Los Angeles area) drifts seaward and southward at night, and then blows onshore the next day. Such weather patterns are frustrating because such inter-basin transport occasionally causes unhealthy air over much of SDAB despite the San Diego APCD's best air pollution control efforts.

3.2.3.1.3 Background Air Quality

The APCD operates a network of ambient air monitoring stations throughout San Diego County. The purpose of the monitoring stations is to measure ambient concentrations of the pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The nearest ambient monitoring stations to the SDSU campus that measures all pollutants are the San Diego Overland Avenue and El Cajon monitoring stations. The other monitoring station in the Project vicinity is the downtown San Diego monitoring station.

The Overland Avenue monitoring station is the most representative of the Project area because the El Cajon monitoring station is located farther inland and is subject to higher ambient concentrations due to pollutants being trapped in the valley. Ambient concentrations of pollutants over the last three years are presented in **Table 3.2-2, Ambient Air Quality Concentrations.**

Table 3.2-2
Ambient Background Concentrations

Pollutant	Averaging Time	2006	2007	2008	Most Stringent Ambient Air Quality Standard	Monitoring Station
Ozone	8 hour	0.091	0.076	0.093	0.070	Overland Ave.
	1 hour	0.108	0.088	0.100	0.09	Overland Ave.
PM_{10}	Annual	22.6	23.6	23.9	20 µg/m³	Overland Ave.
	24 hour	42	65	41	50 µg/m³	Overland Ave.
$PM_{2.5}$	Annual	11.0	10.4	11.8	12 µg/m³	Overland Ave.
	24 hour	26.3	30.6	27.2	35 µg/m³	Overland Ave.
NO_2	Annual	0.017	0.015	0.014	0.030	Overland Ave.
	1 hour	0.091	0.087	0.077	0.18	Overland Ave.
CO	8 hour	3.27	3.01	2.60	9.0	San Diego
	1 hour	5.3	4.4	4.1	20	San Diego
SO_2	Annual	0.004	0.003	0.003	0.03	San Diego
	24 hour	0.009	0.006	0.007	0.04	San Diego
	3 hour	0.030	0.014	0.019	0.5[1]	San Diego
	1 hour	0.034	0.018	0.019	0.25	San Diego

Notes:
N/A = Not Available
[1]New CAAQS proposed by ARB
[2]Secondary NAAQS

Source:
www.arb.ca.gov/aqd/aqd.htm (Measurements of all pollutants at Overland station, except CO and SO_2 from San Diego station)
www.epa.gov/air/data/monvals.html (1-hour and 3-hour SO_2 and 1-hour CO)

The federal 8-hour ozone standard was exceeded at the Overland Avenue monitoring station once in 2006, twice in 2007, and five times in 2008. The Overland Avenue monitoring station measured an exceedance of the state PM_{10} standard in 2007 during the southern California fire

events. The data from the monitoring stations indicate that air quality is in attainment of all other ambient air quality standards.

3.2.3.2 Greenhouse Gas Emissions

3.2.3.2.1 General Principles

Global climate change refers to the changes in average climatic conditions (e.g., temperature; wind patterns; precipitation; storms) on the Earth as a whole. Global climate change may result from natural factors, natural processes, and/or human activities that change the composition of the atmosphere and alter the surface and features of land. Historical records indicate that global climate changes have occurred in the past due to natural phenomena. Some data indicate that the current global conditions differ from past climate changes in rate and magnitude.

Global temperatures are moderated by naturally occurring atmospheric gases that allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere. Without these gases, the Earth's temperature would be about 61° Fahrenheit cooler. (California Environmental Protection Agency, 2006.) Gases that trap heat in the atmosphere are often called greenhouse gases ("GHGs"), and are emitted by both natural processes and human activities. State law defines GHGs to include any of the following compounds: carbon dioxide ("CO_2"), methane ("CH_4"), nitrous oxide ("N_2O"), hydrofluorocarbons ("HFCs"), perfluorocarbons ("PFCs"), sulfur hexafluoride ("SF_6"), and nitrogen trifluoride ("NF_3"). (Health and Safety Code, §38505, subd. (g).) CO_2, followed by CH_4 and N_2O, are the most prevalent GHGs.

Global climate change and GHGs are the subjects of a widely contested political, economic and scientific debate. Although the conceptual existence of global climate change is generally accepted, the extent to which GHGs generally and anthropogenic-induced GHGs contribute to such change remains a source of debate.

The United Nations Intergovernmental Panel on Climate Change ("IPCC") constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts, and concluded that a stabilization of GHGs at 400 to 450 ppm CO_2 equivalent concentration is required to keep global mean warming below 35.6° Fahrenheit (2° Celsius). (Association of Environmental Professionals, 2007.)

3.2.3.2.2 Sources Of GHGs, Global Warming Potentials, And Inventories

Anthropogenic sources of CO_2 include combustion of fossil fuels (coal, oil, natural gas, gasoline and wood). CH_4 is the main component of natural gas and also arises naturally from anaerobic decay of organic matter. Accordingly, anthropogenic sources of CH_4 include landfills, fermentation of manure and cattle farming. Anthropogenic sources of N_2O include combustion of fossil fuels and industrial processes such as nylon production and production of nitric acid. Other GHGs are present in trace amounts in the atmosphere and are generated from various industrial or other uses.

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the "cumulative radiative forcing effect of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to a reference gas" (USEPA, 2006). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main greenhouse gases that have been attributed to human activity include CH_4, which has a GWP of 21, and N_2O, which has a GWP of 310. **Table 3.2-3** presents the GWP and atmospheric lifetimes of common GHGs.

Table 3.2-3
Global Warming Potentials and Atmospheric Lifetimes of GHGs

GHG	Formula	100-Year Global Warming Potential	Atmospheric Lifetime (Years)
Carbon Dioxide	CO_2	1	Variable
Methane	CH_4	21	12 ± 3
Nitrous Oxide	N_2O	310	120
Sulfur Hexafluoride	SF_6	23,900	3,200
Hydrofluorocarbons	HFCs	140 to 11,700	3.7 to 264
Perfluorocarbons	PFCs	6,500 to 9,200	2,600 to 50,000
Nitrogen Trifluoride	NF_3	17,200	740

The ARB has completed a GHG inventory for the State of California; the inventory compiled statewide anthropogenic GHG emissions and sinks. The inventory is divided into seven broad sectors, including: Agriculture; Commercial; Electricity Generation; Forestry; Industrial; Residential; and Transportation. When accounting for GHGs, the emissions are expressed in

terms of CO_2 equivalents ("CO_2e") and quantified in metric tons ("MT") or millions of metric tons ("MMT"). The current inventory covers the years 1990 and 2004, and is summarized in **Table 3.2-4, State of California GHG Emissions By Sector**. As shown on **Table 3.2-4,** emissions associated with transportation constitute the largest percentage of the statewide inventory (38%).

Table 3.2-4
State of California GHG Emissions by Sector

Sector	Total 1990 Emissions ($MMTCO_2e$)	Percent of Total 1990 Emissions	Total 2004 Emissions ($MMTCO_2e$)	Percent of Total 2004 Emissions
Agriculture	23.4	5%	27.9	6%
Commercial	14.4	3%	12.8	3%
Electricity Generation	110.6	26%	119.8	25%
Forestry (excluding sinks)	0.2	<1%	0.2	<1%
Industrial	103.0	24%	96.2	20%
Residential	29.7	7%	29.1	6%
Transportation	150.7	35%	182.4	38%
Forestry Sinks	(6.7)		(4.7)	

In addition to the statewide GHG inventory prepared by the ARB, a regional GHG inventory was prepared by the University of San Diego School of Law Energy Policy Initiative Center. (University of San Diego, 2008.) The San Diego County Greenhouse Gas Inventory ("SDCGHGI") takes into account the unique characteristics of the region when estimating emissions, and estimated emissions for years 1990, 2006, and 2020. Based on this inventory, the study found that emissions of GHGs must be reduced by 33 percent below business-as-usual ("BAU") in order for San Diego County to return to 1990 emission levels by the year 2020, and thereby comply with AB 32. BAU is defined as the emissions that would occur without any greenhouse gas reduction measures. For example, construction of buildings using 2005 Title 24 building standards, and not subsequently enacted more rigorous standards would create BAU emissions.

A summary of the 2006 GHG emissions inventory is presented in **Table 3.2-5, San Diego County 2006 GHG Emissions by Category**.

Table 3.2-5
San Diego County 2006 GHG Emissions by Category

Sector	Total Emissions ($MMTCO_2e$)	Percent of Total Emissions
On-Road Transportation	16	46%
Electricity	9	25%
Natural Gas Consumption	3	9%
Civil Aviation	1.7	5%
Industrial Processes & Products	1.6	5%
Other Fuels/Other	1.1	4%
Off-Road Equipment & Vehicles	1.3	4%
Waste	0.7	2%
Agriculture/Forestry/Land Use	0.7	2%
Rail	0.3	1%
Water-Born Navigation	0.13	0.4%

According to the SDCGHGI, a majority of the region's emissions are attributable to on-road transportation, with the next largest source of GHG emissions attributable to electricity generation. The SDCGHGI states that emission reductions from on-road transportation will be achieved in a variety of ways, including through regulations aimed at increasing fuel efficiency standards and decreasing vehicle emissions. These regulations are outside the control of project applicants for land use development. The SDCGHGI also indicates that emission reductions from electricity generation will be achieved in a variety of ways, including through a 10 percent reduction in electricity consumption, implementation of the renewable portfolio standard ("RPS"), cleaner electricity purchases by San Diego Gas & Electric, replacement of the Boardman Contract (which allows the purchase of electricity from coal-fired power plants), and implementation of 400 MW of photovoltaics. Many of these measures are also outside the control of project applicants.

