

The following section describes the impacts of the proposed project on local and regional air quality. This section was prepared using thresholds of significance recommended by the Shasta County Air Quality Management District and describes existing air quality, construction-related impacts, direct and indirect emissions associated with the project, the impacts of these emissions, and mitigation measures warranted to reduce or eliminate any identified significant impacts. Air quality impacts associated with greenhouse gasses and global warming are discussed in Section 7.0, Long Term Implications, of this document. This Air Quality section was based on an air quality analysis performed by AMBIENT Air Quality and Noise Consulting. Air quality modeling output files are included in **Appendix 4.6-1**.

4.6.1 EXISTING SETTING

AIR POLLUTION CLIMATOLOGY

The project area is located in the far northern portion of the Sacramento Valley, which is the northern half of the Central Valley of California. The Sacramento Valley is a broad, flat valley bounded on the west by the Coast Ranges, to the north by the Cascade Range, and to the east by the Sierra Nevada. The winters are generally rainy and mild, with the average mean temperature being 45.2 degrees Fahrenheit (°F). Summers are relatively dry with less than 30 percent daytime humidity. Temperatures in the summer are warm to hot, with an average mean temperature of 90°F. Most rainfall occurs between the months of November and April. Cool winter air masses occasionally result in dense tule fog that can persist for days. Wind direction during the summer months is from the south, while wind direction during the winter is more variable.

The hills and mountains surrounding the Anderson area restrict horizontal airflow in and out of the air basin, acting as a trap. Under summer and autumn inversions and highly stable air masses, pollutants may become trapped due to poor ventilation in the air basin. The warm temperatures and abundant sunshine typical in the Anderson area during the summer are ideal conditions for the formation of photochemical smog. In the winter, shallower radiation inversions that accompany tule fog may serve to contain pollutants near the surface for extended periods of time.

SHASTA COUNTY AIR QUALITY MANAGEMENT DISTRICT

The project is located within the Shasta County Air Quality Management District (SCAQMD), which is part of the Northern Sacramento Valley Air Basin (NSVAB). The District is the local air quality agency responsible for adopting and enforcing controls on stationary sources of air pollutants through its permit and inspection programs. Other District responsibilities include monitoring air quality, regulating agricultural burning, preparation of clean air plans, and responding to air quality complaints from citizens.

The Shasta County Air Quality Management District is one of seven air pollution control districts that make up the NSVAB. The NSVAB consists of Shasta, Tehama, Glen, Butte, Colusa, Yuba and Sutter air pollution control districts. These seven air quality districts work together to employ a regional approach to air pollution control.

Air quality in the area is a function of the criteria pollutants emitted locally, the existing regional ambient air quality, and the meteorological and topographic factors that influence the intrusion of pollutants into the area from sources outside the immediate vicinity.

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AIR POLLUTANTS AND AMBIENT AIR QUALITY STANDARDS

Criteria Pollutants

Federal and State air quality standards have been established for six ambient air pollutants, primarily to protect human health and welfare. The six "criteria air pollutants" for which federal and state ambient air quality standards (AAQS) have been established are ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead (Pb), and suspended particulate matter (PM). The following describes some of the more significant criteria pollutants in Shasta County. A summary of common sources and adverse health effects related to these pollutants is provided in **Table 4.6-1**. Applicable state and federal AAQS are depicted in **Table 4.6-2**.

TABLE 4.6-1
CRITERIA AIR POLLUTANTS SUMMARY OF COMMON SOURCES AND EFFECTS

Pollutant	Major Man-Made Sources	Human Health & Welfare Effects	Control Measures
Particulate Matter (PM) Airborne solid particle and liquid particles Grouped into 2 categories: <i>"Coarse Particles"</i> (PM ₁₀) -from 2.5 to 10 microns in diameter. <i>"Fine Particles"</i> (PM _{2.5}) - less than 2.5 microns in diameter.	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).	Pollution control equipment/ methods and reduction of fuel combustion.
Ozone (O₃) (Smog) A colorless or bluish gas	Formed by a chemical reaction between volatile organic compounds (VOC) and nitrous oxides (NOx) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield. Damages rubber, some textiles and dyes.	Pollution control equipment/ methods; reducing NOx emissions from power plants and industrial combustion sources; introducing low-emission cars and trucks; using "cleaner" gasoline; use of low-VOC solvents.
Sulfur Dioxide (SO₂) A colorless, nonflammable gas	Formed when fuel containing sulfur, such as coal and oil, is burned; when gasoline is extracted from oil; or when metal is extracted from ore. Examples are petroleum refineries, cement manufacturing, metal processing facilities, locomotives, large ships, and fuel combustion in diesel engines.	Respiratory irritant. Aggravates lung and heart problems. In the presence of moisture and oxygen, sulfur dioxide converts to sulfuric acid which can damage marble, iron and steel; damage crops and natural vegetation. Impairs visibility. Precursor to acid rain.	Use of low-sulfur fuels, energy conservation (reduces power plant emissions), and pollution control equipment. Ultra Low Sulfur Diesel is being phased in during 2006 and will be mandatory in 2007.
Carbon Monoxide (CO) An odorless, colorless	Formed when carbon in fuel is not burned	Reduces the ability of blood to deliver oxygen to vital tissues,	Transportation planning, vehicle emission testing

