

**AIR QUALITY
CONSTRAINTS EVALUATION**

**GRASS VALLEY CONTINUING CARE PROPERTY
NEVADA COUNTY, CALIFORNIA**

August 2007

LSA

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TABLE OF CONTENTS

1.0 DESCRIPTION	1
1.1 REGULATORY FRAMEWORK	1
1.2 EXISTING CLIMATE AND AIR QUALITY.....	6
1.3 AIR QUALITY ISSUES	9
1.4 PROJECT CONSTRAINTS ANALYSIS	10

TABLES

Table 1:	Federal and State Ambient Air Quality Standards	2
Table 2:	Health Effects of Air Pollutants.....	3
Table 3:	Northern Sierra Air Quality Management District Attainment Status	7
Table 4:	Ambient Air Quality at the Grass Valley, Nevada County Air Monitoring Station.....	8

1.0 DESCRIPTION

This preliminary air quality constraints analysis has been prepared using methodologies and assumptions recommended by the Northern Sierra Air Quality Management District (NSAQMD) and the *CEQA Guidelines*. In keeping with these guidelines, this report provides an overview of existing air quality conditions in the region and the project area. Ambient standards and the regulatory framework relating to air quality are described below as well as climate, air quality conditions, and typical air pollutant types and sources. It concludes with a discussion of the project constraints analysis with regard to air quality impacts.

1.1 REGULATORY FRAMEWORK

Air quality standards, the regulatory framework, and State and federal attainment status are discussed below.

Air Quality Standards. Both the State and federal governments have established health-based Ambient Air Quality Standards for six air pollutants: carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb), and suspended particulate matter (PM). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

Federal standards include both primary and secondary standards. Primary standards set limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.¹

Additionally, the State of California has established a set of episode criteria for CO, O₃, NO₂, SO₂, and PM. These episode criteria refer to episode levels, ranging from Stage One to Stage Three, representing periods of short-term exposure to air pollutants that actually threaten public health. Health effects are progressively more severe as pollutant levels increase from Stage One to Stage Three.

In addition to criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust.

California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS) for the criteria air pollutants are listed in Table 1. Health effects of these criteria pollutants are described in Table 2.

¹ U.S. Environmental Protection Agency, 2007. Website: www.epa.gov/air/criteria.html. January.

Table 1: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ^a		Federal Standards ^b		
		Concentration ^c	Method ^d	Primary ^{b,e}	Secondary ^{c,f}	Method ^g
Ozone (O ₃)	1-Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	No federal standard	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.07 ppm (137 µg/m ³)		0.08 ppm (157 µg/m ³)		
Respirable Particulate Matter (PM ₁₀)	24-Hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		–		
Fine Particulate Matter (PM _{2.5})	24-Hour	No Separate State Standard		35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15 µg/m ³		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m ³)	Nondispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Nondispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		–		
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.04 ppm (105 mg/m ³)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1-Hour	0.25 ppm (470 µg/m ³)		–		
Lead	30-day average	1.5 µg/m ³	Atomic Absorption	–	–	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m ³	Same as Primary Standard	
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	–	Ultraviolet Fluorescence	0.030 ppm (80 µg/m ³)	–	Spectrophotometry (Pararosaniline Method)
	24-Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)	–	
	3-Hour	–		–	0.5 ppm (1300 µg/m ³)	
	1-Hour	0.25 ppm (655 µg/m ³)		–	–	
Visibility-Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometer - visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24-Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride ^h	24-Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

Source: ARB, 2007.

Footnotes:

- ^a California standards for ozone; carbon monoxide (except Lake Tahoe); sulfur dioxide (1- and 24-hour); nitrogen dioxide; suspended particulate matter, PM₁₀; and visibility-reducing particles are values not to be exceeded. All others are not to be equalled 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.
- ^b 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. The ozone standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 mg/m³ 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. Contact the EPA for further clarification and current federal policies.
- ^c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- ^d Any equivalent procedure that can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
- ^e National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- ^f National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- ^g Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.
- ^h The ARB has identified lead and vinyl chloride as “toxic air contaminants” with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Table 2: Health Effects of Air Pollutants