3.2.3.2.3 Environmental Changes Resulting From Global Climate Change

The Climate Scenarios Report (CCCC, 2006) uses a range of emissions scenarios developed by the IPCC to project a series of potential warming ranges (i.e., temperature increases) that may

occur in California during the 21st century. Three warming ranges were identified: lower warming range (3.0 to 5.5 degrees Fahrenheit (°F)); medium warming range (5.5 to 8.0 °F); and higher warming range (8.0 to 10.5 °F). The Climate Scenarios Report then presents an analysis of the future projected climate changes in California under each warming range scenario.

According to the report, substantial temperature increases would result in a variety of impacts to the people, economy, and environment of California. These impacts would result from a projected increase in extreme conditions, with the severity of the impacts depending upon actual future emissions of GHGs and associated warming. These impacts are described below.

- **Public Health:** Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. Potential health effects from global climate change may arise from temperature increases, climate-sensitive diseases, extreme events, and air quality. There may be direct temperature effects through increases in average temperature leading to more extreme heat waves and less extreme cold spells. Those living in warmer climates are likely to experience more stress and heat-related problems (e.g., heat rash and heat stroke). In addition, climate sensitive diseases (such as malaria, dengue fever, yellow fever, and encephalitis) may increase, such as those spread by mosquitoes and other disease-carrying insects.

- **Water Resources:** A vast network of reservoirs and aqueducts capture and transport water throughout the State from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada mountain snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could reduce severely spring snowpack, increasing the risk of summer water shortages. In addition, if temperatures continue to rise, more precipitation would fall as rain instead of snow, further reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. The State's water resources also are at risk from rising sea levels. An influx of seawater would degrade California's estuaries, wetlands, and groundwater aquifers.

- **Agriculture:** Increased GHG and associated increases in temperature are expected to cause widespread changes to the agricultural industry, reducing the quantity and quality of agricultural products statewide. Significant reductions in available water supply to support agriculture also would impact production. Crop growth and development will change as will the intensity and frequency of pests and diseases.

- **Ecosystems/Habitats:** Continued global warming likely would shift the ranges of existing invasive plants and weeds, thus alternating competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Continued global warming also is likely to increase the populations of and types of pests, and affect natural ecosystems and biological habitats.

- **Wildland Fires:** Global warming is expected to increase the risk of wildfire and alter the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the State.

- **Rising Sea Levels:** Rising sea levels, more intense coastal storms, and warmer water temperatures will increasingly threaten the State's coastal regions. Under the high warming scenario, sea level is anticipated to rise 22 to 35 inches by 2100. A sea level risk of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten levees and inland water systems, and disrupt wetlands and natural habitats.

As part of its climate change planning process, the California Natural Resources Agency ("CNRA") prepared its California Climate Adaptation Strategy (CNRA, 2009) to summarize the best known science on climate change impacts in California, with the goal of assessing vulnerability to climate change impacts. The Climate Adaptation Strategy also outlines possible solutions that can be implemented within and across state agencies to promote resiliency.

The California Climate Adaptation Strategy takes into account the long-term, complex, and uncertain nature of climate change and establishes a proactive foundation for an ongoing adaptation process. The strategy made preliminary recommendations as a first step in addressing responses to impacts of global climate change within the state. Key recommendations include:

1. A Climate Adaptation Advisory Panel will be appointed to assess the greatest risks to California from climate change and recommend strategies to reduce those risks building on California's Climate Adaptation Strategy.

2. Identify necessary changes to California's water management and uses.
3. Consider project alternatives that avoid significant new development in areas that cannot be adequately protected (planning, permitting, development, and building) from flooding, wildfire and erosion due to climate change.
4. All state agencies responsible for the management and regulation of public health, infrastructure or habitat subject to significant climate change should prepare as appropriate agency-specific adaptation plans, guidance, or criteria by September 2010.
5. To the extent required by CEQA Guidelines section 15126.2, all significant state projects, including infrastructure projects, must consider the potential impacts of locating such projects in areas susceptible to hazards resulting from climate change.
6. The California Emergency Management Agency will collaborate with the CNRA, Climate Action Team, California Energy Commission, and Climate Adaptation Advisory Panel to assess California's vulnerability to climate change, identify impacts to state assets, and promote climate adaptation/mitigation awareness through the Hazard Mitigation Web Portal and My Hazards Website as well as other appropriate sites.
7. Using existing research the state should identify key California land and aquatic habitats that could change significantly during this century due to climate change. Based on this identification, the state should develop a plan for expanding existing protected areas or altering land and water management practices to minimize adverse effects from climate change induced phenomena.
8. The best long-term strategy to avoid increased health impacts associated with climate change is to ensure communities are healthy to build resilience to increased spread of disease and temperature increases.
9. Communities with General Plans and Local Coastal Plans should begin, when possible, to amend their plans to assess climate change impacts, identify areas most vulnerable to these impacts, and develop reasonable and rational risk reduction strategies using the Climate Adaptation Strategy as guidance.
10. State fire fighting agencies should begin immediately to include climate change impact information into fire program planning to inform future planning efforts.
11. State agencies should meet projected population growth and increased energy demand with greater energy conservation and an increased use of renewable energy.
12. Existing and planned climate change research can and should be used for state planning and public outreach purposes; new climate change impact research should be broadened and funded.

3.2.3.2.4 GHG Regulatory Framework

All levels of government have some responsibility for the protection of air quality, and each level (federal, state, and regional/local) has specific responsibilities relating to air quality regulation. The regulation of GHGs is a relatively new component of the air quality regulatory framework.

International And National Efforts

In 1988, the United Nations and the World Meteorological Organization established the IPCC to assess the scientific, technical, and socioeconomic information relevant to understanding the scientific basis for human-induced climate change, its potential impacts, and options for adaptation and mitigation. The most recent reports of the IPCC have emphasized the scientific consensus that real and measurable changes to the climate are occurring; that such changes are caused, in part, by human activity; and, that adverse impacts on the environment, the economy, and human health and welfare likely are unavoidable.

On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change ("UNFCCC"). Under the Convention, governments agreed to gather and share information on GHG emissions, national policies, and best practices; launch national strategies for addressing GHG emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to global climate change.

Fairly recently, the United States Supreme Court declared, in *Massachusetts v. Environmental Protection Agency* (2007), that the EPA has the authority to regulate GHG emissions. Several recent developments tier from the Supreme Court's finding.

Endangerment Finding: On April 17, 2009, the EPA issued its proposed endangerment finding for GHG emissions. On December 7, 2009, the EPA Administrator signed and finalized two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act. First, the Administrator found that the current and projected concentrations of the six greenhouse gases -- CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6 -- in the atmosphere threaten the public health and welfare of current and future generations. Second, the Administrator found that the combined emissions of these greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, this action was a prerequisite to finalizing the EPA's greenhouse gas emission standards for light-duty vehicles, which were jointly proposed by the EPA and the Department of Transportation's National Highway Safety Administration on September 15, 2009 and adopted on April 1, 2010. As finalized in April 2010, the emissions standards rule for vehicles will improve average fuel economy standards to 35.5 miles per gallon by 2016. In addition, the rule will require model year 2016 vehicles to meet an estimated combined average emission level of 250 grams of carbon dioxide per mile.

Mandatory GHG Reporting Rule: On March 10, 2009, the EPA proposed a rule that would require the mandatory reporting of GHG emissions from large emission sources, such as suppliers of fossil fuels, industrial emitters, manufacturers of vehicles and engines, and facilities that emit at least 25,000 metric tons of GHG emissions from stationary sources per year. The final rule was signed on September 22, 2009, and became effective on December 29, 2009.

State Regulations And Standards

The following discussion describes regulations and standards that have been adopted by the California Legislature to address global climate change issues.

Executive Order S-3-05

Executive Order S-3-05, signed by Governor Schwarzenegger on June 1, 2005, calls for a reduction in GHG emissions to 1990 levels by 2020, and for an 80 percent reduction in GHG emissions from 1990 levels by 2050. Executive Order S-3-05 also calls for the California EPA ("CalEPA") to prepare biennial science reports on the potential impact of continued global climate change on certain sectors of the California economy. The first of these reports, "Our Changing Climate: Assessing Risks to California", and its supporting document "Scenarios of Climate Change in California: An Overview," were published by the California Climate Change Center in 2006.

Assembly Bill 32, The California Global Warming Solutions Act Of 2006

AB 32 directs the ARB to do the following:

- Make publicly available a list of discrete early action GHG emission reduction measures that can be implemented prior to the adoption of the statewide GHG limit and the measures required to achieve compliance with the statewide limit.

