5.4 AIR QUALITY

This section describes the regulatory setting and existing air quality conditions in Cambria. Existing conditions regarding air quality were identified through the review and compilation of existing information included in the following documents:

- *Annual Air Quality Report*, San Luis Obispo County Air Pollution Control District, 2006;
- *Clean Air Plan*, San Luis Obispo County Air Pollution Control District, 2001;
- *CEQA Air Quality Handbook*, San Luis Obispo County Air Pollution Control District, April 2003;
- *San Luis Obispo County Code*, San Luis Obispo County*;* and
- *Coastal Zone Land Use Ordinance.*

EXISTING CONDITIONS

REGULATORY SETTING

Air quality control occurs at the federal, State and regional levels. Goals for clean air have been set through the establishment of ambient air quality standards.

Federal Standards and Controls

The principal air quality regulatory mechanism on the Federal level is the Federal Clean Air Act (FCAA) and, in particular, the 1990 amendments to the FCAA and the National Ambient Air Quality Standards (NAAQS) that it establishes. These standards identify levels of air quality for "criteria" pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare. The criteria pollutants are ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2, which is a form of nitrogen oxides [NO_x]), sulfur dioxide (SO_2, which is a form of sulfur oxides [So_x]), particulate matter less than 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$, respectively) and lead (Pb); refer to Table 5.4-1 (National and California Ambient Air Quality Standards). The EPA also has regulatory and enforcement jurisdiction over emission sources beyond State waters (outer continental shelf), and those that are under the exclusive authority of the Federal government, such as aircraft, locomotives, and interstate trucking.

State Standards and Controls

The California Air Resources Board (CARB), a department of the California Environmental Protection Agency (CalEPA), oversees air quality planning and control throughout California. Its responsibility lies with ensuring implementation of regulating emissions from motor vehicles sold in California. It also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish California Ambient Air Quality Standards (CAAQS), and a legal mandate to achieve these standards by the earliest practicable date. These

standards apply to the same criteria pollutants as the FCAA, and also include sulfate, visibility, hydrogen sulfide, and vinyl chloride; refer to Table 5.4-1.

Table 5.4-1
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California[1] Standard[3]	Federal[2] Standards[4]
Ozone (O_3)	1 Hour	0.09 ppm (180 μg/m^3)	NA[5]
	8 Hours	0.07 ppm (137 μg/m^3)	0.08 ppm (157 μg/m^3)
Particulate Matter (PM_{10})	24 Hours	50 μg/m^3	150 μg/m^3
	Annual Arithmetic Mean	20 μg/m^3	NA[7]
Fine Particulate Matter ($PM_{2.5}$)	24 Hours	No Separate State Standard	35 μg/m^3
	Annual Arithmetic Mean	12 μg/m^3	15 μg/m^3
Carbon Monoxide (CO)	8 Hours	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
Nitrogen Dioxide (NO_2)[6]	Annual Arithmetic Mean	0.030 ppm (56 μg/m^3)	0.053 ppm (100 μg/m^3)
	1 Hour	0.18 ppm (338 μg/m^3)	N/A
Lead (Pb)	30 days average	1.5 μg/m^3	N/A
	Calendar Quarter	N/A	1.5 μg/m^3
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	N/A	0.030 ppm (80 μg/m^3)
	24 Hours	0.04 ppm (105 μg/m^3)	0.14 ppm (365 μg/m^3)
	3 Hours	N/A	N/A
	1 Hour	0.25 ppm (655 μg/m^3)	N/A
Visibility-Reducing Particles	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	**No Federal Standards**
Sulfates	24 Hour	25 μg/m^3	
Hydrogen Sulfide	1 Hour	0.03 ppm (42 μg/m^3)	
Vinyl Chloride	24 Hour	0.01 ppm (26 μg/m^3)	

μg/m^3 = micrograms per cubic meter; ppm = parts per million; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; N/A = Not Applicable.

Notes:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, suspended particulate matter-PM_{10} and visibility-reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations. In 1990, CARB identified vinyl chloride as a toxic air contaminant, but determined that there was not sufficient available scientific evidence to support the identification of a threshold exposure level. This action allows the implementation of health-protective control measures at levels below the 0.010 ppm ambient concentration specified in the 1978 standard.
2. National standards (other than ozone, particulate matter and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. EPA also may designate an area as *attainment/unclassifiable*, if: (1) it has monitored air quality data that show that the area has not violated the ozone standard over a three-year period; or (2) there is not enough information to determine the air quality in the area. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3. Concentration is expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
5. The Federal 1-hour ozone standard was revoked on June 15, 2005 in all areas except the 14 8-hour ozone nonattainment Early Action Compact (EAC) areas.
6. The Nitrogen Dioxide ambient air quality standard was amended in February 22, 2007 to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes become effective after the regulatory changes are submitted and approved by the Office of Administrative Law, expected later this year.
7. The Environmental Protection Agency revoked the annual PM_{10} standard in 2006 (effective December 16, 2006).

Source: California Air Resources Board and U.S. Environmental Protection Agency, February 22, 2007.

San Luis Obispo County Plans and Standards

At the County level, the San Luis Obispo County Air Pollution Control District (APCD) shares responsibility with CARB for ensuring that all State and federal ambient air quality standards are attained within the county. The APCD develops emission standards for the county, issues air pollution permits and requires emission controls for stationary sources in the county.

SAN LUIS OBISPO COUNTY CLEAN AIR PLAN, 2001

The 2001 Clean Air Plan (CAP) is the third update to the 1991 CAP adopted by the APCD Board in 1992. The 1991 CAP contained a comprehensive stet of control measures designed to reduce ozone precursor emissions from a wide variety of stationary and mobile sources. The 1995 CAP was an extensive update to the 1991 CAP, but with fewer control strategies recommended for adoption in response to changes in state law. The 2001 CAP, is primarily a continuation of the 1995 CAP and proposes no new control measures for adoption. The following policies and programs promote the CAP goals of reducing growth of vehicle trips and miles traveled.

- *Planning Compact Communities*. Compact communities are more convenient for alternative forms of transportation, including walking, cycling or public transit. Urban growth should be concentrated within urban reserve lines, and rural areas should remain at very low densities.

- *Providing for Mixed Land Use*. Mixed uses within a neighborhood encourage easier access to places of employment and to purchase household necessities. This should encourage less dependence on car trips.

- *Balancing Jobs and Housing*. Cities and Counties should encourage a better balance of job and housing supplies so as to limit number and length of car trips.

- *Increase Transit Use*. Local planning agencies should encourage transit use by planning neighborhoods and commercial centers to allow for convenient access to and use of local and regional transit systems.

- *Promoting Bicycling and Walking*. Planning for existing and new residential and commercial areas should include a safe and interconnected system of bike lanes and paths, sidewalks and pedestrian trails to ensure bicycle and pedestrian safety.

- *Managing Traffic Flow*. Local planning agencies and Caltrans should design and phase roadway improvements to accommodate projected traffic volumes without providing excess capacity, which would dilute incentives to transit use and ridesharing. Street connections should be logical in order to provide efficient neighborhood circulation and reduce vehicle travel.

- *Communication, Coordination and Monitoring*. Local jurisdictions, the APCD and the Council of Governments should coordinate actions and cooperate in pursing the implementation of the land use and circulation management programs proposed in the Clean Air Plan.

Global Climate Change Regulatory Programs

Kyoto Protocol. The original Kyoto Protocol was negotiated in December 1997 and came into effect on February 16, 2005. As of December 2006, 169 countries have ratified the agreement with the exception of the United States and Australia. Participating nations are separated into Annex 1 (i.e., industrialized countries) and Non-Annex 1 (i.e., developing countries) countries that have different requirements for greenhouse gas (GHG) reductions. The goal of the Protocol is to achieve overall emissions reduction targets for six GHGs by the period of 2008 to 2012. The six GHGs regulated under the Protocol are carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, Hydrofluorocarbons, and Perfluorocarbons. Each nation has an emissions reduction target for which they must reduce GHG emissions a certain percentage below 1990 levels (e.g., eight percent reduction for the European Union, six percent reduction for Japan). The average reduction target for nations participating in the Kyoto Protocol is approximately five percent below 1990 levels. Although the United States has not ratified the Protocol, it has established an 18 percent reduction in GHG emissions intensity by 2012. GHG intensity is the ratio of GHG emissions to economic output (i.e., gross domestic product).

Assembly Bill 1493. In a response to the transportation sector accounting for more than half of California's carbon dioxide (CO_2) emissions, Assembly Bill 1493 (Assembly Bill 1493, Pavley) was enacted on July 22, 2002. Assembly Bill 1493 required the CARB to set GHG emission standards for passenger vehicles, light duty trucks, and other vehicles determined to be vehicles whose primary use is noncommercial personal transportation in the State. The bill required that the CARB set the GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. In setting these standards, the CARB must consider cost effectiveness, technological feasibility, economic impacts, and provide maximum flexibility to manufacturers. The CARB adopted the standards in September 2004. These standards are intended to reduce emissions of carbon dioxide and other GHGs (e.g., nitrous oxide, methane). The new standards would phase in during the 2009 through 2016 model years. When fully phased in, the near term (2009 to 2012) standards would result in about a 22 percent reduction in GHG emissions compared to the emissions from the 2002 fleet, while the midterm (2013 to 2016) standards would result in a reduction of about 30 percent. Some currently used technologies that achieve GHG reductions include small engines with superchargers, continuously variable transmissions, and hybrid electric drive.