Pollutant	Health Effects	Examples of Sources
Suspended Particulate Matter (PM _{2.5} and PM ₁₀)	<ul style="list-style-type: none"> • Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility. 	<ul style="list-style-type: none"> • Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.
Ozone (O ₃)	<ul style="list-style-type: none"> • Breathing difficulties • Lung damage 	<ul style="list-style-type: none"> • Formed by chemical reactions of air pollutants in the presence of sunlight; common sources are motor vehicles, industries, and consumer products
Carbon Monoxide (CO)	<ul style="list-style-type: none"> • Chest pain in heart patients • Headaches, nausea • Reduced mental alertness • Death at very high levels 	<ul style="list-style-type: none"> • Any source that burns fuel such as cars, trucks, construction and farming equipment, and residential heaters and stoves
Lead (Pb)	<ul style="list-style-type: none"> • Organ damage • Neurological and reproductive disorders • High blood pressure 	<ul style="list-style-type: none"> • Metals processing • Fuel combustion • Waste disposal
Nitrogen Dioxide (NO ₂)	<ul style="list-style-type: none"> • Lung damage 	<ul style="list-style-type: none"> • See carbon monoxide sources
Toxic Air Contaminants	<ul style="list-style-type: none"> • Cancer • Chronic eye, lung, or skin irritation • Neurological and reproductive disorders 	<ul style="list-style-type: none"> • Cars and trucks, especially diesels • Industrial sources such as chrome platers • Neighborhood businesses such as dry cleaners and service stations • Building materials and products

Source: ARB and EPA, 2005.

Regulatory Agencies and Policies. Air Quality in Nevada County is regulated by local, regional, State and Federal agencies.

Northern Sierra Air Quality Management District. The NSAQMD is the local agency primarily responsible for regulating air pollution emissions from stationary sources (e.g., factories) and indirect sources (e.g., traffic associated with new development), as well as monitoring ambient pollutant concentrations. The NSAQMD is comprised of three contiguous, mountainous, rural counties in northeastern California. Those counties are Plumas, Sierra, and Nevada. The NSAQMD is located within an air shed referred to as the Mountain Counties Air Basin (MCAB). NSAQMD enforces controls on stationary sources of air pollutants through its permit and inspection programs and regulates open burning. The District implements a smoke management program, which includes review and comment on burn plans; field review/inspections of complex burn projects or projects that may impact sensitive, populated areas; permitting; tracking “pile and burn” type timber harvests; investigating complaints; and reporting burn acreage and fuel loading to CARB.

The District reviews development proposals to ensure that air quality impacts are adequately assessed and mitigated in accordance with attainment planning efforts. Planning efforts are focused at preventing air quality degradation and violations of the California and National AAQS.

The proposed project is under jurisdiction of the NSAQMD (District), which regulates air quality according to the standards established in the Clean Air Acts and amendments to those acts. The California Air Resources Board (ARB) and the U.S. Environmental Protection Agency (EPA) regulate direct emissions from motor vehicles.

Federal Clean Air Act. The 1970 Federal Clean Air Act authorized the establishment of national health-based air quality standards and also set deadlines for their attainment. The Federal Clean Air Act Amendments of 1990 changed deadlines for attaining national standards as well as the remedial actions required of areas of the nation that exceed the standards. Under the Clean Air Act, State and local agencies in areas that exceed the national standards are required to develop State Implementation Plans to demonstrate how they will achieve the national standards by specified dates.

The Clean Air Act requires that projects receiving federal funds demonstrate conformity to the approved State Implementation Plan and local air quality attainment plan for the region. The project does not anticipate receiving federal funds.

California Clean Air Act. In 1988, the California Clean Air Act required that all air districts in the State endeavor to achieve and maintain California Ambient Air Quality Standards for carbon monoxide (CO), ozone (O₃), sulfur dioxide (SO₂) and nitrogen dioxide (NO₂) by the earliest practical date. The California Clean Air Act provides districts with authority to regulate indirect sources and mandates that air quality districts focus particular attention on reducing emissions from transportation and area-wide emission sources. Each non-attainment district is required to adopt a plan to achieve a 5 percent annual reduction, averaged over consecutive 3-year periods, in district-wide emissions of each nonattainment pollutant or its precursors. A Clean Air Plan (CAP) shows how a district would reduce emissions to achieve air quality standards. Generally, the State standards for these pollutants are more stringent than the national standards.