Pollutant	Major Man-Made Sources	Human Health & Welfare Effects	Control Measures
gas.	completely;' a component of motor vehicle exhaust.	effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.	and reduction, efficient combustion techniques, and energy conservation.
Nitrogen Dioxide (NO₂) A reddish-brown gas	Fuel combustion in motor vehicles and industrial sources. Motor vehicles; electric utilities, and other sources that burn fuel.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to global warming, and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.	Exhaust gas recirculation in motor vehicles; reduction of combustion temperatures in industrial sources; energy conservation pollution control equipment.
Lead Metallic element	Metal refineries, smelters, battery manufacturers, iron and steel producers, use of leaded fuels by racing and aircraft industries.	Anemia, high blood pressure, brain and kidney damage, neurological disorders, cancer, lowered IQ. Affects animals, plants, and aquatic ecosystems.	Pollution control equipment/ methods; Use of unleaded fuels.

Source: CARB 2006, CAPCOA 2006

TABLE 4.6-2
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	—	0.09 ppm
	8-Hour	0.08 ppm	0.070 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual Arithmetic Mean	0.053 ppm	0.030 ppm
	1-Hour	—	0.18 ppm
Sulfur Dioxide	Annual Arithmetic Mean	0.03 ppm	—
	24-Hour	0.14 ppm	0.04 ppm
	1-Hour	—	0.25 ppm
PM ₁₀	Annual Arithmetic Mean	—	20 µg/m ³
	24-Hour	150 µg/m ³	50 µg/m ³
PM _{2.5}	Annual Arithmetic Mean	15 µg/m ³	12 µg/m ³
	24-Hour	35 µg/m ³	—
Lead	30-Day Avg.	—	1.5 µg/m ³
	Calendar Quarter.	1.5 µg/m ³	—

ppm = parts per million µg/m³ = Micrograms per Cubic Meter

Source: California Air Resources Board, 2007.

Ozone (O₃)

Ozone (O₃) is the most prevalent of a class of photochemical oxidants formed in the urban atmosphere. The creation of ozone is a result of complex chemical reactions between hydrocarbons and nitrogen oxides in the presence of sunlight. Unlike other pollutants, ozone is not released directly into the atmosphere from any sources. The major sources of nitrogen oxides

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and reactive hydrocarbons, known as ozone precursors, are combustion sources such as factories and automobiles, and evaporation of solvents and fuels. The health effects of ozone are eye irritation and damage to lung tissues. Ozone also damages some materials such as rubber, and may damage plants, crops and marine life. The ozone problem in the NSVAB is further aggravated by the transport of emissions from the metropolitan Sacramento area. Ozone is a seasonal problem, typically occurring during the months from May through October, when there is plenty of sunlight. Within the NSVAB, the primary source of ozone precursors is motor vehicles. Transport of ozone was found to be significant and at times overwhelming (NSVAB, 1997).

Particulate Matter (PM₁₀ and PM_{2.5})

Particulate matter consists of solid and liquid particles of dust, soot, aerosols and other matter, which are small enough to remain suspended in the air for a long period of time. Particulate matter can be divided into several size fractions. Coarse particles (PM₁₀) are between 2.5 and 10 microns in diameter, and arise primarily from natural processes, such as wind-blown dust or soil. Fine particles (PM_{2.5}) are less than 2.5 microns in diameter and are produced mostly from combustion, or burning activities. A portion of the particulate matter in the air is due to natural sources such as wind blown dust and pollen, which are associated with the aggravation of respiratory conditions. Man-made sources include combustion, automobiles, field burning, factories and road dust. A portion of the particulate matter in the atmosphere is also a result of photochemical processes. The effects of high concentrations on humans include aggravation of chronic disease and heart/lung disease symptoms. Non-health effects include reduced visibility and soiling of surfaces.