- Make publicly available a GHG inventory for the year 1990 and determine target levels for 2020.

- On or before January 1, 2010, adopt regulations to implement the early action GHG emission reduction measures.

- On or before January 1, 2011, adopt quantifiable, verifiable, and enforceable emission reduction measures by regulation that will achieve the statewide GHG emissions limit by 2020, to become operative on January 1, 2012, at the latest. The emission reduction measures may include direct emission reduction measures, alternative compliance mechanisms, and potential monetary and non-monetary incentives that reduce GHG emissions from any sources or categories of sources that ARB finds necessary to achieve the statewide GHG emissions limit.

- Monitor compliance with and enforce any emission reduction measure adopted pursuant to AB 32.

In accordance with AB 32, the ARB has estimated that the 1990 GHG emissions level was 427 MMT net CO_2e. (ARB, 2007b.) The 2004 emissions were estimated at 480 MMT net CO_2e. (*Ibid.*) The ARB estimates that a reduction of 173 MMT net CO_2e emissions below BAU would be required by 2020 to meet the 1990 levels. (*Ibid.*) This amounts to a 30 percent reduction from projected BAU levels in 2020. (ARB, 2008a.)

In December 2008, the ARB adopted its Scoping Plan, which presents the statewide strategy for reaching 1990 emission levels by 2020 and includes sector-specific reduction measures.

Senate Bill 97 ("SB 97")

SB 97, enacted in 2007, amended the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are appropriate subjects for CEQA analysis. It further directed the California Office of Planning and Research ("OPR") to develop draft CEQA Guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions" by July 1, 2009 and directed the CNRA to certify and adopt the CEQA Guidelines by January 1, 2010.

In June 2008, OPR published a technical advisory on CEQA and climate change. This informal guidance did not include a suggested significance threshold for climate change analysis under CEQA, but instead called on the ARB to make a recommendation on the issue. The technical advisory did note that the analysis of climate change under CEQA should identify the GHG

emissions associated with the project, the relative significance of those emissions, and the mitigation required to eliminate significant impacts.

On December 31, 2009, the CNRA adopted the proposed amendments to the State CEQA Guidelines. These amendments became effective on March 18, 2010.

Senate Bill 375 ("SB 375")

SB 375 finds that GHG from autos and light trucks can be substantially reduced by new vehicle technology, but even so "it will be necessary to achieve significant additional greenhouse gas reductions from changed land use patterns and improved transportation. Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." Therefore, SB 375 requires that regions with metropolitan planning organizations adopt sustainable communities strategies, as part of their regional transportation plans, which are designed to achieve certain goals for the reduction of GHG emissions from mobile sources.

SB 375 also includes CEQA streamlining provisions for "transit priority projects" that are consistent with an adopted sustainable communities strategy. As defined in SB 375, a "transit priority project" shall: (1) contain at least 50 percent residential use, based on total building square footage and, if the project contains between 26 and 50 percent nonresidential uses, a floor area ratio of not less than 0.75; (2) provide a maximum net density of at least 20 dwelling units per acre; and (3) be within 0.5 mile of a major transit stop or high quality transit corridor.

Executive Order S-01-07

Executive Order S-01-07 was enacted by the Governor on January 18, 2007, and mandates that: (1) a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020; and (2) a Low Carbon Fuel Standard ("LCFS") for transportation fuels be established for California. According to the SDCGHGI, the effects of the LCFS would be a 10% reduction in GHG emissions from fuel use by 2020. On April 23, 2009, the ARB adopted regulations to implement the LCFS.

Executive Order S-21-09

Executive Order S-21-09 was enacted by the Governor on September 15, 2009. Executive Order S-21-09 requires that the ARB, under its AB 32 authority, adopt a regulation by July 31, 2010 that sets a 33 percent renewable energy target. Under Executive Order S-21-09, the ARB will work with the Public Utilities Commission and California Energy Commission to encourage the

creation and use of renewable energy sources, and will regulate all California utilities. The ARB will also consult with the Independent System Operator and other load balancing authorities on the impacts on reliability, renewable integration requirements, and interactions with wholesale power markets in carrying out the provisions of the Executive Order. The order requires the ARB to establish highest priority for those resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health.

California Code of Regulations, Title 24

Although not originally intended to reduce GHGs, Title 24 of the California Code of Regulations, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first established in 1978 in response to a legislative mandate to reduce California's energy consumption. However, energy efficient buildings require less electricity, natural gas, and other fuels; because electricity production from fossil fuels and on-site fuel combustion (typically for water heating) results in greenhouse gas emissions, increased energy efficiency results in decreased GHG emissions.

The Title 24 standards are updated periodically to allow for the consideration and possible incorporation of new energy efficiency technologies and methods. The Title 24 standards were last updated in 2008; the 2008 standards became effective on January 1, 2010.

State Standards Addressing Vehicular Emissions

Assembly Bill 1493 ("AB 1493") (Pavley) was enacted on July 22, 2002, and required the ARB to develop and adopt regulations that reduce GHG emitted by passenger vehicles and light duty trucks. Regulations adopted by the ARB would apply to 2009 and later model year vehicles. The ARB estimates that the regulations would reduce GHG emissions from the light duty passenger vehicle fleet by an estimated 18% in 2020 and by 27% in 2030. (AEP, 2007.) Once implemented, and according to the SDCGHGI, emissions from new light-duty vehicles are expected to be reduced in San Diego County by 21 percent by 2020 due to implementation of the Pavley regulations.

The ARB has adopted amendments to the Pavley regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments, approved by the ARB Board on September 24, 2009, are part of California's commitment toward a nation-wide program to reduce new passenger vehicle GHGs from 2012 through 2016, and prepare California to harmonize its rules with the federal rules for passenger vehicles.

3.2.4 THRESHOLDS OF SIGNIFICANCE

3.2.4.1 Air Quality

Appendix G of the CEQA Guidelines provides that the Proposed Project would have a significant environmental impact on air quality if it would:

(a) Conflict with or obstruct implementation of the applicable air quality plan;

(b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

(c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);

(d) Expose sensitive receptors to substantial pollutant concentrations; or,

(e) Create objectionable odors affecting a substantial number of people.

To determine whether the Proposed Project would result in a potentially significant impact under criteria (a) or (b), Project emissions may be evaluated based on the quantitative emission thresholds established by the San Diego APCD. Specifically, as part of its air quality permitting process, the San Diego APCD has established thresholds in Rule 20.2 for the preparation of Air Quality Impact Assessments ("AQIA"). These Rule 20.2 thresholds can be used to determine whether emissions would result in a significant impact to air quality; emissions below the screening-level thresholds would not cause a significant impact. Since the San Diego APCD does not have AQIA thresholds for VOCs, the threshold for VOCs from the City of San Diego's Significance Thresholds will be applied. (City of San Diego, 2007.) The screening thresholds are included in the **Table 3.2-6, Screening-Level Criteria for Air Quality Impacts,** below.

Table 3.2-6
Screening-Level Criteria For Air Quality Impacts

Pollutant	Total Emissions
Construction Emissions	
	Lb. per Day
Respirable Particulate Matter (PM_{10})	100

Table 3.2-6
Screening-Level Criteria For Air Quality Impacts

Pollutant	Total Emissions		
Fine Particulate Matter ($PM_{2.5}$)	100		
Oxides of Nitrogen (NOx)	250		
Oxides of Sulfur (SOx)	250		
Carbon Monoxide (CO)	550		
Volatile Organic Compounds (VOCs)	137		
Operational Emissions			
	Lb. Per Hour	**Lb. per Day**	**Tons per Year**
Respirable Particulate Matter (PM_{10})	---	100	15
Fine Particulate Matter ($PM_{2.5}$)	---	100	15
Oxides of Nitrogen (NOx)	25	250	40
Oxides of Sulfur (SOx)	25	250	40
Carbon Monoxide (CO)	100	550	100
Lead and Lead Compounds	---	3.2	0.6
Volatile Organic Compounds (VOC)	---	137	15

In the event that emissions exceed the thresholds presented in **Table 3.2-6**, modeling would be required to demonstrate that the emissions result in ground-level concentrations below the NAAQS and CAAQS, including appropriate background levels. For nonattainment pollutants in the SDAB (i.e., ozone, with ozone precursors NOx and VOCs, and PM_{10}), if emissions exceed the thresholds shown in **Table 3.2-6**, the Proposed Project may result in a cumulatively considerable net increase in these pollutants, and may have a significant impact on the ambient air quality.

In addition to impacts from criteria pollutants, San Diego APCD Regulation XII establishes acceptable risk levels and emission control requirements for new and modified facilities that may emit TACs. Under Rule 1210, emissions of TACs that result in a cancer risk of 10 in 1 million or less and a health hazard index of one or less would not be required to notify the public of potential health risks. If a project has the potential to result in emissions of any

TAC or HAP that may result in a cancer risk of greater than 10 in 1 million, the project would be deemed to have a potentially significant impact.

With regard to evaluating whether a project would have a significant impact on sensitive receptors, air quality regulators typically define sensitive receptors as schools (Preschool-12th Grade), hospitals, resident care facilities, or day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. Any project that has the potential to directly impact a sensitive receptor located within 1 mile and results in a health risk greater than 10 in 1 million would be deemed to have a potentially significant impact.