Executive Order S-3-05. In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in Executive Order S-3-05. The Executive Order established the following goals: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80 percent below 1990 levels by 2050. The Secretary of the California Environmental Protection Agency (the Secretary) is required to coordinate efforts of various agencies in order to collectively and efficiently reduce GHGs. Some of the agencies involved in the GHG reduction plan include Secretary of Business, Transportation and Housing Agency, Secretary of Department of Food and Agriculture, Secretary of Resources Agency, Chairperson of CARB, Chairperson of the Energy Commission, and the President of the Public Utilities Commission. The Secretary is required to submit a biannual progress report to the Governor and State Legislature disclosing the progress made toward GHG emission reduction targets. In addition, another biannual report must be submitted illustrating the impacts of global warming on California's water supply, public health, agriculture, the coastline and forestry and report possible mitigation and adaptation plans to combat these impacts.

Assembly Bill 32. The Legislature enacted Assembly Bill 32 (Assembly Bill 32, Nuñez), the California Global Warming Solutions Act of 2006, which Governor Schwarzenegger signed on September 27, 2006 to further the goals of Executive Order S-3-05. Assembly Bill 32 represents the first enforceable statewide program to limit GHG emissions from all major industries, with penalties for noncompliance. The CARB has been assigned to carry out and develop the programs and requirements necessary to achieve the goals of Assembly Bill 32. The foremost objective of the CARB is to adopt regulations that require the reporting and verification of statewide GHG emissions. This program would be used to monitor and enforce compliance with the established standards. The first GHG emissions limit is equivalent to the 1990 levels, which are to be achieved by 2020. The CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost effective GHG emission reductions. Assembly Bill 32 allows the CARB to adopt market based compliance mechanisms to meet the specified requirements. Finally, the CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market based compliance mechanism adopted. In order to advise the CARB, it must convene an Environmental Justice Advisory Committee and an Economic and Technology Advancement Advisory Committee. By January 2008, the first deadline for Assembly Bill 32, a statewide cap for 2020 emissions based on 1990 levels must be adopted. The following year (January 2009), the CARB must adopt mandatory reporting rules for significant sources of GHGs and also a plan indicating how reductions in significant GHG sources would be achieved through regulations, market mechanisms, and other actions.

Executive Order S-1-07. On January 18, 2007, California further solidified its dedication to reducing GHGs by setting a new Low Carbon Fuel Standard for transportation fuels sold within the State. Executive Order S-1-07 sets a declining standard for GHG emissions measured in carbon dioxide equivalent gram per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020. The Low Carbon Fuel Standard applies to refiners, blenders, producers and importers of transportation fuels and would use market-based mechanisms to allow these providers to choose how they reduce emissions during the ”fuel cycle” using the most economically feasible methods. The Executive Order requires the Secretary of the California EPA to coordinate with actions of the California Energy Commission, the CARB, the University of California and other agencies to develop a protocol to measure the “life cycle carbon intensity” of transportation fuels. The CARB is anticipated to complete its review of the Low Carbon Fuel Standard protocols no later than June 2007 and implement the regulatory process for the new standard by December 2008.

Senate Bill 97. SB 97 of 2007 requires the California Office of Planning and Research (OPR) to develop CEQA Guidelines for analysis and, if necessary, the mitigation of GHG emissions or the effects of GHG emissions to the Resources Agency by July 1, 2009. These guidelines for analysis and mitigation must address, but are not limited to, GHG emissions effects associated with transportation or energy consumption. Following receipt of these guidelines, the Resources Agency must certify and adopt the guidelines prepared by OPR by January 1, 2010. In his signing statement, Governor Arnold Schwarzenegger noted:

> *Current uncertainty as to what type of analysis of greenhouse gas emissions is required under the California Environmental Quality Act (CEQA) has led to legal claims being asserted which would stop these important infrastructure projects. Litigation under CEQA is not the best approach to reduce greenhouse gas emissions and maintain a*

sound and vibrant economy. To achieve these goals, we need a coordinated policy, not a piecemeal approach dictated by litigation.

The OPR has begun the process of formulating the guidelines called for in SB 97. Part of that effort included a survey of existing climate change analyses performed by various lead agencies under CEQA. OPR's effort revealed many questions surrounding such analyses, including, among others, what is a "new" GHG emission, what is the appropriate baseline for a climate change analysis, and when would emissions become significant under CEQA.

Assembly Bill 946 (Krekorian, 2007). AB 946 of 2007 allows for agencies such as the CCSD to have renewable power sources located separately from their electrical load source.

EXISTING SETTING

This section describes the existing setting regarding air quality and the planning area. Air quality is discussed below in a regional context.

Regional Climate

The Project site falls within the South Central Coast Air Basin (Basin). The area's climate is characterized by mild weather throughout the year due to the moderating influence of the Pacific Ocean. Mild summers with afternoon and early morning fog are typically followed by cool wet winters. The rainy season extends from late November to early April.

TEMPERATURE

The nearest climatic data station to the two communities is the Paso Robles station. However, this station is located on the eastern (inland) side of the Santa Lucia Range and does not receive the cooling sea breezes, fog and other marine influences found on the coast. The nearest coastal weather stations are at Point Piedras Blancas, San Luis Obispo and Big Sur State Park. The minimum average temperature recorded at the San Luis Obispo station from 1950 to 1980 was 41.7 degrees Fahrenheit. The maximum average temperature was 78.7 degrees Fahrenheit in September for the same period. The average annual rainfall recorded from 1950 to 1980 at Big Sur State Park was 40.48 inches and 23.00 inches in San Luis Obispo. It is expected that rainfall within the planning area totals between these two values and rainfall amounts decline in the southern portion of the planning area.

AIRFLOW

Airflow plays an important role in the movement and dispersion of air pollutants in the planning area. The speed and direction of local winds are controlled by the location and strength of the Pacific High pressure system and other global patterns, topographical factors, and circulation patterns resulting from temperature differences between the land and sea.

During the spring and summer, when the Pacific High attains its greatest strength, onshore winds from the northwest generally prevail during the day. As evening approaches, onshore winds die down, and the wind direction reverses with weak winds flowing down the coastal mountains and valleys to form light easterly breezes.

In the fall, onshore surface winds decline and the marine layer grows shallow, allowing an occasional reversal to a weak offshore flow. This, along with the diurnal alternation of land-sea breeze circulation, can sometimes produce a "sloshing" effect. Under such conditions, pollutants may accumulate over the Pacific Ocean and subsequently be carried back onshore with the return of sea breezes.

INVERSIONS

In the atmosphere, air temperatures normally decrease as altitude increases. At varying distances above the earth's surface, however, a reversal of this temperature gradient can occur. Such a condition, which is called an inversion, is simply a warm layer of air over a layer of cooler air. Inversions can have the effect of limiting the vertical dispersion of air pollutants, trapping them near the earth's surface. Several types of inversions are common to the planning area. Weak surface inversions are caused by radiational cooling of air in contact with the cold surface of the earth at night. In valleys and low-lying areas, this condition is intensified by the addition of cold air flowing down from hills and pooling on valley floors. Surface inversions are common throughout the county during winter months, particularly on cold mornings. As the morning sun warms the earth and air near the ground, the inversion lifts, gradually dissipating throughout the day.

During the summer, subsidence inversions can occur when the summertime presence of the Pacific high-pressure cell can cause the air mass aloft to sink. As the air descends, compressional heating warms the air to a higher temperature than the air below. This highly stable atmospheric condition can act as a nearly impenetrable lid to the vertical mixing of pollutants. Subsidence inversions can persist for one or more days, causing air stagnation and the buildup of pollutants.

Monitored Air Quality

Air quality in San Luis Obispo County is currently monitored at ten public agency and private sector monitoring stations located throughout the county. None of these stations is located within the North Coast planning area. The nearest station is in Morro Bay, which monitors ozone, nitrogen dioxide, and PM_{10} levels. The next nearest station is located in Atascadero, which monitors carbon monoxide, nitrogen dioxide, PM_{10} and $PM_{2.5}$. Air quality data from 2002 through 2006 is provided in Table 5.4-2 (Local Air Quality Levels).

Ozone. Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends approximately 10 miles above ground level, where it meets the second layer, the stratosphere. The stratospheric (the "good" ozone layer) extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays.