County of Nevada. The Nevada County General Plan includes an Air Quality element which contains a number of guiding goals, objectives that would apply to the proposed project. Additional applicable policies related to air quality can be found in the General Plan's Circulation (Policies 4.7, 4.16, 4.25, 4.28, and 4.30), Land Use (Policy 1.17) sections. The County has adopted the following applicable goals, objectives, and policies:

- Goal 14.1: Attain, maintain and ensure high air quality.
- Objective 14.1: Establish land use patterns that minimize impacts on air quality.
- Policy 14.1: Cooperate with NSAQMD, during review of development proposals. As part of the site plan review process, require applicants of all subdivisions, multi-family, commercial and industrial development projects to address cumulative and long-term air quality impacts, and request the District enforce appropriate land use regulations to reduce air pollution.
- Objective 14.2: Implement standards that minimize impacts on and/or restore air quality.
- Policy 14.2: Include the following as part of the Comprehensive Site Development Standards:
 - b. Require all installations of solid fuel-burning devices comply with the current Federal EPA emission standards;
- Policy 14.3: Where it is determined necessary to reduce short-term and long-term cumulative impact, the County shall require all new discretionary projects to offset any pollutant increases. Wherever possible, such offsets shall benefit lower-income housing.
- Policy 14.4: Encourage and cooperate with the NSAQMD, or any successor agency, to:
 - c. Adopt control measures to reduce pollutant emissions from open burning;
 - d. Develop a program to regulate and control fugitive dust emissions from construction projects; and
 - e. Identify and establish visibility standards for air quality in the County.
- Policy 14.5: Encourage and cooperate with the NSAQMD, or any successor agency, to develop and implement a long term monitoring program to quantify air quality in the County. The County shall work with the District to identify areas for monitoring and to develop an implementation program to begin on-site monitoring upon project application where a proposal will result in an increase of more than 25 tons per year of non-attainment pollutants (or precursors). The County will also cooperate with the District in developing a monitoring program for CO emissions at key intersections as a basis for consideration of short- to long-term air quality in the preparation of the County Road Improvement Program.
- Policy 14.6: For new construction, the County shall prohibit the installation of non-EPA certified and non-EPA exempt solid fuel burning devices.
- Policy 14.7: The County shall cooperate with all appropriate agencies and other regional transportation agencies that include surrounding counties to develop programs designed to maximize the participation of employers in employer-operated van pool and/or ride sharing for employees, and mass transit service for both employees and customers.
- Policy 14.7A: The County shall, as part of its development review process, ensure that proposed discretionary developments address the requirements of NSAQMD Rule 226.
- Policy 14.7B: The County shall, as part of its Road Improvement Program, consider the benefits to air quality from the paving of unpaved roads.
- Objective 14.3: Identify regional impacts and coordinate with other agencies to achieve attainment.
- Policy 14.8: Consider adoption of Joint Powers Agreements or similar legal mechanisms with other counties located within Nevada County's regional sphere to comprehensively address regional air quality impacts as a result of development in each County.
(Nevada County, 1996).

Attainment Status. The California Air Resources Board (ARB) is required to designate areas of the State as attainment, nonattainment or unclassified for all State standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the standard for a pollutant in that area. A "nonattainment" designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. An "unclassified" designation signifies that data does not support either an attainment or nonattainment status. The California Clean Air Act divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The U.S. EPA designates areas for O₃, CO, and NO₂ as either “does not meet the primary standards,” or “cannot be classified,” or “better than national standards.” For SO₂, areas are designated as “does not meet the primary standards,” “does not meet the secondary standards,” “cannot be classified” or “better than national standards.” All other areas are designated “unclassified.”

Table 3 provides a summary of the attainment status for the NSAQMD with respect to national and State ambient air quality standards. The District is currently in attainment of the federal air quality standards; however, the western portion of Nevada County has been designated non-attainment for the federal 8-hour ozone standard. The highest ozone values in the region are those recorded in Nevada County. ARB considers that for purposes of the 1-hour ozone standard, Nevada County experiences overwhelming transport from the Sacramento region and contributes only inconsequential emissions on its own.