San Diego APCD Rule 51 (Public Nuisance) also prohibits emission of any material which causes nuisance to a considerable number of persons or endangers the comfort, health or safety of any person. A project that proposes a use which would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of offsite receptors.

3.2.4.2 Global Climate Change

According to Appendix G of the CEQA Guidelines, as recently amended, the following criteria may be considered to establish the significance of GCC emissions:

Would the project:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

CEQA Guidelines section 15064.4 also advises a lead agency to consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

(1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

(2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

(3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.

As discussed in section 15064.4 of the CEQA Guidelines, determining the significance of greenhouse gas emissions calls for careful judgment by the lead agency, consistent with the provisions in section 15064. Section 15064.4 further provides that a lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to: (i) use a model or methodology to quantify greenhouse gas emissions resulting from a project; and/or (ii) rely on a qualitative analysis or performance based standards.

Consistent with the recent amendments to the CEQA Guidelines, CSU/SDSU, in evaluating the effect of the Proposed Project on global climate change, is utilizing AB 32 -- as the State's only codified reduction mandate -- to inform its judgment. As such, the impacts are assessed by considering whether the Project's GHG emissions would impede achievement of AB 32's reduction mandate.

The ARB estimated BAU emissions for year 2020 by calculating the emissions that would be expected to occur in the absence of any GHG reduction actions.[1] Based on the ARB's analysis that statewide 2020 BAU GHG emissions would be 596 $MMTCO_2e$ and that 1990 emissions were 427 $MMTCO_2e$, a 28.35 percent reduction below BAU conditions is required to achieve the AB 32 reduction mandate. (ARB, 2010.)

In addition, air quality management districts, such as the South Coast Air Quality Management District ("SCAQMD") and Bay Area Air Quality Management District ("BAAQMD"), have proposed significance thresholds based on GHG emission levels. That being said, there is no clear consensus amongst the air districts in the State, as each is pursuing unique thresholds. For example, while the SCAQMD is proposing a significance threshold of 3,000 metric tons of CO_2e emissions for mixed-use projects, such as the Proposed Project, the BAAQMD is proposing a

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[1] Given that the ARB's growth projections were based on 2007 data, prior to implementation of the 2008 Title 24 energy efficiency standards but after adoption of the 2005 Title 24 standards, the business-as-usual projections are based on Title 24 as of 2005. For energy efficiency, therefore, business-as-usual is considered to be the equivalent of the 2005 Title 24 standards.

significance threshold of 1,100 metric tons of CO_2e for projects other than stationary sources. Both the SCAQMD and BAAQMD also are developing performance-based standards, based on per capita or per service population standards. The common, overarching objective of both air districts is to adopt thresholds that facilitate the achievement of AB 32's reduction mandate.

Of note, according to the CNRA, "due to the global nature of GHG emissions and their potential effects, GHG emissions will typically be addressed in a cumulative impacts analysis." (CNRA, 2009.)

3.2.5 AIR QUALITY IMPACT ANALYSIS

3.2.5.1 Air Quality Plan Implementation

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

As discussed below, the ARB mobile source emission and SANDAG growth projections are based on population and vehicle trends and land use plans developed by cities and counties during the development of general plans. Therefore, a project that proposes development that is consistent with the growth anticipated by a general plan is consistent with the RAQS and Attainment Plan. The level of development proposed by the Proposed Project is consistent with the City of San Diego General Plan and, therefore, consistent with the RAQS and Attainment Plan. (See EIR **Section 3.7, Land Use and Planning.**) Accordingly, because the Proposed Project would not conflict with or obstruct implementation of the applicable air quality plan, the Project would not result in potentially significant impacts in this respect.

3.2.5.2 Criteria Pollutant Analysis

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

Would the project expose sensitive receptors to substantial pollutant concentrations?

3.2.5.2.1 Construction-Related Emissions

As discussed in EIR **Section 1.0**, the Proposed Project will be constructed in two phases. Phase I would involve the following construction-related activities:

- Demolition of existing structures at 5178 and 5168 College Avenue, demolition of existing parking lots at 5164 and 5140 College Avenue and parking lot south of Lindo

Paseo, and demolition of additional structures in preparation for construction of student apartments.

- Construction of two mixed-use retail/student housing buildings.
- Construction of a five-story parking structure with 2,000 GSF of retail and 340 parking spaces.

Phase II would involve the following construction-related activities:

- Demolition of additional structures in preparation for construction of student apartments.
- Construction of two mixed-use retail/student housing buildings.
- Construction of student apartments
- Construction of additional underground parking facilities.

Construction-related activities, including soil disturbance dust emissions and combustion pollutants from on-site and off-site construction equipment, would result in the temporary addition of pollutants to the local airshed. These emissions would be quite variable in both time and space, and differ considerably amongst the various construction-related activities. Because of their temporary nature, construction-related emissions often have been considered less than significant. However, a number of current San Diego APCD strategies focus on dust control and on using cleaner off-road equipment to reduce the contribution of construction-related activities to the poor air quality of the region.

Three types of dust emissions may be associated with construction:

- PM_{30}: Large particulates are generated that settle out again rapidly in close proximity to the source. A fraction of the material is small enough to remain suspended in the air semi-indefinitely. The size cut-off for these total suspended particulates ("TSP") is around 30 microns in diameter.
- PM_{10}: A fraction of TSP is small enough to enter deep lung tissue. The size cut-off for particulate matter that is deeply respirable is 10 microns or less and is called PM_{10}. The ambient air quality standard is for PM_{10}. The PM_{10} fraction of TSP is assumed to be around 50 percent.

- $PM_{2.5}$: Fine particulate matter, which is considered particulate matter that is 2.5 microns or less, is called $PM_{2.5}$. Depending on the type of source, $PM_{2.5}$ is a fraction of the PM_{10} emissions ranging from 21 percent to 99 percent. (SCAQMD, 2006.)

Table 3.2-7, Phase I Construction Emissions, and **Table 3.2-8, Phase II Construction Emissions**, present the URBEMIS2007 model results for Phase I and Phase II construction-related activities. Construction-related activities at SDSU would be required to implement fugitive dust control measures during grading, which would include watering the site a minimum of twice daily to control dust, as well as reducing speeds on unpaved surfaces to 15 mph or less, replacing ground cover in disturbed areas quickly, and reducing dust during loading/unloading of dirt and other materials. Also, SDSU would be required to utilize low-VOC paints that would not exceed 100 grams of VOC per liter for interior surfaces and 150 grams of VOC per liter for exterior surfaces, in accordance with the requirements of San Diego APCD Rule 67.0 (addressing architectural coatings). To ensure compliance with all applicable APCD requirements, mitigation is proposed requiring that CSU/SDSU comply with all such requirements.

Tables 3.2-7 and **3.2-8** present an estimate of the maximum daily construction emissions for Phase I and Phase II construction activities, respectively, based on application of those construction-related project design features required by the San Diego APCD.

Table 3.2-7
Phase I Construction Emissions

Construction Project/Phase	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Demolition						
Fugitive Dust	-	-	-	-	11.76	2.45
Off-Road Diesel	1.65	11.52	7.24	0.00	0.85	0.78
On-Road Diesel	0.68	10.20	3.48	0.01	0.44	0.37
Worker Trips	0.05	0.08	1.53	0.00	0.01	0.01
Total	**2.38**	**21.80**	**12.25**	**0.02**	**13.06**	**3.61**
Significance Threshold	137	250	550	250	100	100
Above Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

Table 3.2-7
Phase I Construction Emissions

Construction Project/Phase	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Site Grading						
Fugitive Dust	-	-	-	-	2.13	0.45
Off-Road Diesel	4.61	36.41	20.11	0.00	2.04	1.87
Worker Trips	0.06	0.10	1.78	0.00	0.01	0.01
Total	**4.67**	**36.51**	**21.89**	**0.00**	**4.18**	**2.33**
Significance Threshold	137	250	550	250	100	100
Above Threshold?	***No***	***No***	***No***	***No***	***No***	***No***
Building Construction						
Building Construction Off-Road Diesel	6.59	37.88	23.28	0.00	2.76	2.54
Building Construction Vendor Trips	0.24	3.02	2.46	0.01	0.14	0.12
Building Construction Worker Trips	0.45	0.76	14.08	0.01	0.11	0.06
Total	**7.28**	**41.66**	**39.82**	**0.02**	**3.01**	**2.71**
Significance Threshold	137	250	550	250	100	100
Above Threshold?	***No***	***No***	***No***	***No***	***No***	***No***
Paving - Parking Structure						
Asphalt Offgassing	0.04	-	-	-	-	-
Paving Off-Road Diesel	4.18	30.11	15.54	0.00	2.00	1.84
Paving On-Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00
Paving Worker Trips	0.09	0.15	2.83	0.00	0.02	0.01
Total	**4.32**	**30.37**	**18.41**	**0.00**	**2.02**	**1.85**
Significance Threshold	137	250	550	250	100	100
Above Threshold?	***No***	***No***	***No***	***No***	***No***	***No***
Paving - General						
Asphalt Offgassing	0.03	-	-	-	-	-
Paving Off-Road Diesel	2.34	14.35	8.99	0.00	1.24	1.14
Paving On-Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00
Paving Worker Trips	0.06	0.10	1.89	0.00	0.02	0.01
Total	**2.44**	**14.53**	**10.91**	**0.00**	**1.26**	**1.15**

Table 3.2-7
Phase I Construction Emissions

Construction Project/Phase	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Significance Threshold	137	250	550	250	100	100
Above Threshold?	***No***	***No***	***No***	***No***	***No***	***No***
Architectural Coatings Use						
Architectural Coating Offgassing	32.29	-	-	-	-	-
Architectural Coatings Worker Trips	0.02	0.04	0.78	0.00	0.01	0.00
Total	**32.31**	**0.04**	**0.78**	**0.00**	**0.01**	**0.00**
Significance Threshold	137	250	550	250	100	100
Above Threshold?	***No***	***No***	***No***	***No***	***No***	***No***
Maximum Simultaneous Construction Emissions[1]	**45.82**	**83.88**	**68.15**	**0.03**	**13.06**	**3.61**
Significance Threshold	137	250	550	250	100	100
Above Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

[1]Maximum simultaneous emissions for all pollutants except PM_{10} and $PM_{2.5}$ occur during simultaneous building construction, parking structure construction, parking area construction, and architectural coatings application. Maximum simultaneous emissions of PM_{10} and $PM_{2.5}$ occur during demolition activities.