"Bad" ozone is a photochemical pollutant, and needs volatile organic compounds (VOCs), NO_x, and sunlight to form; therefore, VOCs and NO_x are ozone precursors. VOCs and NO_x are emitted from various sources throughout the County. To reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and a period of several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

Table 5.4-2
Local Air Quality Levels

Pollutant	California Standard	Federal Primary Standard	Year	Maximum[3] Concentration	Days (Samples) State/Federal[3] Std. Exceeded
Ozone (1-hour) [1]	0.09 ppm	NA[4]	2002 2003 2004 2005 2006	0.068 ppm 0.075 0.074 0.073 0.063	0/0 0/0 0/0 0/0 0/0
Ozone (8-hour)[1]	0.07 ppm	0.08 ppm	2002 2003 2004 2005 2006	0.062 ppm 0.062 0.068 0.056 0.069	NA/0 NA/0 NA/0 NA/0 NA/0
Carbon Monoxide (CO) (8-hour)[2]	9.0 ppm for 8 hour	9.0 ppm for 8 hour	2002 2003 2004 2005 2006	2.41 ppm 1.46 1.23 NA NA	0/0 0/0 0/0 0/0 0/0
Nitrogen Dioxide (NO_2)[1]	0.18 ppm for 1 hour	0.053 ppm annual average	2002 2003 2004 2005 2006	0.044 ppm 0.064 0.044 0.047 0.046	0/NA 0/NA 0/NA 0/NA 0/NA
PM_{10}[1,6]	50 μg/m³ for 24 hours	150 μg/m³ for 24 hours35	2002 2003 2004 2005 2006	52.0μg/m 59.0 43.0 45.0 62.0	1/0 0/0 0/0 1/0 1/0
$PM_{2.5}$[2, 5, 6]	No Separate Standard	35 μg/m³ for 24 hours	2002 2003 2004 2005 2006	28.0μg/m 29.2 30.7 29.2 27.2	NA/0 NA/0 NA/0 NA/0 NA/0

ppm = parts per million
μg/m³ = micrograms per cubic meter
NA = not applicable, due to the absence of an applicable threshold
PM_{10} = particulate matter 10 microns in diameter or less
$PM_{2.5}$ = particulate matter 2.5 microns in diameter or less

Notes:
1. The nearest monitoring station is the Morro Bay Monitoring Station located at 899 Morro Bay Boulevard, Morro Bay California 93422.
2. The nearest monitoring station is the Atascadero-Lewis Avenue Monitoring Station located at 6005 Lewis Avenue, Atascadero, California 93422.
3. Maximum concentration is measured over the same period as the California Standards.
4. The Federal standard was revoked in June 2005.
5. PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.
6. PM_{10} exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002.

Source: California Air Resources Board, *ADAM Air Quality Data Statistics*, http://www.arb.ca.gov/adam/welcome.html

While ozone in the upper atmosphere (stratosphere) protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone (in the troposphere) can adversely affect the human respiratory system and other tissues. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems (such as forests and foothill plant communities), agricultural crops, and some man-made materials (such as rubber, paint and plastics). Societal costs from ozone

damage include increased healthcare costs, the loss of human and animal life, accelerated replacement of industrial equipment, and reduced crop yields.

Carbon Monoxide. Carbon monoxide (CO) is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. At high concentrations, CO can reduce the oxygen-carrying capacity of the blood and cause headaches, dizziness, unconsciousness, and death.

The Basin is designated as an attainment area for Federal and State CO standards. State and Federal standards were not exceeded between 2002 and 2006.

Nitrogen Dioxide. Nitrogen oxides (NO_x) are a family of highly reactive gases that are a primary precursor to the formation of ground-level ozone, and react in the atmosphere to form acid rain. NO_2 (often used interchangeably with NO_x) is a reddish-brown gas that can cause breathing difficulties at high levels. Peak readings of NO_2 occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations).

NO_x can irritate and damage the lungs, and lower resistance to respiratory infections such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO_x concentrations much higher than those normally found in the ambient air may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

For NO_x, the Basin is designated as being in attainment under both State and Federal standards. The NO_2 ambient air quality standard was amended on February 22, 2007 to lower the State 1-hour standard to 0.18 ppm and establish a new Federal annual standard of 0.053 ppm. These changes became effective after regulatory changes were submitted and approved by the Office of Administrative Law. From 2002 through 2006, the State standard of 0.18 ppm over one hour was not exceeded at the Morro Bay Monitoring Station.

Coarse Particulate Matter (PM_{10}). PM_{10} refers to suspended particulate matter which is smaller than 10 microns or ten one-millionths of a meter. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate into lungs and can potentially damage the respiratory tract. On June 19, 2003 the CARB adopted amendments to the statewide 24-hour particulate matter standards based upon requirements set forth in the Children's Environmental Health Protection Act (Senate Bill 25).

The State standard for PM_{10} is 50 micrograms per cubic meter ($\mu g/m^3$) averaged over 24 hours; this standard was exceeded 3 days at the Morro Bay Monitoring Station between 2002 and 2006. The Federal standard for PM_{10} is 150 $\mu g/m^3$ averaged over 24 hours; this standard was not exceeded between 2002 and 2006.

Fine Particulate Matter ($PM_{2.5}$). Due to recent increased concerns over health impacts related to fine particulate matter (particulate matter 2.5 microns in diameter or less), both State and Federal $PM_{2.5}$ standards have been created. Particulate matter impacts primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease. In 1997, the

Environmental Protection Agency announced new $PM_{2.5}$ standards. Industry groups challenged the new standard in court and the implementation of the standard was blocked. However, upon appeal by the Environmental Protection Agency, the U.S. Supreme Court reversed this decision and upheld the Environmental Protection Agency's new standards.

On January 5, 2005, the Environmental Protection Agency published a Final Rule in the Federal Register that designates the South Coast Air Basin as a nonattainment area for Federal $PM_{2.5}$ standards. On June 20, 2002, the CARB adopted amendments for statewide annual ambient particulate matter air quality standards. These standards were revised/established due to increasing concerns by the CARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current State standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging.

For $PM_{2.5}$, the Federal standard is 35 $\mu g/m^3$ over 24 hours. At the Atascadero-Lewis Avenue Monitoring Station, there were no exceedances between 2002 and 2006. There is no separate State standard for $PM_{2.5}$.

Sulfur Dioxide and Lead. Sulfur dioxide (SO2) is a colorless, irritating gas with a rotten egg smell; it is formed primarily by the combustion of sulfur-containing fossil fuels. Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Sulfur dioxide is often used interchangeably with sulfur oxides (SO_X) and lead (Pb).

Hydrocarbons: Reactive Organic Gases (ROGs) and Volatile Organic Compound (VOCs). Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases, including reactive organic gases (ROGs) and volatile organic compounds (VOCs). ROGs comprise all hydrocarbons except those exempted by the CARB; therefore, ROGs are a set of organic gases based on State rules and regulations. VOCs are similar to ROGs in that they are all organic gases, but Federal law exempts some ROGs. VOCs are therefore a set of organic gases based on Federal rules and regulations. Both ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).

The health effects of hydrocarbons result from the formation of ozone and its related health effects. High levels of hydrocarbons in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons are considered TACs ("air toxics"). There are no separate health standards for VOCs, although some VOCs are also toxic; an example is benzene, which is both a VOC and a carcinogen.

Global Climate Change Gases. The natural process through which heat is retained in the troposphere is called the "greenhouse effect."[1] The greenhouse effect traps heat in the troposphere through a three fold process as follows: Short wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long wave

[1] The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth's surface to 10 to 12 kilometers.

radiation; and GHGs in the upper atmosphere absorb this long wave radiation and emit this long wave radiation into space and toward the Earth. This "trapping" of the long wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

Without the greenhouse effect, the Earth's average temperature would be approximately 18 degrees Celsius (°C) (0° Fahrenheit [°F]) instead of its present 14°C (57°F). The most abundant GHGs are water vapor and carbon dioxide. Many other trace gases have greater ability to absorb and re-radiate long wave radiation; however, these gases are not as plentiful. For this reason, and to gauge the potency of GHGs, scientists have established a Global Warming Potential (GWP) for each GHG based on its ability to absorb and re-radiate long wave radiation. The GWP of a gas is determined using carbon dioxide as the reference gas with a GWP of 1.

GHGs include, but are not limited to, the following:[2]

- *Water Vapor (H_2O)*. Although water vapor has not received the scrutiny of other GHGs, it is the primary contributor to the greenhouse effect. Natural processes, such as evaporation from oceans and rivers and transpiration from plants, contribute 90 percent and 10 percent of the water vapor in our atmosphere, respectively. The primary human related source of water vapor comes from fuel combustion in motor vehicles; however, this is not believed to contribute a significant amount (less than 1 percent) to atmospheric concentrations of water vapor. The Intergovernmental Panel on Climate Change has not determined a GWP for water vapor.

- *Carbon Dioxide (CO_2)*. Carbon dioxide is primarily generated by fossil fuel combustion in stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources in the past 250 years, the concentration of carbon dioxide in the atmosphere has increased 35 percent.[3] Carbon dioxide is the most widely emitted GHG and is the reference gas (GWP of 1) for determining GWPs for other GHGs. In 2004, 83.8 percent of California's GHG emissions were carbon dioxide.[4]

- *Methane (CH_4)*. Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane come from landfills, natural gas systems, and enteric fermentation. Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The GWP of methane is 21.