1.2 EXISTING CLIMATE AND AIR QUALITY

Regional air quality designations, local climate and air quality in the Northern Sierra Air Basin, and air pollution climatology are described in this section.

Regional Air Quality. The project area is located approximately 4 miles north of Auburn on the southern border of Nevada County. The overall air quality in Nevada County is very good. However, there are portions of the County that do not meet State and Federal ambient air quality standards. Regional air quality has improved since the establishment of the NSAQMD. Ambient concentrations of air pollutants and the number of days the region exceeds air quality standards have fallen. Public health benefits, improved visibility, and reduced damage to plants and materials are among the benefits of cleaner air.

Local Climate and Air Quality. Air quality is a function of both local climate and local sources of air pollution. Air quality is the balance of the natural dispersal capacity of the atmosphere and emissions of air pollutants from human uses of the environment.

The proposed project is located in western Nevada County, an area with gentle to steep topography, warm to hot and dry summers, and cool and wet winters. The area is bounded by the central Valley on the west and the Sierra Nevada Mountains to the east. The area has a Mediterranean climate type, with pronounced summer and winter seasonal variation in temperature and precipitation. Most precipitation occurs from late October through early May with winter precipitation falling as rain or snow. Temperature variation is relatively high seasonally, as well as daily. The average annual temperature is 55.4°F with approximately 54 inches of precipitation.² Wind direction tends to be southwesterly. Surface and elevated inversions are common in the late summer and fall. These inversion layers can cause stagnation of airflow, allowing air pollutants to become concentrated. Westerly winds can transport pollutants into the area from the Sacramento Valley and Bay Area. The NSAQMD maintains ambient air quality monitoring stations in Nevada County. The closest monitoring site to the project site is at Linton Drive in Grass Valley. Ozone, particulate matter equal to or less than 10 microns (PM₁₀), and particulate matter less than 2.5 microns (PM_{2.5}) are currently

² Western Regional Climate Center, 2007. <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?cagras+nca>

Table 3: Northern Sierra Air Quality Management District Attainment Status

Pollutant	Averaging Time	California Standards ^a		National Standards ^b	
		Concentration	Attainment Status	Concentration	Attainment Status
Carbon Monoxide (CO)	8-Hour	9 ppm (10 mg/m ³)	Attainment ^c	9 ppm (10 mg/m ³)	Attainment
	1-Hour	20 ppm (23 mg/m ³)	Attainment	35 ppm (40 mg/m ³)	Attainment
Nitrogen Dioxide (NO ₂)	Annual Mean	0.030 ppm (56 µg/m ³)	Attainment	0.053 ppm (100 µg/m ³)	Attainment
	1-Hour	0.18 ppm (338 µg/m ³)	Attainment	Not Applicable	Not Applicable
Ozone (O ₃)	8-Hour	0.07 ppm (137 µg/m ³)	Nonattainment ^d	0.08 ppm	Attainment ^e
	1-Hour	0.09 ppm (180 µg/m ³)	Nonattainment ^d	Not Applicable	Not Applicable ^f
Suspended Particulate Matter (PM ₁₀)	Annual Mean	20 µg/m ³	Nonattainment		
	24-Hour	50 µg/m ³	Nonattainment	150 µg/m ³	Unclassified
Suspended Particulate Matter (PM _{2.5})	Annual Mean	12 µg/m ³	Nonattainment	15 µg/m ³	Attainment
	24-Hour	Not Applicable	Not Applicable	35 µg/m ³	Unclassified
Sulfur Dioxide (SO ₂)	Annual Mean	Not Applicable	Not Applicable	80 µg/m ³ (0.03 ppm)	Attainment
	24-Hour	0.04 ppm (105 µg/m ³)	Attainment	365 µg/m ³ (0.14 ppm)	Attainment
	1-Hour	0.25 ppm (655 µg/m ³)	Attainment	Not Applicable	Not Applicable

^a California standards for O₃, CO (except Lake Tahoe), SO₂ (1-hour and 24-hour), NO₂ and PM₁₀ are values that are not to be exceeded. If the standard is for a 1-hour, 8-hour, or 24-hour average, then some measurements may be excluded. In particular, measurements are excluded that ARB determines would occur less than once per year on average.