Table 3.2-8
Phase II Construction Emissions

Construction Project/Phase	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Demolition						
Fugitive Dust	-	-	-	-	48.38	10.06
Off-Road Diesel	1.96	13.52	9.24	0.00	0.91	0.84
On-Road Diesel	2.37	33.10	11.65	0.06	1.46	1.21
Worker Trips	0.07	0.11	2.18	0.00	0.02	0.01
Total	**4.39**	**46.72**	**23.07**	**0.06**	**50.78**	**12.12**
Significance Threshold	137	250	550	250	100	100
Above Threshold?	***No***	***No***	***No***	***No***	***No***	***No***
Site Grading						
Fugitive Dust	-	-	-	-	2.98	0.62
Off-Road Diesel	5.63	43.99	26.16	0.00	2.30	2.12

Table 3.2-8
Phase II Construction Emissions

Construction Project/Phase	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Worker Trips	0.06	0.10	1.97	0.00	0.01	0.01
Total	**5.69**	**44.10**	**28.12**	**0.00**	**5.30**	**2.75**
Significance Threshold	137	250	550	250	100	100
Above Threshold?	***No***	***No***	***No***	***No***	***No***	***No***
Building Construction						
Building Construction Off-Road Diesel	4.36	25.13	16.84	0.00	1.61	1.48
Building Construction Vendor Trips	0.32	3.78	3.34	0.01	0.18	0.15
Building Construction Worker Trips	0.56	0.95	18.13	0.02	0.16	0.05
Total	**5.24**	**29.87**	**38.30**	**0.03**	**1.74**	**1.52**
Significance Threshold	137	250	550	250	100	100
Above Threshold?	***No***	***No***	***No***	***No***	***No***	***No***
Paving - General						
Asphalt Offgassing	0.04	-	-	-	-	-
Paving Off-Road Diesel	2.06	12.89	8.85	0.00	1.06	0.98
Paving On-Road Diesel	0.01	0.09	0.03	0.00	0.00	0.00
Paving Worker Trips	0.05	0.08	1.62	0.00	0.02	0.01
Total	**2.16**	**13.06**	**10.50**	**0.00**	**1.08**	**0.99**
Significance Threshold	137	250	550	250	100	100
Above Threshold?	***No***	***No***	***No***	***No***	***No***	***No***
Architectural Coatings Use						
Architectural Coating Offgassing	48.61	-	-	-	-	-
Architectural Coatings Worker Trips	0.03	0.05	1.01	0.00	0.01	0.01
Total	**48.64**	**0.05**	**1.01**	**0.00**	**0.01**	**0.01**
Significance Threshold	137	250	550	250	100	100
Above Threshold?	***No***	***No***	***No***	***No***	***No***	***No***
Maximum Simultaneous Construction Emissions[1]	**55.60**	**47.62**	**47.76**	**0.06**	**50.78**	**12.12**

Table 3.2-8
Phase II Construction Emissions

Construction Project/Phase	VOC	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$
Significance Threshold	137	250	550	250	100	100
Above Threshold?	***No***	***No***	***No***	***No***	***No***	***No***

[1]Maximum simultaneous emissions for VOC and CO occur during simultaneous building construction, paving, and architectural coatings use. Maximum simultaneous emissions for NOx, SOx, PM_{10} and $PM_{2.5}$ occur during demolition activities

As shown in the **Tables 3.2-7** and **3.2-8**, emissions of all criteria pollutants would be below the significance thresholds; therefore, impacts would be less than significant and no mitigation would be required.

3.2.5.2.2 Operational-Related Emissions

Operational air quality impacts associated with the Proposed Project would include impacts associated with vehicular traffic, as well as area sources such as energy use, landscaping, consumer products use, and architectural coatings use for maintenance purposes. Vehicular traffic levels were obtained from the Traffic Impact Analysis prepared by Linscott Law & Greenspan (June 2010). (See **Appendix 3.12.**) Impacts were estimated using the URBEMIS model, version 9.2.4. Because the URBEMIS model does not contain San Diego-specific emission factors for mobile sources, emissions were calculated based on California statewide averages. The URBEMIS model calculates vehicle emissions based on emission factors from the EMFAC2007 model. The modeling assumed that the first year of full occupancy would be 2013 for Phase I, and 2015 for Phase II. Based on the results of the EMFAC2007 model for subsequent years, emissions would decrease on an annual basis from 2013 onward due to phase-out of higher polluting vehicles and implementation of more stringent emission standards that are taken into account in the EMFAC2007 model. With regards to the Proposed Project's area source emissions, two project design features were considered in the analysis due to their ability to reduce emissions: (1) the LEED Silver rating; and, (2) the use of low-VOC architectural coatings.

Table 3.2-9, Operational Emissions, presents the results of the emission calculations for the Proposed Project's operational-related emissions, and includes consideration of the two emission reduction features listed above, as well as a numerical comparison with the significance criteria. As shown in **Table 3.2-9**, the Proposed Project's emissions would not

exceed the ambient air quality standards; therefore, impacts would be less than significant and mitigation is not required.

Table 3.2-9
Operational Emissions

	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Summer Day, Lbs/day						
Natural Gas Combustion	0.24	3.11	1.61	0.00	0.01	0.01
Landscaping	0.25	0.04	3.09	0.00	0.01	0.01
Consumer Products	19.57	-	-	-	-	-
Architectural Coatings	1.46	-	-	-	-	-
Vehicular Emissions	18.05	20.30	188.29	0.19	33.89	6.57
TOTAL	**39.57**	**23.45**	**192.99**	**0.19**	**33.91**	**6.59**
Significance Screening Criteria	137	250	550	250	100	55
Above Screening Criteria?	*No*	*No*	*No*	*No*	*No*	*No*
Winter Day, Lbs/day						
Natural Gas Combustion	0.24	3.11	1.61	0.00	0.01	0.01
Consumer Products	19.57	-	-	-	-	-
Architectural Coatings	1.46	-	-	-	-	-
Vehicular Emissions	17.00	29.63	202.84	0.17	33.89	6.57
TOTAL	**38.27**	**32.74**	**204.45**	**0.17**	**33.9**	**6.58**
Significance Screening Criteria	137	250	550	250	100	55
Above Screening Criteria?	*No*	*No*	*No*	*No*	*No*	*No*

Carbon Monoxide/Hot Spots Analysis

Projects that generate traffic have the potential to result in CO "hot spots" (i.e., high concentrations of CO at intersections). To evaluate the potential of the Proposed Project to result in CO "hot spots," the procedures in the Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol were used.

The Traffic Impact Analysis identified intersections for the Near-Term and Long-Term scenarios for which project-related traffic, in combination with projected future traffic considering cumulative projects, would cause or contribute to a significant impact. CO "hot spots" may occur for intersections that operate at level of service ("LOS") E or F. Intersections forecast to operate at LOS E or worse in the Near-Term are as follows:

- College Avenue and Eastbound I-8 Ramps (am peak hour)
- College Avenue and Canyon Crest (am and pm peak hours)
- College Avenue and Zura Way (am and pm peak hours)
- College Avenue and Montezuma Road (am and pm peak hours)
- College Avenue and El Cajon Boulevard (pm peak hour)
- Montezuma Road and Campanile Avenue (pm peak hour)

Intersections that were predicted to operate at LOS E or worse in the Long-Term are as follows:

- College Avenue and Eastbound I-8 Ramps (pm peak hour)
- College Avenue and Canyon Crest (am and pm peak hours)
- College Avenue and Zura Way (am and pm peak hours)
- College Avenue and Montezuma Road (am and pm peak hour)
- Montezuma Road and 55th Street (am and pm peak hours)
- Montezuma Road and Campanile Avenue (am and pm peak hours)

As recommended in the Caltrans Protocol, CALINE4 modeling was conducted for the intersections identified above for the Proposed Project plus cumulative traffic scenario. Predicted 1-hour CO concentrations were scaled to evaluate maximum predicted 8-hour CO concentrations using the recommended scaling factor of 0.7 for urban locations.