- *Nitrous Oxide (N_2O)*. Nitrous oxide is produced by both natural and human related sources. Primary human related sources include agricultural soil management, animal

[2] All Global Warming Potentials are given as 100 year GWP. Unless noted otherwise, all Global Warming Potentials were obtained from the Intergovernmental Panel on Climate Change. Climate Change (Intergovernmental Panel on Climate Change, *Climate Change, The Science of Climate Change – Contribution of Working Group I to the Second Assessment Report of the IPCC*, 1996).

[3] United States Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 to 2004*, April 2006, http://www.epa.gov/climatechange/emissions/usinventoryreport.html.

[4] California Energy Commission, *Inventory of California Greenhouse Gas Emissions and Sinks 1990 to 2004*, December 2006, http://www.energy.ca.gov/2006publications/CEC 600 2006 013/CEC 600 2006 013 SF.PDF.

manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The GWP of nitrous oxide is 310.

- *Hydrofluorocarbons (HFCs)*. HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is growing as the continued phase out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The GWP of HFCs range from 140 for HFC-152a to 6,300 for HFC-236fa.

- *Perfluorocarbons (PFCs)*. Perfluorocarbons are compounds consisting of carbon and fluorine. They are primarily created as a byproduct of aluminum production and semi conductor manufacturing. Perfluorocarbons are potent GHGs with a GWP several thousand times that of carbon dioxide, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years).[5] The GWP of PFCs range from 5,700 to 11,900.

- *Sulfur hexafluoride (SF_6)*. Sulfur hexafluoride is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. Sulfur hexafluoride is the most potent GHG that has been evaluated by the Intergovernmental Panel on Climate Change with a GWP of 23,900. However, its global warming contribution is not as high as the GWP would indicate due to its low mixing ratio compared to carbon dioxide (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm]).[6]

In addition to the six major GHGs discussed above (excluding water vapor), many other compounds have the potential to contribute to the greenhouse effect. Some of these substances were previously identified as stratospheric O_3 depletors; therefore, their gradual phase out is currently in effect. The following is a listing of these compounds:

- *Hydrochlorofluorocarbons (HCFCs)*. HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, all developed countries that adhere to the Montreal Protocol are subject to a consumption cap and gradual phase out of HCFCs. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The GWPs of HCFCs range from 93 for HCFC-123 to 2,000 for HCFC-142b.[7]

- *1,1,1 trichloroethane*. 1,1,1 trichloroethane or methyl chloroform is a solvent and degreasing agent commonly used by manufacturers. In 1992, the Environmental Protection Agency issued a Final Rule (57 FR 33754) scheduling the phase out of methyl chloroform by 2002. Therefore, the threat posed by methyl chloroform as a GHG

[5] Energy Information Administration, *Other Gases: Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride*, October 29, 2001, http://www.eia.doe.gov/oiaf/1605/gg00rpt/other_gases.html.

[6] United States Environmental Protection Agency, *High GWP Gases and Climate Change*, October 19, 2006, http://www.epa.gov/highgwp/scientific.html#sf6.

[7] United States Environmental Protection Agency, *Protection of Stratospheric Ozone: Listing of Global Warming Potential for Ozone Depleting Substances*, November 7, 2006, http://www.epa.gov/fedrgstr/EPA AIR/1996/January/Day 19/pr 372.html.

would diminish. However, the GWP of methyl chloroform is 110 times that of carbon dioxide.[8]

- *Chlorofluorocarbons (CFCs)*. CFCs are used as refrigerants, cleaning solvents, and aerosols spray propellants. CFCs were also part of the Environmental Protection Agency's Final Rule (57 FR 3374) for the phase out of O_3 depleting substances. Currently, CFCs have been replaced by HFCs in cooling systems and a variety of alternatives for cleaning solvents. Nevertheless, CFCs remain suspended in the atmosphere contributing to the greenhouse effect. CFCs are potent GHGs with GWPs ranging from 4,600 for CFC 11 to 14,000 for CFC 13.[9]

- *Ozone*. O_3 occurs naturally in the stratosphere where it is largely responsible for filtering harmful ultraviolet (UV) radiation. In the troposphere, O_3 acts as a GHG by absorbing and re-radiating the infrared energy emitted by the Earth. As a result of the industrial revolution and rising emissions of oxides of nitrogen (NO_X) and volatile organic compounds (VOCs) (O_3 precursors), the concentrations of O_3 in the troposphere have increased. Due to the short life span of O_3 in the troposphere, its concentration and contribution as a greenhouse is not well established. However, the greenhouse effect of tropospheric O_3 is considered small, as the radiative forcing of O_3 is 25 percent of that of carbon dioxide.[10]

Attainment Status

The Basin has been designated as in attainment for nitrogen oxides (NO_x), sulfur oxides (SO_x), and ozone (O_3), for both State and Federal Standards. The Basin is designated non-attainment for particulate matter (PM_{10}) under both Federal and State standards; refer to Table 5.4-3 (South Central Coast Air Basin Ambient Air Quality Classification).

Table 5.4-3
South Central Coast Air Basin Ambient Air Quality Classifications

Pollutant	State	Federal
Ozone (O_3) (1 hour standard)	Non Attainment	Attainment
Ozone (O_3) (8 hour standard)	Non Attainment	Attainment
Particulate Matter <10 microns (PM_{10})	Non-Attainment	Attainment
Carbon Monoxide (CO)	Attainment	Attainment
Nitrogen Oxides (NO_x)	Attainment	Attainment
Sulfur Oxides (SO_x)	Attainment	Attainment
Source: San Luis Obispo County Air Pollution Control District, January 2008.		

[8] United States Environmental Protection Agency, *Protection of Stratospheric Ozone: Listing of Global Warming Potential for Ozone Depleting Substances*, November 7, 2006, http://www.epa.gov/fedrgstr/EPA AIR/1996/January/Day 19/pr 372.html.

[9] United States Environmental Protection Agency, *Class I Ozone Depleting Substances*, March 7, 2006, http://www.epa.gov/ozone/ods.html.

[10] Intergovernmental Panel on Climate Change, Climate Change 2007: The Physical Science Basis, Summary for Policymakers, February 2007.

Sensitive Receptors

Certain land uses are considered particularly sensitive to air pollution. Schools, hospitals, rest homes, long-term medical and mental care facilities, parks, and recreation areas are all considered sensitive receptors.

The Potable Water Distribution System (PWDS) would include improvements to pipelines located within existing right-of-ways (ROW) that extend through residential neighborhoods. In addition, the PWDS improvements would include a new pumping station to replace the existing water yard station off of Rodeo Rounds Road within the property that is immediately south, as well as a new fire pump station along Charing Lane. The Recycled Water Distribution System (RWDS) would involve development of a Hydro-Pneumatic Pumping System at the Santa Lucia Middle School, with pipelines extending north through residential communities and southward to a proposed elementary school. The seawater intake pipeline and seawater concentrate return pipeline would extend between the seawater desalination plant, San Simeon State Park, and the Pacific Ocean.

SIGNIFICANCE CRITERIA

According to Appendix G of the *CEQA Guidelines* (Initial Study Checklist), a project would typically have a significant impact on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).
- Exposes sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people; refer to Section 7.0 (Effects Found Not To Be Significant).

APCD Thresholds of Significance for Construction

Short-term construction emission thresholds for San Luis Obispo County have been set by the APCD on a quarterly basis as follows:

- 2.5 tons per quarter of ROG;
- 2.5 tons per quarter of NO_X; and
- 2.5 tons per quarter of PM_{10}.

APCD Thresholds of Significance for Operation

The APCD has adopted a tiered system for assessing the significance of a project's air quality impact, as shown in Table 5.4-4 (Significance Thresholds for Operational Emissions). When

project emissions of ROG, SO_X, SO_2, and PM_{10} are less than 10 pounds per day (lbs/day) and CO emissions are less than 50 lbs/day, impacts are considered less than significant. If emissions of any of ROG, SO_X, SO_2, or PM_{10} are from 10 to 24 lbs/day, impacts are considered potentially significant and on-site mitigation is recommended. If emissions of ROG, NO_X, SO_2, or PM_{10} cannot be reduced to less than 25 lbs/day or CO emissions cannot be reduced to less than 550 lbs/day, additional measures may be required. If CO emissions exceed 550 lbs/day, CO concentrations should be modeled to determine whether or not the project would cause an exceedance of the Federal or State standard.

Table 5.4-4
Significance Thresholds for Operational Emissions

Pollutant	Significance		
	Less Than Significant	Potentially Significant	Significant
ROG	< 10 lbs/day	10 lbs/day	25 lbs/day
NO_X	< 10 lbs/day	10 lbs/day	25 lbs/day
SO_2	< 10 lbs/day	10 lbs/day	25 lbs/day
PM_{10}	< 10 lbs/day	10 lbs/day	25 lbs/day
CO	<550 lbs/day	NA	550 lbs/day
CO = carbon monoxide; SO_2 = sulfur dioxide; NO_X = nitrogen oxide; lbs/day = pounds per day; PM_{10} = particulate matter; tons/year = tons per year; ROG = reactive organic gasses; and NA = not applicable.			
Source: SLOAPCD, *SLOAPCD CEQA Air Quality Handbook*, April 2003.			