^b National standards other than for O₃ and those based on annual averages or annual arithmetic means are not to be exceeded more than once a year. For example, the O₃ standard is attained if, during the most recent 3- year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than 1.

^c Nevada and Sierra Counties are considered unclassified for the state 8-hour CO standard.

^d Only Nevada County is non-attainment for the State 1-hour and 8-hour O₃ standards. Sierra and Plumas are unclassified.

^e Only western Nevada County is non-attainment for the 8-hour National standard.

^f The National 1-hour ozone standard was revoked by U.S. EPA on June 15, 2005.

Lead (Pb) is not listed in the above table because it has been in attainment since the 1980s.

ppm = parts per million

mg/m³ = milligrams per cubic meter

µg/m³ = micrograms per cubic meter

Source: NSAQMD, 2005, and ARB, 2006.

monitored at this monitoring station. The closest monitoring station that records data for carbon monoxide and nitrogen dioxide emissions is located at Sunrise Boulevard in Roseville; while the closest monitoring station for sulfur dioxide emissions is located at North Highlands in Sacramento County.

Pollutant monitoring results for the years 2004 to 2006 (see Table 4) at ambient air quality monitoring stations in the project vicinity indicate that air quality in the project area has generally been good.

Table 4: Ambient Air Quality at the Grass Valley, Nevada County Air Monitoring Station

Pollutant	Standard	2004	2005	2006
Carbon Monoxide (CO) (at Roseville, Placer County air monitoring station)				
Maximum 1 hour concentration (ppm)		2.6	2.0	ND
Number of days exceeded:	State: > 20 ppm	0	0	ND
	Federal: > 35 ppm	0	0	ND
Maximum 8 hour concentration (ppm)		1.9	1.3	ND
Number of days exceeded:	State: 9.0 ppm	0	0	ND
	Federal: 9 ppm	0	0	ND
Ozone (O₃)				
Maximum 1 hour concentration (ppm)		0.126	0.128	0.112
Number of days exceeded:	State: > 0.09 ppm	11	15	19
	Federal: > 0.08 ppm	13	20	25
Maximum 8 hour concentration (ppm)		0.111	0.120	0.105
Number of days exceeded:	State: > 0.07 ppm	ND	ND	ND
	Federal: > 0.08 ppm	13	20	25
Coarse Particulates (PM₁₀)				
Maximum 24 hour concentration (µg/m ³)		37	32	52
Number of days exceeded:	State: > 50 µg/m ³	ND	ND	ND
	Federal: > 150 µg/m ³	0	0	0
Annual arithmetic average concentration (µg/m ³)		11	13	16
Exceeded for the year:	State: > 20 µg/m ³	No	No	No
	Federal: > 50 µg/m ³	No	No	No
Fine Particulates (PM_{2.5})				
Maximum 24 hour concentration (µg/m ³)		17	10	32
Number of days exceeded:	Federal: > 65 µg/m ³	0	0	0
	State: > 12 µg/m ³	No	No	No
Annual arithmetic average concentration (µg/m ³)		4.9	4.7	6.2
Exceeded for the year:	Federal: > 15 µg/m ³	No	No	No
	State: > 12 µg/m ³	No	No	No
Nitrogen Dioxide (NO₂) (at Roseville, Placer County air monitoring station)				
Maximum 1 hour concentration (ppm)		0.067	0.079	0.063
Number of days exceeded:	State: > 0.25 ppm	0	0	0
	Federal: > 0.053 ppm	No	No	No
Annual arithmetic average concentration (ppm)		0.013	0.013	0.013
Exceeded for the year:	Federal: > 0.053 ppm	No	No	No
	State: > 0.25 ppm	No	No	No
Sulfur Dioxide (SO₂) (at North Highlands, Sacramento County air monitoring station)				
Maximum 1 hour concentration (ppm)		0.008	0.010	0.008
Number of days exceeded:	State: > 0.25 ppm	0	0	0
	Federal: > 0.5 ppm	0	0	0
Maximum 3 hour concentration (ppm)		0.006	0.007	0.005
Number of days exceeded:	Federal: > 0.5 ppm	0	0	0
	State: > 0.04 ppm	0	0	0
Maximum 24 hour concentration (ppm)		0.002	0.002	0.003
Number of days exceeded:	Federal: > 0.14 ppm	0	0	0
	State: > 0.04 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.001	0.001	0.001
Exceeded for the year:	Federal: > 0.030 ppm	No	No	No
	State: > 0.04 ppm	No	No	No

Source: ARB and EPA Web sites.

ppm = parts per million

µg/m³ = micrograms per cubic meter

ND = No data. There was insufficient (or no) data to determine the value.