Inputs to the CALINE4 model were obtained from the Traffic Impact Analysis. As recommended in the Protocol, receptors were located at locations that were approximately 3 meters from the mixing zone, and at a height of 1.8 meters. For conservative purposes, average approach and departure speeds were assumed to be 1 mph, which results in higher CO

emission rates and a conservative estimate of potential impacts. For conservative purposes, emission factors from the EMFAC2007 model for the year 2013 (opening year) were used in the CALINE4 model.

In accordance with the Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol, it also is necessary to estimate future background CO concentrations in the project vicinity to evaluate the potential for CO "hot spots" due to the project. The existing maximum 1-hour and 8-hour background concentrations of CO measured at the San Diego monitoring station for the period 2006 - 2008 (5.3 and 3.27 ppm, respectively) were used to represent future maximum background 1-hour and 8-hour CO concentrations. CO concentrations in the future may be lower as inspection and maintenance programs and more stringent emission controls are placed on vehicles.

Table 3.2-10, CO "Hot Spots" Modeling Results, presents a summary of the predicted CO concentrations for the intersections evaluated for the Near-Term and Long-Term scenarios. As shown, the predicted CO concentrations would be substantially below the 1-hour and 8-hour NAAQS and CAAQS for CO. Therefore, no exceedances of the CO standard are predicted, and the project would not cause or contribute to a violation of the air quality standard for CO.

Table 3.2-10
CO "Hot Spots" Modeling Results

Intersection	Near Term	
Near Term Conditions		
Maximum 1-hour Concentration Plus Background, ppm CAAQS = 20 ppm; NAAQS = 35 ppm; Background 5.3 ppm		
	am	**pm**
College Avenue and EB I-8 Ramps	6.9	N/A
College Avenue and Canyon Crest Drive	6.5	6.6
College Avenue and Zura Way	6.7	6.8
College Avenue and Montezuma Road	6.5	7.0
College Avenue and El Cajon Boulevard	N/A	6.6
Montezuma Road and Campanile Way	N/A	6.3
Maximum 8-hour Concentration Plus Background, ppm CAAQS = 9.0 ppm; NAAQS = 9 ppm; Background 3.27 ppm		
College Avenue and EB I-8 Ramps	4.39	
College Avenue and Canyon Crest Drive	4.18	

Table 3.2-10
CO "Hot Spots" Modeling Results

Intersection	Near Term	
College Avenue and Zura Way	4.32	
College Avenue and Montezuma Road	4.46	
College Avenue and El Cajon Boulevard	4.18	
Montezuma Road and Campanile Way	3.97	
Long Term Conditions		
Maximum 1-hour Concentration Plus Background, ppm CAAQS = 20 ppm; NAAQS = 35 ppm; Background 5.3 ppm		
	am	**pm**
College Avenue and EB I-8 Ramps	N/A	6.0
College Avenue and Canyon Crest Drive	6.0	5.9
College Avenue and Zura Way	5.9	6.0
College Avenue and Montezuma Road	5.8	6.0
Montezuma Road and 55th Street	5.7	5.8
Montezuma Road and Campanile Way	5.6	5.8
Maximum 8-hour Concentration Plus Background, ppm CAAQS = 9.0 ppm; NAAQS = 9 ppm; Background 3.27 ppm		
College Avenue and EB I-8 Ramps	3.76	
College Avenue and Canyon Crest Drive	3.76	
College Avenue and Zura Way	3.76	
College Avenue and Montezuma Road	3.76	
Montezuma Road and 55th Street	3.62	
Montezuma Road and Campanile Way	3.62	

In summary, neither the construction- nor operational-related emissions would violate any air quality standard or contribute substantially to an existing or projected air quality violation, nor would the emissions expose sensitive receptors to substantial pollutant concentrations. As such, the Proposed Project would not result in potentially significant impacts in this regard.

3.2.5.2.3 Odors Impacts Analysis

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

Project construction may result in the emission of minor amounts of odor compounds associated with diesel, heavy-duty equipment exhaust. These compounds would be emitted in various amounts and at various locations during construction. Odors would be highest near the source and quickly dissipate off-site; further, any odors associated with construction would be temporary. With respect to Project buildout, the Proposed Project would entail residential and retail development, and would not include land uses that would be sources of nuisance odors. In summary, the Proposed Project would not create objectionable odors affecting a substantial number of people and, therefore, impacts would be less than significant.

3.2.5.2.4 Toxic Air Contaminant Analysis

Would the project expose sensitive receptors to substantial pollutant concentrations?

Retail uses and residential dwellings are not land uses that would emit substantial amounts of TACs. Minor amounts of truck traffic would be associated with deliveries to the retail uses; however, the truck traffic would be minimal and would not result in the substantial emission of diesel PM. In summary, the Proposed Project would not expose sensitive receptors to substantial concentrations of TACs and, therefore, impacts would be less than significant.

3.2.5.2.5 Cumulative Impacts

Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

To evaluate the potential for cumulative impacts to air quality, past, present and planned projects must be considered. Past and present projects are accounted for in the background ambient air quality data. For the Near-Term scenario, the Traffic Impact Analysis identified approximately 30 future/planned projects in the vicinity of the Proposed Project. For the Long-Term scenario, year 2030 cumulative traffic volumes were forecast using the SANDAG Series 10 model volumes; traffic volumes not already included in the SANDAG model were added to the forecast volumes.

While several projects listed in the Traffic Impact Analysis are located in the immediate vicinity of the Project site, it is unlikely that major construction would occur simultaneously. Further, the construction-related emissions associated with the Proposed Project are substantially below the screening criteria identified in **Table 3.2-6**. Projections of basin-wide emissions from the ARB indicate that construction equipment accounts from 3.24 tons per day of ROG, 21.86 tons per day of NOx, and 1.34 tons per day of PM_{10}. (ARB 2009.) Architectural coatings account for 8.94 tons per day of ROG. Emissions of nonattainment pollutants constitute a small percentage of the overall construction emissions within the SDAB: ROG emissions would be 0.23 percent; NOx emissions would be 0.19 percent; and, PM_{10} would be 1.9 percent. These construction-related emissions would be short-term and would not result in cumulatively considerable impacts to the ambient air quality.

With respect to operational-related emissions, the Proposed Project is consistent with current SANDAG growth forecasts for the area and would not increase student enrollment. Because the Proposed Project would not increase enrollment and is more akin to an infill/redevelopment project, emissions are consistent with the attainment demonstration in the SIP and would not be cumulatively considerable.

3.2.6 GLOBAL CLIMATE CHANGE IMPACT ANALYSIS

GHG emissions associated with the Proposed Project were estimated for four emission sources: (1) construction-related activities; (2) energy use, including electricity and natural gas; (3) energy use for water consumption; and, (4) mobile sources. Emissions were estimated using emission factors from the California Climate Action Registry General Reporting Protocol.

3.2.6.1 Existing On-Site Emissions

The Project site currently is developed with 31 residential dwelling units and approximately 30,000 square feet of retail uses.

The Traffic Impact Analysis indicates that the existing ADT averages 3,113. Emissions from the vehicles making these trips were estimated using the EMFAC 2007 model emission factors, and assume an average trip length of 5.8 miles (based on data for average trip lengths within San Diego County estimated by SANDAG).

Baseline energy use was calculated as a function of kWh per square foot based on average performance for southern California residences and commercial buildings, according to the *California Statewide Residential Appliance Saturation Survey* (CEC, 2004) and *California Commercial*

End-Use Survey (CEC, 2006). The energy use figures in these reports represent current state-wide average uses for all land uses, including those that are compliant with 2005 Title 24 standards. Because the existing buildings were constructed from 1937 through 1991, with most structures constructed in the period from 1940 through 1960 (*Historic Resource Inventory*, see **Appendix 3.3**), it is likely that energy efficiency is lower and that average energy use figures underestimate energy use for the existing buildings on the Project site.

The *California Statewide Residential Appliance Saturation Survey* provided estimated energy use for older homes versus newer homes, which indicated that newer homes used more electricity (7,035 kWh annually versus 5,846 kWh annually for older homes) due to their larger size (2,061 square feet for newer homes, on average, versus 1,448 square feet for older homes). On a per square foot basis, however, older homes used more electricity than newer homes, with a rate of 4.037 kWh/square foot versus 3.413 kWh/square foot for newer homes. For the purpose of estimating electricity use for the existing residential dwellings, the average size of 1,448 square feet was used with an average electricity use of 4.037 kWh/square foot. Natural gas usage rates were reported as 370 therms per year for newer homes and 355 therms per year for older homes, which equates to an average natural gas usage rate of 0.18 therms/square foot for newer homes and 0.25 therms/square foot for older homes. For the purpose of estimating natural gas use for the existing residential dwellings, the average size of 1,448 square feet was used with an average natural gas usage of 0.25 therms/square foot.

Electricity usage rates for the retail space were calculated based on estimated annual rates of 14.06 kilowatt-hours (kWh) per square foot from the *California Commercial End-Use Survey* for retail space. Emissions associated with natural gas usage were calculated based on the CEC's estimated natural gas usage per square foot of 0.5 therms per square foot of retail space per month.