IMPACTS AND MITIGATION MEASURES

SHORT-TERM CONSTRUCTION EMISSIONS

❖ **SHORT-TERM EMISSIONS DURING SITE PREPARATION AND CONSTRUCTION OF THE PROPOSED WATER MASTER PLAN IMPROVEMENTS WOULD RESULT IN AIR QUALITY IMPACTS. ANALYSIS HAS CONCLUDED THAT IMPACTS WOULD BE LESS THAN SIGNIFICANT FOLLOWING COMPLIANCE WITH APCD'S PERMITTING REQUIREMENTS AND IMPLEMENTATION OF THE RECOMMENDED MITIGATION.**

Impact Analysis:

Potable and Recycled Water Distribution Systems

The proposed potable water distribution system would include distribution pipelines, storage reservoirs, and additional upgrades to the existing facilities and systems. The proposed recycled water system would include the addition of advanced treatment at the existing wastewater treatment plant (WWTP), distribution pipelines, and storage reservoirs; refer to Section 3.0 (Project Description) for a detailed description of the proposed Project components. Emissions produced during grading and construction activities are short-term, as they would only occur during the construction phase of the Project. Construction emissions would include the on- and off-site generation of fugitive dust, on-site generation of construction equipment

exhaust emissions, and the off-site generation of mobile source emissions. Typical construction activities would include:

- Clearing, grading, excavating, and using heavy equipment or trucks, which creates fugitive dust, and thus PM_{10};
- Heavy equipment required for grading and construction generates and emits diesel exhaust emissions; and
- The vehicles of commuting construction workers and truck hauling equipment, which generates and emits exhaust emissions.

As the proposed WMP Project is in the programmatic stage, a specific buildout schedule has not yet been developed. As discussed in Section 3.5 (Phasing), funding availability, priorities assigned by the CCSD, and permitting by outside regulatory agencies would influence Project timing. Short-term construction emissions would be dependent upon the specific phasing schedule of each WMP component.

Construction Equipment and Worker Vehicle Exhaust. Exhaust emissions from construction activities include emissions associated with the transport of machinery and supplies to and from a project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to/from the site. Emitted pollutants would include CO, ROG, NO_X, $PM_{2.5}$, and PM_{10}. It is noted that the APCD does not have thresholds of significance for construction related CO emissions. Standard APCD regulations would be adhered to, such as maintaining all construction equipment in proper tune and shutting down equipment when not in use for extended periods of time (refer to Mitigation Measure AQ-1). A less than significant impact would occur in this regard.

ROG Emissions. In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. All architectural coatings for proposed Project structures would comply with APCD Rule 411, *Surface Coating of Metal Parts and Products*, and APCD Rule 433, *Architectural Coatings*. Rule 411 was revised to reduce emissions by requiring the use of VOC compliant coatings, enclosed gun washers or low vapor pressure clean-up solvents, good housekeeping procedures, and other practices, which minimize the evaporation of coatings and solvents.

Fugitive Dust Emissions. Construction activities are a source of fugitive dust ($PM_{2.5}$ and PM_{10}) emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the Project vicinity. Fugitive dust emissions are associated with land clearing, ground excavation, cut and fill operations, and truck travel on unpaved roadways. Dust emissions also vary substantially from day to day, depending on the level of activity, specific operations, and weather conditions.

Fugitive dust from grading and construction is expected to be short-term and would cease following Project completion. Additionally, most of this material is inert silicate, rather than the complex organic particulates released from combustion sources, which are more harmful to health. Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM_{10} (particulate matter smaller than 10 microns) generated as a part of fugitive dust emissions.

As previously discussed, PM_{10} poses a serious health hazard; alone or in combination with other pollutants.

Fine Particulate Matter ($PM_{2.5}$) is mostly produced by mechanical processes. These include automobile tire wear, industrial processes such as cutting and grinding, and re-suspension of particles from the ground or road surfaces by wind and human activities such as construction or agriculture. $PM_{2.5}$ is mostly derived from combustion sources, such as automobiles, trucks, and other vehicle exhaust, as well as from stationary sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gasses such as NO_X and SO_X combining with ammonia. $PM_{2.5}$ components from material in the earth's crust, such as dust, are also present, with the amount varying in different locations.

Mitigation Measure AQ-2 is recommended, which would minimize future fugitive dust impacts to the local area. As a result, fugitive dust emissions would be less than significant.

Odors. Potential odors generated during construction operations would be temporary in nature and are concluded to result in less than significant impacts. Implementation of the recommended mitigation measures would also reduce odor-causing emissions, further minimizing potential impacts in this regard.

Toxic Air Contaminants. Diesel exhaust, which is estimated by the EPA's National Scale Assessment, is composed of either a gas or particulate phase. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, and polycyclic aromatic hydrocarbons. The particulate phase has many different types that can be classified by size or composition. The sizes of diesel particulates of greatest health concern are fine and ultrafine. Fine and ultrafine particles may be composed of elemental carbon with adsorbed compounds such as organics, sulfates, nitrates, metals, and other trace elements. Diesel exhaust is emitted from a broad range of on- and off-road diesel engines. Implementation of Mitigation Measures AQ-1 through AQ-3 would ensure that diesel exhaust impacts would remain below a level of significance.

Water Demand Management

This Project component involves improvements to the current conservation program and regulations, which would not generate construction-related air emissions. No impact to air quality would occur in this regard.

Seawater Desalination

The proposed seawater desalination system would involve development of a reverse osmosis (RO) desalination treatment process facility, which would include subterranean seawater intake and seawater concentrate return systems, pumping facilities, distribution pipelines, and a groundwater blending system; refer to Section 3.0 (Project Description). Appurtenant facilities may also include a solar panel array power system.

A future project-specific EIR/EIS would further discuss potential construction-related air emissions when project-specific information is available. Analysis in the EIR/EIS would include air emission modeling for construction equipment for the earthwork activities, which would include graders, off-highway trucks and tractors, trenchers, boring and drilling rigs, and scrapers. The modeling should assume building and paving equipment including cranes,

construction trucks, tractors, pavers and other paving equipment, trenchers, excavators, and loaders and backhoes. Exhaust emission factors for typical diesel-powered heavy equipment should be based on the latest URBEMIS Computer Model program defaults or current CARB default emission rates. Acknowledging that exhaust emissions would vary substantially from day to day, numerous variables are factored into estimating total construction emissions, which include the level of activity, length of construction period, number of pieces and types of equipment in use, site characteristics, weather conditions, number of construction personnel, and the amount of materials to be transported on-site or off-site.

If the desalination facility's construction-related emissions of ROG, NO_X, and PM_{10} exceed 2.5 tons per quarter, impacts would be significant and Mitigation Measures AQ-1 through AQ-3 would be necessary to reduce impacts to less than significant levels.

Mitigation Measures:

AQ-1 The CCSD shall implement the following Best Available Control Technology (CBACT) for diesel-fueled construction equipment, where feasible:

- Maintain all construction equipment in proper tune according to manufacturer's specifications.
- Fuel all off-road and portable diesel powered equipment, including but not limited to bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, auxiliary power units, with CARB certified motor vehicle diesel fuel (non-taxed version suitable for use off-road).
- Maximize to the extent feasible, the use of diesel construction equipment meeting the CARB's 1996 or newer certification standard for off-road heavy-duty diesel engines.
- Install diesel oxidation catalysts (DOC), catalyzed diesel particulate filters (CDPF) or other District approved emission reduction retrofit devices (the number of catalysts or filters required and the equipment on which they should be installed shall be determined in consultation with APCD).
- Electrify equipment where feasible.
- Develop and implement a Diesel Emission Control Plan (DECP) that describes the diesel emission controls to be used during construction and specifies the use of DOCs and CDPFs, in consultation with APCD prior to the start of construction.
- Substitute gasoline powered for diesel-powered equipment, where feasible.
- Use alternatively fueled construction equipment on-site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel.
- Use equipment that has Caterpillar pre-chamber diesel engines.

AQ-2 The CCSD shall implement the following Dust Control Measures during construction, where feasible:

- Construction truck trips shall be scheduled, to the extent feasible, to occur during non-peak hours.
- The amount of disturbed area shall be minimized and on-site vehicle speeds shall be reduced to 15 mph or less.
- Water trucks or sprinkler systems shall be used in sufficient quantities during construction to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 mph. Reclaimed (nonpotable) water should be used.
- If stockpiling of fill material is involved, soil that is stockpiled for more than two days shall be covered, kept moist, or treated with soil binders daily to prevent dust generation.
- All trucks hauling dirt, sand, soil, or other loose materials are to be covered or should maintain at least two feet of freeboard (minimum vertical distance between top of load and top of trailer).
- Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site.
- Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible.
- Future construction projects subject to the *California Environmental Quality Act* (CEQA) shall address potential diesel particulate matter toxic impacts related to construction activity.