Available data shows that the State and federal standards for PM₁₀, PM_{2.5}, NO₂, and SO₂ were not exceeded in this area during the 3-year period. Although no data was available for CO concentrations at air monitoring stations in the area for the year 2006, there were no recorded State or federal violations for the years 2004 and 2005. However, the State 1-hour O₃ standard was exceeded 11 times in 2004, 15 times in 2005, and 19 times in 2006. For the three year period, the federal 8-hour ozone

standard was exceeded 13, 20, and 25 times respectively at the nearest monitoring station to the project site.

1.3 AIR QUALITY ISSUES

Five key air quality issues related to the proposed project – CO hotspots, vehicle emissions, fugitive dust, odors, and construction equipment exhaust – are described below.

Local Carbon Monoxide Hotspots. Local air quality is most affected by CO emissions from motor vehicles. CO is typically the pollutant of greatest concern because it is created in abundance by motor vehicles and it does not readily disperse into the air. Because CO does not readily disperse, areas of vehicle congestion can create “pockets” of high CO concentration, called “hot spots.” These pockets have the potential to exceed the State 1-hour standard of 20 ppm and/or the 8-hour standard of 9.0 ppm.

While CO transport is limited, it does disperse over time and with distance from the source under normal meteorological conditions. However, under certain meteorological conditions, such as stagnant air or temperature inversions CO concentrations near congested roadways or intersections may reach unhealthful levels affecting local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service or with extremely high traffic volumes. In areas with high ambient background CO concentration, air quality modeling is needed to determine a project’s effect on local CO levels.

Vehicle Emissions. Long-term air emission impacts are those associated with increases in automobile travel within and around the County over time. Mobile source emissions would result from vehicle trips associated with increased vehicular travel. As is true throughout much of the U.S., motor vehicle use is projected to increase substantially in the region. The NSAQMD, local jurisdictions, and other parties responsible for protecting public health and welfare are continually seeking ways of minimizing the air quality impacts of growth and development in order to avoid further exceedances of the standards.

Fugitive Dust. Fugitive dust emissions are generally associated with demolition, land clearing, exposure of soils to the air, and cut and fill operations. Dust generated during construction varies substantially on a project-by-project basis, depending on the level of activity, the specific operations and weather conditions. Construction emissions can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors. There are a number of feasible control measures that can be reasonably implemented to significantly reduce PM₁₀ emissions from construction. The ARB has not yet established methods to calculate emissions of PM_{2.5}.

Odors. Odors are also an important element of local air quality conditions. Specific land uses (e.g., restaurants, landfills, manufacturing plants and agricultural operations) can raise concerns on the part of nearby neighbors. While sources that generate objectionable odors must comply with air quality regulations, the public’s sensitivity to locally produced odors often exceeds local ordinance regulations.

Construction Equipment Exhaust. Construction activities cause combustion emissions from utility engines, heavy-duty construction vehicles, equipment hauling materials to and from construction sites and motor vehicles transporting construction crews. Exhaust emissions from construction activities vary daily as construction activity levels change. The use of construction equipment results in localized exhaust emissions.

1.4 PROJECT CONSTRAINTS ANALYSIS

Based on the ambient air quality in the vicinity of the project site, development on the project site is not expected to expose sensitive receptors to substantial pollutant concentrations.

In the April 2005 document *Air Quality and Land Use Handbook: A Community Health Perspective*, the ARB recommends the avoidance of siting new sensitive receptors within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. The proposed project site is located approximately 2,250 feet east of State Route 49. Other roadways in the project vicinity do not carry high traffic volumes.

The proposed development project would be required to comply with the rules and regulations of the NSAQMD for construction and operational emissions. Regional air quality emission impacts from the proposed project and potential mitigation measures can be identified in a technical air quality analysis as project details become available.

***Representative may sign application if a Letter of Authorization from the owner(s) is provided.**