Water and energy use often are closely linked. The provision of potable water consumes energy associated with five stages: (i) conveyance of water from its source; (ii) water treatment; (iii) water distribution; (iv) water end use; and, (v) wastewater treatment. The emissions inventory results presented in this section estimated that delivered water for the Proposed Project would have an embodied energy of 3,519 kWh/acre foot, or 0.0108 kWh/gallon. (Wilkinson and Wolfe 2005.) The estimated water usage of the existing, on-site development is 9,494 gallons per day; therefore, the total existing water usage would be 3,463,310 gallons per year.

Table 3.2-11, Summary of Estimated Existing Operational Greenhouse Gas Emissions, presents the emissions inventory results for the existing, on-site development. As shown, existing CO_2 equivalent emissions are estimated to be 4,060 metric tons per year.

Table 3.2-11
Summary of Estimated Existing Operational Greenhouse Gas Emissions

Emission Source	Annual Emissions (Metric tons/year)			
	CO_2	CH_4	N_2O	CO_2e
Operational Emissions				
Electricity Use	241	0.0018	0.0010	241
Natural Gas Use	138	0.0154	0.0003	138
Water Use	15	0.0001	0.0001	15
Vehicle Emissions	3,575	0.20	0.28	3,666
Global Warming Potential Factor	**1**	**21**	**310**	
CO_2 Equivalent Emissions	3,969	5	87	4,060
TOTAL CO_2 Equivalent Emissions	**4,060**			

3.2.6.2 Project Emissions

3.2.6.2.1 Construction-Related Emissions

Construction-related GHG emissions include emissions from heavy construction equipment, truck traffic, and worker trips. These emissions were estimated for the Proposed Project using the URBEMIS Model, Version 9.2.4, which contains emission factors from the OFFROAD2007 model for heavy construction equipment and EMFAC2007 model for on-road vehicles. **Table 3.2-12, Construction GHG Emissions,** presents the emissions inventory results for the Proposed Project's construction-related activities. As shown, Project construction activities would generate approximately 3,576 metric tons of CO_2 equivalent emissions.

Table 3.2-12
Construction GHG Emissions

Construction Phase	CO_2 Emissions, metric tons
Phase I Construction	1,712
Phase II Construction	1,864
TOTAL	**3,576**

The ARB issued a 7,000 MT draft threshold for industrial projects, such that projects with emissions below that level could be allowed to proceed without mitigation under CEQA. (ARB, 2008b). The Proposed Project's total emissions from construction would be less than the draft significance threshold for industrial projects proposed by the ARB. Because the 7,000 metric ton threshold is proposed for application to industrial projects with continuing emissions, and because the construction emissions associated with the Proposed Project would be temporary and below 7,000 MT, it is reasonable to conclude that the construction-related emissions would not be significant under the ARB's draft significance threshold.

Recent guidance from the SCAQMD also suggests amortizing construction emissions over a 30-year period to account for the contribution of construction emissions over the lifetime of the project. Amortizing the emissions from construction of the Proposed Project over a 30-year period would result in an annual contribution of 119 metric tons of CO_2e.

In summary, because the construction emissions are temporary and would be below the ARB's draft recommended threshold, emissions from construction would be less than significant.

3.2.6.2.2 Operational-Related Emissions

The following discussion evaluates the operational GHG emissions and impacts associated with the Proposed Project.

Energy Use Emissions: As discussed above, baseline energy use was calculated as a function of kWh per square foot based on average performance for southern California residences and commercial buildings compliant with 2005 Title 24 standards. Energy use was calculated based on usage rates from the *California Statewide Residential Appliance Saturation Survey* and *California Commercial End-Use Survey*. The *California Statewide Residential Appliance Saturation Survey*

provided estimated electricity use for newer homes of 7,035 kWh annually, for an average sized home of 2,061 square feet. The student housing proposed for the Plaza Linda Verde Project will average 1,025 square feet. On a per square foot basis, electricity use is estimated at 3.413 kWh/square foot for newer homes based on the survey. On a per square foot basis, natural gas usage rates are 0.18 therms/square foot for newer homes. These values were used to calculate BAU electricity and natural gas usage, based on average residential square footage for the Project of 1,025 square feet. Annual electricity use, therefore, was estimated at 3,498 kWh and annual natural gas usage was estimated at 184.5 therms for BAU conditions.

Electricity usage rates for the retail space were calculated based on estimated annual rates of 14.06 kilowatt-hours per square foot from the *California Commercial End-Use Survey* for retail space. Emissions associated with natural gas usage were calculated based on the CEC's estimated natural gas usage per square foot of 0.5 therms per square foot of retail space per month.

Water Emissions: The emissions inventory results estimated that delivered water for the Proposed Project would have an embodied energy of 3,519 kWh/acre foot, or 0.0108 kWh/gallon. (Wilkinson and Wolfe 2005.) The Proposed Project's water demand is estimated to be 68,050 gallons per day, or 24,838,250 gallons per year.

Mobile Source Emissions: The Traffic Impact Analysis concluded that the total gross projected ADT generated by the Proposed Project would be 5,509. Emissions from vehicles under BAU conditions were calculated using the EMFAC2007 model emission factors; this model does not take into account any of the GHG emission reduction measures proposed by the federal or state government. Emissions were estimated assuming that the average trip length would be 5.8 miles (based on data gathered by SANDAG for San Diego County).

Table 3.2-13, Summary of Estimated BAU Operational Greenhouse Gas Emissions, presents the results of the inventory. As shown, the Proposed Project would generate approximately 8,288 metric tons per year of CO_2 equivalent emissions.

Table 3.2-13
Summary of Estimated BAU Operational Greenhouse Gas Emissions

Emission Source	Annual Emissions (Metric tons/year)			
	CO_2	CH_4	N_2O	CO_2e
Operational Emissions				
Electricity Use	1,062	0.0081	0.0045	1,064
Natural Gas Use	630	0.070	0.0012	632
Water Use	107	0.0008	0.0005	107
Vehicle Emissions	6,326	0.24	0.32	4,286
Global Warming Potential Factor	**1**	**21**	**310**	
CO_2 Equivalent Emissions	8,125	9	154	8,288
TOTAL CO_2 Equivalent Emissions	**8,288**			

3.2.6.2.3 Significance Assessment

Using AB 32 as a benchmark, a 28.35 percent reduction below BAU levels is needed to demonstrate the consistency of the Proposed Project with the emission reduction mandates of AB 32. As further discussed below, the Proposed Project would achieve the needed reduction from BAU levels.

First, SDSU is committed to obtaining a LEED Silver rating for the four mixed-use retail/student housing buildings, two student apartment buildings, and parking facilities. To obtain a LEED rating, a project is assessed and given points on the basis of environmentally responsible features incorporated into the project design. Design features the Proposed Project can implement to receive LEED points towards a Silver rating include:

- Meeting the performance requirements of Energy Star for Homes;
- Designing and installing insulation to minimize heat transfer and thermal bridging;
- Minimizing uncontrolled duct air leakage into and out of conditioned spaces;
- Maximizing the energy performance of windows by installing windows that meet or exceed the window requirements of the Energy Star for Homes standard;

- Designing and installing Efficient Hot Water Distribution systems per the applicable LEED guidelines;

- Installing ENERGY STAR labeled light fixtures or compact fluorescent light bulbs in high-use rooms;

- Installing ENERGY STAR appliances including refrigerators, ceiling fans, dishwashers, and clothes washers; and

- Installing water efficient features associated with water reuse (e.g., rainwater harvesting or graywater reuse systems), irrigation systems (e.g., drip-irrigation, timer-controlled watering devices, and the use of high-efficiency spray nozzles), and indoor water use (e.g., very high-or high-efficiency (low-flow) fixtures and fittings to lavatory faucets, showers, and toilets).

The LEED Silver rating commitment ensures that the Proposed Project would be designed, constructed and operated in a manner that exceeds existing efficiency requirements; these improvements would reduce the Proposed Project's demand for electricity, natural gas and water – all of which would reduce the GHG emissions associated with the project. Moreover, redevelopment of the Project site would result in the development of more energy efficient buildings and structures than currently exist on the Project site.

Relatedly, Energy Star appliances would be used in the Project. According to the EPA and U.S. Department of Energy, Energy Star appliances are 10 to 30 percent more energy efficient than the minimum federal standard for appliances. To account for energy efficiency of Energy Star appliances, as well as accounting for energy efficiency associated with non-plug loads that will be achieved through meeting the California State University's Sustainability and Energy Efficiency Goals, it was assumed that 20 percent less energy (electricity and natural gas) would be used than under BAU conditions. This reduction accounts for the 15 percent improvement over the 2005 Title 24 standards that is attributable to recent implementation of the 2008 Title 24 standards, with an additional 5 percent reduction attributable to meeting LEED Silver certification.