AQ-3 Short-term construction emissions for the proposed desalination system shall be modeled utilizing the most recent URBEMIS or CARB approved model, to determine whether construction emissions would exceed APCD thresholds of 2.5 tons per quarter of ROG, NO_X, and PM_{10} emissions. If emissions exceed the above noted thresholds, mitigation measures shall be required to reduce the emission levels.

Level of Significance: Less Than Significant With Mitigation Incorporated.

LONG-TERM OPERATIONAL EMISSIONS

❖ **LONG-TERM MOBILE AND AREA SOURCE EMISSIONS FROM THE PROPOSED WATER MASTER PLAN IMPROVEMENTS COULD IMPACT AIR QUALITY, POTENTIALLY EXCEEDING AQMD THRESHOLDS FOR CRITERIA POLLUTANTS. ANALYSIS HAS CONCLUDED THAT A LESS THAN SIGNIFICANT IMPACT WOULD OCCUR FOLLOWING COMPLIANCE WITH APCD'S REQUIREMENTS AND IMPLEMENTATION OF THE RECOMMENDED MITIGATION.**

Impact Analysis:

Potable and Recycled Water Distribution Systems

The operation of the potable and recycled water distribution systems would involve activities that would generate area (stationary) and mobile source air emissions. Electricity generation for consumption related to pump station operations would result in stationary source emissions. The vehicle trips associated with facility maintenance employees would result in mobile source emissions. The air quality effects resulting from the proposed pump stations and the Project's maintenance employees are discussed in further detail below.

Stationary Source Emissions. Stationary source long-term air emissions typically involve machinery and equipment, as well as indirect emissions from electricity and natural gas consumption. All water pumps associated with the proposed potable and recycled water distribution systems are anticipated to be electrically powered. Stationary source emissions would result from an increased demand for electrical energy to operate the proposed water pumps. This assumption is based on the supposition that those power plants that would supply electricity to the water pumps would be utilizing fossil fuels. Electric power generating plants are distributed throughout the Western United States and their emissions contribute to the total regional pollutant burden. The proposed pump stations would also require emergency diesel and possibly natural gas-fired back-up generators in case of loss of power.

The water pumps and other mechanical equipment would be subject to compliance with the following listed rules and regulations:

- Rule 417 (Control of Fugitive Emissions of Volatile Organic Compounds) establishes thresholds of unacceptable leak rates for various types of equipment, and requires affected sources to implement a comprehensive inspection and maintenance program to ensure compliance with the thresholds. Periodic reports are submitted by the sources to the APCD describing monitoring activities and measured leak rates. Exemptions are allowed for situations where components are used exclusively for handling natural gas; for handling low volatile or high boiling point fluids; are buried underground; or are used exclusively under negative pressure.

- Rule 431 (Stationary Internal Combustion Engines) limits NO_X and CO emissions from stationary internal combustion engines rated at greater than 50 brake horsepower. This category primarily includes large, heavy-duty general utility reciprocating engines (internal combustion engines, or ICEs). These engines may be either natural gas or diesel fired and generate large quantities of NO_X. Most stationary ICEs are used to generate electric power, to pump gas, oil, water or other fluids, or to compress air for pneumatic machinery. Emission reductions can be achieved through operational modifications such as adjusting the air-fuel ratio, derating engines to limit the power output, and retarding engine timing. Non-selective catalytic reduction, similar to the catalysts used on automobiles, is a very effective control method for natural gas fired, spark-ignited engines.

Because the back-up generators would be used only in the event of an emergency, a significant air quality impact is not anticipated. Also, the emissions associated with the water pumps would be considered less than significant, since the electric power generating plants are required to

stay within the emission limits of their permit. To further lessen potential impacts from the water pumps and back-up generators, compliance with Rules 417 and 431 would be required.

Mobile Source Emissions. Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, VOCs, NO_X, and PM_{10} are all pollutants of regional concern (NO_X and VOCs react with sunlight to form O_3 [photochemical smog], and PM_{10} is readily transported by wind currents). However, CO tends to be a localized pollutant, dispersing rapidly at the source.

Most of the facilities associated with the potable and recycled water distribution systems (i.e., distribution pipelines, reservoirs, pump stations, hydrants, valves, etc.) would be "unmanned," generating only infrequent vehicle trips by maintenance employees. The anticipated general pipeline and interconnection operation and maintenance procedures are:

- Weekly visual inspection of pipeline alignments;
- Mowing within pipeline alignments;
- Grading of access roads, as needed;
- Testing and servicing of blow-off valves, air/vacuum relief valve assemblies as needed;
- Yearly walking of pipeline alignment and inspection of protection system; and
- Pressure testing pipeline, painting pipeline appurtenances, repairing tunnel entrances, and repairing minor leaks in buried pipeline joints or segments (when necessary).

The limited number of maintenance trips to and from the proposed facilities would not result in significant mobile source emissions and would not exceed APCD thresholds. Also, the negligible increase in trips would not cause adverse impacts at study intersections, therefore, a localized CO hotspot analysis is not warranted.

Water Demand Management

This Project component involves improvements to the current conservation program and regulations, which would not generate long-term air emissions. No impact would occur in this regard.

Seawater Desalination

If the desalination facility's operation-related emissions of ROG, NO_X, SO_2, and PM_{10} are less than 10 lbs/day and CO emissions are less than 550 lbs/day, impacts would be less than significant. If emissions of ROG, NO_X, SO_2, or PM_{10} are from 10 to 24 lbs/day, impacts would be potentially significant and on-site mitigation would be recommended. If emissions of ROG, NO_X, SO_2, or PM_{10} cannot be reduced to less than 25 lbs/day or CO emissions cannot be reduced to less than 550 lbs/day, additional measures would be required. If CO emissions would exceed 550 lbs/day, modeling of CO concentrations would be required to determine if the Project would cause an exceedance of the Federal or State standards.

Stationary Source Emissions. Typically, the electrical power source for a seawater desalination plant is an interconnection to the local power grid. The power grid is controlled by a power marketing company, which, in consultation with the California Independent System Operator (Cal ISO), would obtain power from the California power market at the lowest cost possible. A variety of base-, intermediate- and peak-load power generating facilities may produce power for

the proposed seawater desalination plant. Electric power generating plants are distributed throughout the region, and their emissions contribute to the total regional pollution burden. Because the power plants are required to stay within the emission limits of their permit, emissions associated with the proposed desalination plant are not anticipated to be significant.

Emissions from the pumping facilities for the proposed seawater desalination system would be similar to those described for the potable and recycled water distribution systems. Compliance with Rules 417 and 431 would be required to lessen potential impacts from the water pumps and back-up generators.

The equipment would be electrically driven. To offset the power demands, the CCSD is anticipating the use of solar/photovoltaic arrays. The conceptual plan includes an electrical system designed to allow the addition of modules of solar arrays on property owned by the District that is adjacent to the desalination facility. This may include placing the solar panels on supports above the existing percolation ponds or on the adjacent well field property. The recent passage of Assembly Bill (AB) 946 allows for agencies such as the CCSD to have renewable power sources located separately from their electrical load source. This relatively new law allows the CCSD greater flexibility in meeting the GHG reduction goals set by the Governor's Executive Order S-1-07. From the use of renewable power systems, the GHG emissions resulting from new water facilities can be offset. During development of the Water Master Plan, it was assumed that renewable power systems, such as solar arrays, would need to be located on CCSD properties that were contiguous with the power load of the desalination project. With the passage of AB 946, the CCSD would now be able to obtain the same offsets to GHG emissions by using remote solar arrays (in addition to the location described within the Water Master Plan). A future project level EIR/EIS will include an analysis on the use of renewable power systems, including the benefits of AB946 on their location, as a means to address GHG emission concerns and the goals outlined by the Governor's Executive Order S-1-07.

Mobile Source Emissions. The employee, truck delivery, and maintenance trips associated with the proposed seawater desalination system are not anticipated to result in significant mobile source emissions or exceed APCD thresholds.

Through the County's development review process, the seawater desalination system improvements would be evaluated to determine the appropriate permits for authorizing their use and the conditions for their establishment and operation. A future project-specific EIR/EIS would need to further discuss potential long-term air quality impacts from stationary and mobile sources after more details become known regarding the desalination facility.

Mitigation Measures:

AQ-4 The CCSD shall comply with Rule 417 (Control of Fugitive Emissions of Volatile Organic Compounds) regarding requirements for leak rates, and inspection and maintenance programs, and Rule 431 (Stationary Internal Combustion Engines) regarding limitations on NOX and CO emissions from stationary internal combustion engines.

AQ-5 Long-term operational emissions for the proposed desalination system shall be modeled utilizing the most recent URBEMIS computer model or CARB approved model, to determine whether operational emissions would exceed APCD thresholds. If the seawater desalination facility emissions of ROG, NO_X, SO_2, and PM_{10} are less

than 10 pounds per day (lbs/day) and CO emissions are less than 50 lbs/day, impacts shall be considered less than significant and no mitigation measures would be required. If emissions of any of ROG, NO_X, SO_2, or PM_{10} were estimated at 10 to 24 lbs/day, Tier 1 mitigation measures shall be required. If emissions of ROG, NO_X, SO_2, or PM_{10} cannot be reduced to less than 25 lbs/day or CO emissions cannot be reduced to less than 550 lbs/day, Tier 2 and Tier 3 mitigation measures would be required. If CO emissions exceeded 550 lbs/day, CO concentrations shall be modeled to determine whether or not the Project would cause an exceedance of the Federal or State standard.