Primary sources of PM₁₀ emissions in the NSVAB are mostly road traffic, construction, open burning and wildfires. The amount of particulate matter and PM₁₀ generated is dependent on the soil type and the soil moisture content. Traffic also generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. Burning of wood in residential wood stoves and fireplaces and open agricultural burning are other sources of PM₁₀.

Other Criteria Air Pollutants

The standards for CO, NO₂, SO₂, HS, and Pb are either unclassified or are being met within the region. Trends in the historical data pertaining to ambient concentrations of these pollutants do not indicate a likelihood for future violations of State or Federal standards (CARB, 2007).

Ambient Air Quality Standards

Both the U. S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants, which represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents.

The Federal and California state ambient air quality standards for criteria air pollutants are summarized in **Table 4.6-2**. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In

general, the California state standards are more stringent. This is particularly true for ozone and PM₁₀.

Toxic Air Contaminants

Aside from the specific air pollutants described above, toxic air contaminants (TACs) are a broad regulatory category of airborne pollutants with the potential to impact the human environment. TACs include those air pollutants that are believed to result in an increase in mortality or serious illness, or that may pose a present or potential hazard to human health. Health effects commonly associated with TACs include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. TACs can be separated into carcinogens and noncarcinogens based on the nature of the physiological degradation associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health impacts will not occur. Non-carcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

TACs are regulated through implementation of federal and state laws. Federal law uses the term "hazardous air pollutants" (HAPs) to refer to the same types of compounds referred to as TACs under state law. Both terms encompass essentially the same compounds. For purposes of this report, "TACs" will be used when referring to these pollutants. It is important to note that TACs are not considered criteria pollutants in that the Federal Clean Air Act (CAA) and the California Clean Air Act (CCAA) do not address them specifically through the setting of National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS). However, enforcement of the NAAQS or CAAQS for the control of criteria pollutants, such as ozone and particulate matter, can result in reducing airborne emissions of TACs.

Diesel-exhaust particulate matter (DPM) was recently added to the CARB list of TACs. DPM is the primary TAC of concern for mobile sources. Of all controlled TACs, emissions of DPM are estimated to be responsible for about 70 percent of the total ambient TAC risk. The CARB has made the reduction of the public's exposure to DPM one of its highest priorities, with an aggressive plan to require cleaner diesel fuel and cleaner diesel engines and vehicles (CARB 2005).

Land Use Compatibility with TAC Emission Sources

The location of a development project is a major factor in determining whether it will result in localized air quality impacts. The potential for adverse air quality impacts increases as the distance between the source of emissions and members of the public decreases. While impacts on all members of the population should be considered, impacts on sensitive receptors are of particular concern. Sensitive receptors are locations that house or attract children, the elderly, people with illnesses or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, residential dwellings, and convalescent-care facilities are examples of sensitive receptors.

The CARB published an informational guide entitled: "Air Quality and Land Use Handbook: A Community Health Perspective" (Handbook) in 2005. The purpose of this guide is to provide information to aid local jurisdictions in addressing issues and concerns related to the placement of sensitive land uses near major sources of air pollution. The Handbook includes recommended separation distances for various land uses. However, these recommendations are not site specific and should not be interpreted as defined "buffer zones". It is also important to note that

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the recommendations of the Handbook are advisory and need to be balanced with other State and local policies (CARB, 2005). CARB-recommended separation distances for various sources of emissions are summarized in **Table 4.6-3**.

**TABLE 4.6-3
RECOMMENDATIONS ON SITING NEW SENSITIVE LAND USES
NEAR AIR POLLUTANT SOURCES**

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). • Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. • Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	<ul style="list-style-type: none"> • Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the CARB on the status of pending analyses of health risks.
Refineries	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. • Do not site new sensitive land uses in the same building with perc. dry cleaning operations.
Gasoline Dispensing Facilities	<ul style="list-style-type: none"> • Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

*Recommendations are advisory, are not site specific, and may not fully account for future reductions in emissions, including those resulting from compliance with existing/future regulatory requirements, such as reductions in diesel-exhaust emissions anticipated to occur with continued implementation of the CARB's Diesel Risk Reduction Plan.