Second, as discussed in the ARB's *Staff Report, California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit* (ARB 2007b), vehicular emissions are the greatest contributor to the statewide GHG emissions inventory and are the necessary subject of future emission reductions. Because the Project applicant does not have direct control over the types of vehicles operated at the Project site or the emission and fuel standards, the effect of federal and state

programs and regulations designed to reduce GHG emission is important. Based on the SDCGHGI, implementation of the federal CAFE standards/Pavley regulations would reduce mobile source emissions in the county by 20 percent; the low carbon fuel standard would reduce mobile source emissions in the county by an additional 10 percent; and, the light/heavy vehicle efficiency and hybridization standards would reduce mobile source emissions in the county by 3 percent. Therefore, emissions from mobile sources may be reduced by as much as 33 percent by 2020 (i.e., the year by which California must reduce its emissions to 1990 levels per AB 32). In this analysis, it was assumed that emissions from vehicles would be reduced by 30 percent to account for reductions in GHG emissions from the federal CAFÉ standards/Pavley regulations and LCFS.

Third, in addition to the energy efficiency and mobile source emissions reductions discussed above, GHG reductions attributable to California's RPS (SB 1078; 2002) are reasonably foreseeable. SB 1078 initially set a target of 20 percent of energy to be sold from renewable sources by the year 2017. The schedule for implementation of the RPS was accelerated in 2006 with the Governor's signing of SB 107, which accelerated the 20 percent RPS goal from 2017 to 2010. On November 17, 2008, the Governor signed Executive Order S-14-08, which requires all retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020. The Governor also signed Executive Order S-21-09 on September 15, 2009, which directs the ARB to implement a regulation consistent with the 2020 33 percent renewable energy target by July 31, 2010.

According to the SDCGHGI, implementation of the 20 percent RPS goal by 2010 would reduce GHG emissions by a further 14 percent from 2006 levels; the inventory estimated that San Diego Gas and Electric was providing 6 percent of its electricity from renewable resource in 2006. To account for the implementation of the 20 percent RPS, a 14 percent reduction in GHG emissions was assumed. While implementation of Executive Order S-21-09 (i.e., the 33 percent RPS) will result in additional GHG reductions of 27 percent below 2006 levels, no additional credit was taken for these reductions because they have not yet been promulgated or adopted by the ARB.

While water conservation measures, Energy Star appliances, and the RPS will reduce GHG emissions associated with water usage, for conservative purposes, no credit was taken for these measures in the calculation of GHG from water consumption.

Table 3.2-14, Summary of Estimated Project Operational Greenhouse Gas Emissions, presents the estimated GHG emissions for the Proposed Project with implementation of the GHG reduction measures summarized above (i.e., LEED Silver rating; federal and state mobile source

regulatory framework; 20 percent RPS). As shown in the table, the Proposed Project's GHG emissions would be 29 percent below BAU conditions and, therefore, are consistent with AB 32. Because Project-related emissions would be consistent with AB 32, impacts would be less than significant.

Additionally, and consistent with CEQA Guidelines section 15064.4, **Table 3.2-14** presents the net increase above existing emission levels associated with the Project site. As shown in the table, the Proposed Project would result in a 1,824 metric tons increase in GHG emissions when compared to existing annual emission levels associated with the Project site. However, because there is no scientific consensus regarding what particular quantity of GHG emissions is "significant" for purposes of CEQA, CSU/SDSU have assessed the Project's emissions relative to AB 32, as discussed above. That being said, it is worth noting that the Proposed Project's net increase in emission levels -- 1,824 metric tons of CO_2e -- is below the SCAQMD's draft significance threshold for mixed-use projects of 3,000 metric tons of CO_2e, and that the inventory for the existing site uses is conservative (such that the difference between the existing and proposed condition may be less than depicted below).

Table 3.2-14
Summary of Estimated Project Operational Greenhouse Gas Emissions

Emission Source	Annual Emissions (Metric tons/year)			
	CO_2	CH_4	N_2O	CO_2e
Operational Emissions				
Electricity Use	731	0.0056	0.0031	732
Natural Gas Use	504	0.0561	0.0010	506
Water Use	107	0.0008	0.0005	107
Vehicle Emissions	4,428	0.25	0.34	4,539
Global Warming Potential Factor	**1**	**21**	**310**	
CO_2 Equivalent Emissions	5,770	7	107	5,884
TOTAL CO_2 Equivalent Emissions, with GHG Reductions	**5,884**			
BAU Emissions	**8,288**			
Percent Reduction Below BAU	**29.0%**			

Table 3.2-14
Summary of Estimated Project Operational Greenhouse Gas Emissions

Emission Source	Annual Emissions (Metric tons/year)			
	CO_2	CH_4	N_2O	CO_2e
Existing Emission Levels on the Project Site	4,060			
Net Increase in Emission Levels	1,824			

3.2.6.2.3 Cumulative Impacts

Under CEQA, the analysis of cumulative impacts is necessarily guided by standards of practicality, feasibility, and reasonableness. (Cal. Code Regs., tit. 14, § 15151.) The question to be considered when undertaking the analysis is whether a project's incremental effects are "cumulatively considerable" (Cal. Code Regs., tit. 14, § 15130, subd. (a)), which requires consideration of whether a project's incremental effects are significant when viewed in connection with the effects of past, present, and probable future projects. (Cal. Code Regs., tit. 14, § 15065, subd. (a)(3).) As discussed above, the Proposed Project would not impede California's achievement of the AB 32-mandated reductions; therefore, the Proposed Project's incremental GHG emissions are not considered "cumulatively considerable" under CEQA and thus cumulative impacts to climate change need not be discussed in detail. (Cal.Code Regs., tit. 14, § 15130.)

3.2.7 MITIGATION MEASURES

As impacts to air quality would be less than significant at a project-specific and cumulative level, no mitigation measures are required. Notwithstanding, to ensure CSU/SDSU compliance with all applicable regulations of the San Diego APCD relating to construction activity emissions, the following mitigation measure is recommended:

AQ-1 Prior to the commencement of Project construction activities, CSU/SDSU, or its designee, shall require that the principal construction contractor comply with all applicable regulations of the San Diego Air Pollution Control District regarding construction-related emissions including, but not limited to, the following:

1. During grading activities, any exposed soil areas shall be watered twice per day. On windy days or when fugitive dust can be observed leaving the project site, additional applications of water shall be applied to maintain a minimum 12 percent moisture content. Under windy conditions where velocities are forecast to exceed 25 miles per hour, all ground disturbing activities shall be halted until the winds are forecast to abate below this threshold.

2. The contractor shall implement dust suppression techniques to prevent fugitive dust from creating a nuisance offsite. These dust suppression techniques shall include the following:

    a. Portions of the construction site to remain inactive longer than a period of three months shall be seeded and watered until grass cover is grown or otherwise stabilized.

    b. All on-site access points shall be paved as soon as feasible or watered periodically or chemically stabilized.

    c. All material transported offsite shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.

    d. The area disturbed by clearing, grading, earthmoving, or excavation operations shall be minimized at all times. A maximum daily grading disturbance area shall be maintained at 8.7 acres or less, if possible and practical.

3. All vehicles on the construction site shall travel at speeds less than 15 miles per hour.

4. All material stockpiles subject to wind erosion during construction activities that will not be utilized within three days, shall be covered with plastic, an alternative cover deemed equivalent to plastic, or sprayed with a nontoxic chemical stabilizer.

5. Where vehicles leave the construction site and enter adjacent public streets, the streets shall be swept daily or washed down at the end of the work day to remove soil tracked onto the paved surface. Any visible

track-out extending for more than fifty (50) feet from the access point shall be swept or washed within thirty (30) minutes of deposition.

6. The construction contractor shall utilize as much as possible pre-coated/natural colored building materials. Water-based or low volatile organic compounds ("VOC") coatings with a reactive organic gases ("ROG") content of 100 grams per liter or less shall be used for interior surfaces and 150 grams of VOC per liter or less for exterior surfaces. Spray equipment with high transfer efficiency, such as the electrostatic spray gun method, or manual coatings application such as paint brush hand roller, trowel, spatula, dauber, rag, or sponge, shall be used to reduce VOC emissions, where practical.

With respect to the operational-related GHG emissions, to ensure that the Proposed Project obtains a LEED Silver rating and that certain assumptions made in the impacts analysis presented in this section are implemented, the following mitigation measure is recommended:

AQ-2 Following project approval, and during the design and construction phases of the Project, CSU/SDSU shall take those steps necessary to ensure that the Plaza Linda Verde project achieves a LEED Silver rating. Included within those project design features incorporated to achieve a LEED Silver rating, CSU/SDSU shall: (i) design, construct and operate the student housing and mixed-use buildings to achieve a minimum five percent exceedance of the 2008 Title 24 energy efficiency standards; and (ii) install Energy Star appliances in the student housing units.

Section 15130, subdivision (c), of the CEQA Guidelines (Cal. Code Regs., tit. 14) acknowledges that "[w]ith some projects, the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis." Global climate change is this type of issue, as the very causes and effects of global climate change are not determined on a local or regional scale. Given the uncertainties in identifying, let alone quantifying, the impact of any single project on global warming and climate change, and the efforts made to design the Proposed Project with sustainable development principles in mind, any further GHG emission reduction strategies are best accomplished through the appropriate state (e.g., the ARB), regional (i.e., the San Diego APCD) and/or local agency (i.e., the City of San Diego).

3.2.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of the recommended mitigation measures, impacts to air quality and global climate change would be less than significant at a project-specific and cumulative level.