AQ-6 If the seawater desalination plant has the potential to emit toxic or hazardous air pollutants, the CCSD shall prepare a risk assessment to determine the potential level of risk associated with plant operations. Pursuant to the requirements of California Health and Safety Code Section 42301.6 (AB 3205) and Public Resources Code Section 21151.8, subd. (a)(2), if the Project site is located within 1,000 feet of a school, it shall be referred to the District for review.

AQ-7 If electricity for the seawater desalination plant is not purchased from the power grid, further air quality analysis shall be conducted for on-site engines or pumps that are natural gas or diesel fired.

AQ-8 To meet the GHG reduction goals of Executive Order S-1-07, the project level EIR/EIS for the desalination project shall include an analysis on the use of renewable power sources to offset electrical demands.

Level of Significance: Less Than Significant With Mitigation Incorporated.

AIR QUALITY CONFORMANCE ANALYSIS

- **THE PROPOSED WATER MASTER PLAN IMPROVEMENTS WOULD NOT CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE AQMD, CEQA, FEDERAL CONFORMITY GUIDELINES, SAN LUIS OBISPO COUNTY GENERAL PLAN, OR THE 2004 OZONE ATTAINMENT PLAN. ANALYSIS HAS CONCLUDED THAT A LESS THAN SIGNIFICANT IMPACT WOULD OCCUR IN THIS REGARD.**

Impact Analysis:

Potable and Recycled Water Distribution Systems

The APCD prepared the 2001 CAP that addresses the Basin's attainment of the California and National Ambient Air Quality Standards (CAAQS and NAAQS). Per the APCD, the proposed Project would be consistent with the 2001 CAP, because it would not result in exceedances of the APCD thresholds for short-term and operational activities. In addition, the proposed Project is not a trip-generating use, such as residential or commercial development would be. Once construction of the proposed facilities is completed, Project emissions would be relatively minor. Furthermore, stationary equipment would not significantly increase the ambient air quality and would be subject to ACPD permit requirements. The proposed potable and recycled water system improvements would not conflict with the applicable air quality plans. A less than significant impact would occur in this regard.

Water Demand Management

This Project component involves improvements to the current conservation program and regulations, which would not conflict with the CAP. Overall, the proposed WMP would be responding to the community's basic need for replacement of the lost water supply and attainment of the established reliability criterion goals. The proposed WMP would be providing opportunities for growth that were previously planned, rather than enabling unrestrained development of unplanned and unforeseen uses and services. Implementation of the proposed WMP would not result in an unregulated amount of growth, following compliance with the recommended mitigation and continued compliance with existing County and CCSD adopted growth management policies and established County provisions (i.e., NCAP Standards). No impact would occur in this regard.

Seawater Desalination

As discussed above, consistency with the APCD's CAP is determined on whether short-term and/or long-term emissions exceed the APCD's thresholds. A future project-specific EIR/EIS would need to further discuss the seawater desalination system's consistency with the APCD's thresholds after more details become known regarding the desalination facility. Should the thresholds be exceeded, the seawater desalination project would be deemed inconsistent with the CAP. However, the proposed Project is designed to satisfy existing demands and is not growth inducing; refer to Section 5.13 (Population, Housing, and Growth).

Mitigation Measures: No mitigation measures are recommended.

Level of Significance: Less Than Significant Impact.

CUMULATIVE EMISSIONS

- **THE WATER MASTER PLAN PROJECT, COMBINED WITH FUTURE DEVELOPMENT WITHIN THE NORTH COAST AREA, COULD RESULT IN CUMULATIVELY SIGNIFICANT AIR EMISSIONS. ANALYSIS HAS CONCLUDED THAT A LESS THAN SIGNIFICANT CUMULATIVE IMPACT WOULD OCCUR.**

Impact Analysis:

The South Central Coast Air Basin is currently in nonattainment for PM_{10}. The proposed Project, in combination with other future development identified in the NCAP, could contribute to the degradation of regional air quality. However, the proposed Water Master Plan features are not trip-generating uses, such as residential or commercial development would be. Once construction of the proposed Project is completed, operational emissions would be relatively minor. Furthermore, stationary equipment would be subject to APCD permit requirements and would not significantly increase the ambient air quality. Because the proposed Project would not exceed the APCD thresholds for ozone precursors or PM_{10}, cumulative impacts would be less than significant.

Global Climate Change

California is a substantial contributor of global greenhouse gases, emitting over 400 million tons of CO_2 a year.[11] Climate studies indicate that California is likely to see an increase of three to four degrees Fahrenheit over the next century. Methane is also an important greenhouse gas that potentially contributes to global climate change. Greenhouse gases are global in their effect, which is to increase the earth's ability to absorb heat in the atmosphere. Because primary greenhouse gases have a long lifetime in the atmosphere, accumulate over time, and are generally well-mixed, their impact on the atmosphere is mostly independent of the point of emission.

Climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change could result from:

- Natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun;
- Natural processes within the climate system (e.g., changes in ocean circulation, reduction in sunlight from the addition of greenhouse gases and other gases to the atmosphere from volcanic eruptions); and
- Human activities that change the atmosphere's composition (e.g., through burning fossil fuels) and the land surface (e.g., deforestation, reforestation, urbanization, desertification).

The impact of anthropogenic activities on global climate change is readily apparent in the observational record. For example, surface temperature data shows that 11 of the 12 years from 1995 to 2006 rank among the 12 warmest since 1850, the beginning of the instrumental record for global surface temperature.[12] In addition, the atmospheric water vapor content has increased since at least the 1980s over land, sea, and in the upper atmosphere, consistent with the capacity of warmer air to hold more water vapor; ocean temperatures are warmer to depths of 3,000 feet; and a marked decline has occurred in mountain glaciers and snow pack in both hemispheres, polar ice and ice sheets in both the artic and Antarctic regions.

Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of CO_2, methane, and nitrous oxide from before the start of the industrialization, around 1750, to over 650,000 years ago. For that period, it was found that CO_2 concentrations ranged from 180 ppm to 300 ppm. For the period from around 1750 to the present, global CO_2 concentrations increased from a pre-industrialization period concentration of 280 ppm to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the pre-industrial period range.

[11] California Energy Commission*, Inventory of California Greenhouse Gas Emissions and Sinks:1990 to 2004,* 2006. http://www.energy.ca.gov/global_climate_change/inventory/documents/index.html

[12] Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis, Summary for Policymakers*, February 2007.

The primary effect of global climate change has been a rise in average global tropospheric temperature of 0.2° Celsius per decade, determined from meteorological measurements world wide between 1990 and 2005.[13] Climate change modeling using 2000 emission rates shows that further warming would occur, which would induce further changes in the global climate system during the current century.[14] Changes to the global climate system and ecosystems, and to California would include, but would not be limited to:

- The loss of sea ice and mountain snow pack, resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures;[15]

- Rise in global average sea level primarily due to thermal expansion and melting of glaciers and ice caps, the Greenland and Antarctic ice sheets;[16]

- Changes in weather that includes widespread changes in precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones;[17]

- Decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years;[18]

- Increase in the number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high ozone areas of Los Angeles and the San Joaquin Valley by the end of the 21st century;[19] and

- High potential for erosion of California's coastlines and sea water intrusion into the Delta and levee systems due to the rise in sea level.[20]

Sources of Greenhouse Gases. Levels of several important GHGs have increased by about 25 percent since large-scale industrialization began. During the past 20 years, about three-quarters of human-made carbon dioxide emissions were from burning fossil fuels.[21] Fossil fuel combustion accounts for approximately 98 percent of carbon dioxide emissions from human activity.

The proposed WMP Project involves a Potable and Recycled Water Distribution System, Seawater Desalination, and Water Demand Management. As there is no industry-wide

[13] Ibid.

[14] Ibid.

[15] Ibid.

[16] Ibid.

[17] Ibid.

[18] California Environmental Protection Agency, *Climate Action Team, Climate Action Team Report to Governor Schwarzenegger and the Legislature (Executive Summary)*, March 2006.

[19] Ibid.

[20] Ibid.

[21] United States Department of Energy, *Greenhouse Gases, Climate Changes, and Energy*. http://www.eia.doe.gov/oiaf/1605/ggccebro/chapter1.html.

accepted method to quantify GHGs from projects, and this is a programmatic level document, a project-level analysis would be required to assess and analyze the impacts of GHGs. In addition, the proposed Project would be subject to any regulations developed under Assembly Bill 32 and Senate Bill 97 as determined by the CARB.

Impact Conclusion

Although the issue of global climate change remains a widely accepted theory, the extent of global climate change or the exact contribution from anthropogenic sources is still highly debated. For instance, the following is a sample of the variability in the current global climate change models and world temperature data collection methods that has been documented:

- "Since 1940…data have undergone predominantly a cooling trend…The Greenland ice sheet and coastal regions are not following the current global warming trend" (P. Chylek, et al. 2004, *Global warming and the Greenland ice sheet*, Climatic Change 62, 201-21.).