Source: CARB 2005a

EXISTING AMBIENT AIR QUALITY

The California Air Resources Board (CARB) monitors air quality in the City of Anderson and the City of Redding, as well as at one other location in Shasta County. Two pollutants are monitored in the City of Anderson: ozone and PM₁₀. The closest monitoring site for PM_{2.5} is located in the City of Redding, roughly ten miles north of Anderson. **Table 4.6-4** summarizes air quality data from these monitoring sites for the years 2004-2006. Most of the standards shown in **Table 4.6-4** are met in Shasta County with the exception of ozone (1-hour state and 8-hour federal) and PM₁₀ (24-hour state).

The NSVAB experiences ozone as a major air quality problem because of internal combustion engines in mobile sources such as cars, light-duty and heavy-duty trucks, and off-road vehicles. These are the major source of ozone (O₃) precursors, which include nitrogen oxides (NO_x). Concentrations of other monitored pollutants in the region generally meet the state and national standards.

During the last three years of available data, a total of 5 days exceeding the 1-Hour State AAQS were measured at the Anderson Air Quality monitoring station. The 8-hour national AAQS for ozone was exceeded on two days during 2004. The State AAQS for PM₁₀ was exceeded on approximately 6 days during 2006. **Table 4.6-4** shows the number of days exceeding ambient air quality standards from 2004-2006.

TABLE 4.6-4
SHASTA COUNTY AMBIENT AIR QUALITY
DAYS EXCEEDING AMBIENT AIR QUALITY STANDARDS, 2004-2006

Pollutant	Location	Standard	Days Exceeding Standard		
			2004	2005	2006
Ozone	Anderson	1-Hour State	3	2	0
Ozone	Anderson	1-Hour Federal	0	0	0
Ozone	Anderson	8-Hour Federal	2	0	0
Carbon Monoxide	NA ¹	8-Hour St./Fed.	0	0	0
Carbon Monoxide	NA ¹	1-Hour State	0	0	0
PM ₁₀	Anderson	24-Hour State	0	0	6.1
PM ₁₀	Anderson	24-Hour Federal	0	0	0
PM _{2.5}	Redding	24-Hour Federal	0	0	0

¹ No data was provided specific to Shasta County. The CO data provided is for the entire Northern Sacramento Valley Air Basin.
Source: California Air Resources Board, *Aerometric Data and Analysis (ADAM) System, 2007*.

SENSITIVE RECEPTORS

One of the most important reasons for air quality standards is the protection of those members of the population who are most sensitive to the adverse health effects of air pollution. As stated earlier, sensitive receptors are locations that house or attract children, the elderly, people with illnesses or others who are especially sensitive to the effects of air pollutants. Commonly identified sensitive receptors are residences, schools, playgrounds, childcare centers, retirement homes or convalescent homes, hospitals, and clinics. Existing sensitive land uses located in the vicinity of the project site consist primarily of residential land uses, which are generally located to the south and to the northeast of the project site.

4.6.2 REGULATORY FRAMEWORK

FEDERAL

Federal Clean Air Act

At the federal level, the EPA has been charged with implementing national air quality programs. The EPA's air quality mandates are drawn primarily from the Federal Clean Air Act (CAA), which was signed into law in 1970. Congress substantially amended the CAA in 1977 and again in 1990.

The CAA required the EPA to establish NAAQS, and also set deadlines for their attainment. NAAQS for criteria pollutants are listed in **Table 4.6-2**. The specific standards are based on medical evidence that indicates that exposure to certain air pollutants is harmful to public

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health. The ambient standards are two-tiered. Primary standards are designed to protect public health, while secondary standards are designed to protect the environment (e.g., damage to vegetation or property). Both primary and secondary standards are keyed to averaging periods that range from one hour to one year. The EPA has recently issued new standards for ozone and for particulate matter less than 2.5 microns in diameter (PM_{2.5}). For ozone, the new federal standard is 0.08 parts per million (ppm) for an 8-hour average. For PM_{2.5}, the federal standards are an annual average of 15 micrograms per cubic meter (µg/m³) and a 24-hour average of 65 µg/m³.

The CAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The EPA has responsibility to review all state SIPs to determine conformance to the mandates of the CAA, and the amendments thereof, and determine if implementation will achieve air quality goals. If the EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area that imposes additional control measures. Failure to submit an approvable SIP or to implement the plan within the mandated timeframe may result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

California Clean Air Act

The California Clean Air Act (CCAA), patterned after the Federal CAA, requires the adoption of California Ambient Air Quality Standards (CAAQS). California has adopted standards that are more stringent than the Federal standards for the criteria air pollutants. Also, the CCAA establishes more criteria pollutants than the Federal CAA. Like its federal counterpart, the CCAA designates areas as being in "attainment" or "non-attainment" with respect to the CAAQS. Under the state standards, Shasta County is designated as being in "non-attainment" for ozone and "attainment" or "unclassified" for other pollutants. Shasta County has not been required to prepare any regional air quality plans under the State or Federal Clean Air Acts.