- "In climate research and modeling [sic], we should recognize that we are dealing with a coupled non-linear chaotic system, and therefore that the long-term prediction of future climate states is not possible" (United Nations Intergovernmental Panel on Climate Change, *Climate Change 2001: The Scientific Basis*. Cambridge, UK: Cambridge University press, 2001, p. 774.).

- "Natural climate variability on long-term scales will continue to be problematic for CO_2 climate change analysis and detection" (United Nations Intergovernmental Panel on Climate Change, *Climate Change 1995: The Science of Climate Change*, p. 330.).

Climate change is a global environmental issue, not just a local environmental issue. GHGs cannot be attributed to a direct health effect like criteria pollutants monitored by the CARB (i.e., carbon monoxide, particulate matter, ozone, nitrogen oxides, and sulfur dioxide). As such, this issue is an emerging area of law and practice and our understanding of climate change is likely to evolve.

Anthropogenic increases in GHGs have been shown to be highly correlated with increases in the surface temperatures on earth. However, the correlation has not been linked to causation. Because the interval of rising temperatures coincides with the time of rapidly increasing GHG emissions, it is tempting to assume that the two phenomena are causally related. Because historical temperature data prior to 1950 are based on relatively few data that are unequally distributed across the globe, it is difficult to make a convincing case. Even if the temperature curves do approximate actual trends, it might be argued that the modest rise in global temperature during the past century falls within the natural variability of the Earth's climate system and would have occurred even if GHG concentrations had not increased.

The uncertainty of the effects of anthropogenic GHG on global climate change is also supported by the scientific literature, from groups such as the National Research Council (NRC), a branch of the National Academy of Sciences (NAS). A report by the NRC included analysis of the uncertainties involved in determining the impact on global climate of land use changes and concluded that the mechanisms involved in land-atmosphere interactions are not well understood, let alone represented in climate models.[22]

[22] National Research Council, *Radiative Forcing of Climate Change: Expanding the Concept and Addressing Uncertainties*, 2005.

Similar conclusions are included in reports issued by the California Department of Water Resources (DWR). For example, the analysis of ice cores has indicated significant periods of cooling and warming over about the past 400,000 years. The DWR acknowledges that the causes of the temperature changes are unknown, although they may be due to changes in solar radiation, the Earth's orbit, the composition of the atmosphere, ocean circulation patterns, and other factors.[23] Average temperatures in the Northern Hemisphere appear to have been relatively stable from about 1000 to the mid-1800s based on temperature proxy records from tree rings, corals, ice cores and historical observations.[24] However, the DWR also notes that there is a significant amount of uncertainty related to proxy temperature records, especially those extending far back into the past.

The American Association of State Climatologists (AASC) noted the difficulties with predicting impacts due to climate change, since climate prediction is difficult as it involves complex, nonlinear interactions among all components of the earth's environmental system.[25] The AASC recognizes that human activities have an influence on the climate system and identifies that activities are not limited to GHG emissions. Other factors that influence the climate system include changing land uses and natural causes, which further complicates the issue of climate prediction.

An Arctic "Report Card" organized by the National Oceanic and Atmospheric Administration (NOAA) was issued by an international team of scientists on October 17, 2007 indicates mixed trends in climate changes.[26] The "report card" shows that some changes are larger and occurring faster than those previously predicted by climate models, while other indicators show some stabilizing. Additionally, although currents are relatively warm around the edges of the Arctic Ocean, the North Pole ocean temperatures are returning to 1990s values.

CEQA requires an agency to engage in forecasting "to the extent that an activity could reasonably be expected under the circumstances. An agency cannot be expected to predict the future course of governmental regulation or exactly what information scientific advances may ultimately reveal" (*CEQA Guidelines* Section 15144, Office of Planning Research commentary, citing the California Supreme Court decision in Laurel Heights Improvement Association v. Regents of the University of California [1988] 47 Cal. 3d 376).

CEQA does not require an agency to evaluate an impact that is "too speculative" provided that the agency identifies the impact, engages in a "thorough investigation" but is "unable to resolve an issue," and then discloses its conclusion that the impact is too speculative for evaluation (*CEQA Guidelines* Section 15145, Office of Planning and Research commentary). Additionally, *CEQA* requires that impacts be evaluated at a level that is "specific enough to permit informed decision making and public participation" with the "production of information sufficient to understand the environmental impacts of the proposed project and to permit a reasonable

[23] California Department of Water Resources, *Progress on Incorporating Climate Change into Management of California's Water Resources*, July 2006.

[24] Intergovernmental Panel on Climate Change, *Climate Change 2001: Synthesis Report. A Contribution of Working Groups I, II, and III to the Third Assessment Report of the Intergovernmental Panel on Climate Change,* 2001.

[25] American Association of State Climatologists, *Policy Statement on Climate Variability and Change*, February 2, 2002. http://www.stateclimate.org/publications/files/aascclimatepolicy.pdf.

[26] American Meteorological Society Atmospheric News, *NOAA Arctic 'Report Card' Shows Continued Climate Changes*, October 17, 2007. http://www.ametsoc.org/amsnews/news.html#noaa.

choice of alternatives so far as environmental aspects are concerned" (*CEQA Guidelines* Section 15146, Office of Planning and Research commentary).

Table 5.4-5 (Applicable Global Climate Change Strategies) provides a list of recommended measures and strategies to help reduce global climate impacts that was provided by CARB and the Climate Action Team. The strategies listed in Table 5.4-5 would directly apply to the proposed Project. Table 5.4-5 provides an analysis of the Project's conformance with the GHG reduction strategies.

Table 5.4-5
Applicable Global Climate Change Strategies

Strategies for Reducing Greenhouse Gas Emission Reduction[1]	Project Conformance
Vehicle Climate Change Standards. AB 1493 (Pavley) required the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the CARB I September 2004.	Following a phase-in period, the majority of the vehicles that access the Project sites would be expected to be in compliance with any vehicle standards that CARB adopts.
Other Light Duty Vehicle Technology. New standards would be adopted to phase in beginning in the year 2017 model year.	Following a phase-in period, the majority of the vehicles that access the Project sites would be expected to be in compliance with any vehicle standards that CARB adopts.
Diesel Anti-Idling. In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.	All vehicles, including diesel trucks accessing the Project sites, would be subject to the CARB measures and would be required to adhere to the 5-minute limit for vehicle idling.
Heavy-Duty Vehicle Emission Reduction Measures. Increased efficiency in the design of heavy-duty vehicles and an education program for the heavy-duty vehicle sector.	These are CARB enforced standards; vehicles that access the project sites that are required to comply with the standards would comply with the strategy.
Water Conservation. The California Public Utilities Commission adopted a Water Action Plan in December 2005. This Water Action Plan includes a number of initiative to encourage water conservation including rate design reform, conservation program investment by water utilities, and partnering with energy utilities	In addition to current conservation efforts, the CCSD would incorporate feasible Water Action Plan initiatives to reduce water usage and promote water conservation.
Water Use Efficiency. Water use efficiency is a strategic investment in the reduction of climate change. Water use efficiency encourages smart use of water to encourage water savings and therefore reduce energy consumption.	The proposed Project would incorporate water use efficiency technologies and energy recovery devices to reduce the amount of water used and recapture lost energy.
Municipal Utility Energy Efficiency Programs. The California Energy Commission and the California Public Utilities Commission are collaborating on additional energy efficiency programs beyond those programs already adopted.	Programs created by the California Energy Commission and California Public Utilities Commission would be implemented to increase energy efficiency.
Urban Best Management Practices. The Department of Water Resources will promote the use of Urban Best Management Practices that are locally cost-effective.	The proposed Project would incorporate Urban Best Management Practices that are cost-effective in the CCSD .
Notes: 1 - Only the applicable strategies for reducing GHG emissions were included.	
Source: California Environmental Protection Agency, *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, March 2006.	

Global Climate Change impacts are influenced by cumulative emissions from human activities in the region, the state, and the world. A reduction in vehicle miles traveled results in a decrease in fuel consumption and a decrease in GHG emissions. Based on an investigation of compliance with local air quality thresholds and resultant future long-term operational impacts,

the proposed Project would still have the potential to result in emissions associated with GHG emissions and global climate change. However, there is significant uncertainty involved in making predictions regarding the extent to which the operations of mixed use developments, such as the proposed project, would affect GHG emissions and global climate change. Therefore, a conclusion on the significance of the environmental impact of climate change cannot be reached. Section 15145 of the *CEQA Guidelines* provides that, if after a thorough investigation a lead agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impacts.

Mitigation Measures: Refer to Mitigation Measures AQ-1 and AQ-8.

Level of Significance: Less Than Significant With Mitigation Incorporated. (As previously stated, a significance determination cannot be made for global climate change impacts).

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Compliance with the APCD's permitting requirements and implementation of the recommended mitigation measures would reduce air quality impacts to a less than significant level. Implementation of the proposed Project would not result in significant air quality impacts.