LOCAL

Shasta County Air Quality Management District

As previously discussed, the project is located within the Shasta County Air Quality Management District. The District participates with other air districts in the NSVAB in formulating open burning plans and attainment plans for achieving and maintaining state ambient air quality standards. Control measures and mitigation of indirect source emissions are developed with as much uniformity as possible, considering unique differences among the various rural and urban areas.

City of Anderson General Plan

On July 7, 1998, the Anderson City Council adopted an Air Quality Element as part of the City's General Plan. The Air Quality Element, prepared in cooperation with the City of Redding and SCAQMD, anticipates future population growth in the Redding/Anderson area, with its attendant impacts on transportation and land use and ultimately on air quality. It contains a set of goals and objectives for maintaining and improving air quality and policies designed to achieve these objectives.

In March 2007, the Anderson City Council adopted an update of the City of Anderson General Plan. While the update contains its own polices specific to air quality within the Open Space and Conservation Element, the 1998 Air Quality Element is still part of the General Plan and the City is committed to all of the policies in the Air Quality Element. The City’s General Plan air quality policies and implementation measures are summarized in **Table 4.6-5**.

**TABLE 4.6-5
CITY OF ANDERSON GENERAL PLAN POLICIES - AIR QUALITY**

City of Anderson General Plan Policies	Consistency with General Plan	Analysis
Air Quality Element (1998)		
<p><i>Policy 33:</i> The City will require measures to reduce particulate matter emissions form construction, grading, and demolition to the maximum extent feasible.</p> <p><i>Implementation:</i> Use permits will be conditioned with measures to reduce particulate matter emissions during construction, grading, and demolition activities.</p>	Yes	Mitigation measures have been included that would require proposed development projects to implement measures for the control of construction-generated emissions. These measures would include standard and best available dust control measures, as recommended by the Shasta County AQMD.
Open Space and Conservation Element (2007)		
<p><i>Policy AQP-2:</i> All roads and parking areas shall be paved to reduce dust and fugitive emissions.</p>	Yes	Mitigation has been included to require paving of on-site roads and parking areas.

The Vineyards at Anderson Specific Plan

While certain policies within the Vineyards at Anderson Specific Plan serve to benefit regional air quality, the Specific Plan does not include policies, in addition to those already adopted by the City, to specifically regulate potential impacts to air quality. As such, no evaluation of the project with Specific Plan policies, as required by CEQA Section 15125(d), is necessary.

4.6.3 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

The City of Anderson concludes that a project will have significant impacts on air quality if it does any of the following:

- Conflicts with or obstructs implementation of the applicable air quality plan.
- Violates any air quality standard or contributes substantially to an existing or projected air quality violation.
- Results in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- Exposes sensitive receptors to substantial pollutant concentrations.
- Creates objectionable odors affecting a substantial number of people.

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In addition to the thresholds of significance identified above, the SCAQMD has adopted the following thresholds of significance for projects subject to CEQA review. These thresholds are consistent with the New Source Review Rule 2-1 adopted by the Air Pollution Control Board in 1993 as required by the CCAA (Shasta County 1998). The thresholds of significance are summarized in **Table 4.4-6**.

**TABLE 4.4-6
SHASTA COUNTY AQMD THRESHOLDS OF SIGNIFICANCE**

	Emissions (lbs/Day)		
	NO _x	ROG	PM ₁₀
Level "A" Thresholds	25	25	80
Level "B" Thresholds	137	137	137

Apply Standard Mitigation Measures (SMM) to all projects based on potential air quality impacts.

Apply SMM and appropriate Best Available Mitigation Measures (BAMM) when a project exceeds Level "A" thresholds. The appropriate type and number of BAMM applied to a project will be based on the unique characteristics of the project. BAMM will be selected from a list of measures kept updated by the Shasta County Planning Department (SCPD) and the SCAQMD.

Apply SMM, BAMM, and special BAMM (when project exceeds Level "B" thresholds) based on their emission reduction potential to lower project emissions below Level "B" thresholds. The AQMD will advise the SCPD of the efficiency of proposed emission measures as part of the effort to reduce project emissions below Level "B" thresholds.

If application of the above procedures results in reducing project emissions below Level "B" thresholds, the project can proceed with an environmental determination of a Mitigated Negative Declaration assuming other project impacts do not require more extensive environmental review.

If project emissions cannot be reduced to below Level "B" thresholds, emission offsets will be required. The SCPD may seek the assistance of the AQMD regarding other efforts and measures that could be used to reduce unmitigated emissions exceeding the 137 lbs. per day. If, after applying the emissions offsets, the project emissions still exceed the Level "B" threshold, an EIR will be required before the project can be considered for action by the reviewing authority.

Sources: Shasta County, 1998.

METHODOLOGY

Estimates of operational emissions generated by project traffic for Phase 2 and the entire project were made using the CARB-approved URBEMIS2007 computer program. URBEMIS2007 is a program that estimates the emissions that result from various land use development projects. Land use projects can include residential uses such as single-family dwelling units, apartments and condominiums, and nonresidential uses such as shopping centers, office buildings, and industrial parks. URBEMIS2007 contains default values for much of the information needed to calculate emissions. However, project-specific, user-supplied information can also be used when it is available.

Inputs to the URBEMIS2007 computer program include trip generation rates, vehicle mix, average trip length by trip type and average speed. Trip generation rates were modified to reflect estimated vehicle trips attributable to the proposed project, based on data obtained from the traffic analysis prepared for the Vineyards at Anderson. Modeling was conducted for both summer and winter months. The URBEMIS2007 output is included as **Appendix 4.6-1**.

PROGRAM LEVEL (PROJECT BUILDOUT) IMPACTS AND MITIGATION MEASURES**Construction Impacts**

Impact 4.6.1 Construction activities, such as clearing, excavation and grading operations, as well as construction vehicle traffic and wind blowing over exposed earth, would generate increased particulate matter and ozone precursor emissions that would temporarily affect local air quality. This impact is considered **potentially significant**.

Construction activities associated with buildout of the Specific Plan area would generate "temporary" emissions of criteria air pollutants. The criteria pollutants of primary concern within the project area include ozone-precursor pollutants (i.e., ROG and NO_x) and PM₁₀. Construction-generated emissions are temporary in that they last only as long as construction activities occur, but possess the potential to represent a significant air quality impact. It is important to note, however, that buildout of the project area is anticipated over a twenty year period.

The construction and development of residential, commercial, recreational, institutional and agricultural uses would result in the temporary generation of emissions due to site grading and excavation, road paving, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment, especially on unpaved surfaces. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities as well as weather conditions and the appropriate application of water.

Detailed construction schedules and equipment requirements are not currently known. However, depending on how development proceeds, construction-generated emissions associated with development occurring within the plan area could potentially exceed the SCAQMD thresholds of significance. As a result, temporary emissions associated with the proposed project are considered **potentially significant**.

Mitigation Measures

MM 4.6.1 Applicants of development projects located within the Vineyards at Anderson Specific Plan area shall submit to the SCAQMD and receive approval for an Emissions Reduction Plan prior to groundbreaking. The Emissions Reduction Plan shall include all measures recommended by the SCAQMD, at the time of development, for the control of fugitive and mobile-source emissions associated with on-site construction activities. At the present time, these measures may include, but are not limited to, the following:

- All disturbed areas, including storage piles, that are not being actively used shall be effectively stabilized of dust emissions using water, a non-toxic chemical stabilizer/suppressant, or vegetative ground cover.
- Provide temporary traffic control as appropriate during all phases of construction to improve traffic flow (e.g., flag person).
- The applicant shall be responsible for ensuring that all adequate dust control measures are implemented in a timely and effective manner during all phases of project development and construction.

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- All material excavated, stockpiled, or graded shall be sufficiently watered to prevent fugitive dust from leaving property boundaries and causing a public nuisance or a violation of an ambient air standard. Watering shall occur at least twice daily with complete site coverage, preferably in the mid-morning and after work is completed each day.
- All on-site unpaved roads shall be effectively stabilized of dust emissions using water or a non-toxic chemical stabilizer/suppressant sufficient to prevent wind-generated dust beyond the property line.
- On-site vehicle speeds on unpaved surfaces shall be limited to 15 mph.
- All land clearing, grading, earth moving or excavation activities on the project site shall be suspended when winds are expected to exceed 20 miles per hour.
- All inactive portions of the development site shall be seeded and watered until a suitable grass cover is established. Seeding shall be with an approved native seed mix.
- The applicant shall be responsible for applying Department of Public Works approved non-toxic soil stabilizers (according to manufacturers' specifications) to all inactive construction areas (previously graded areas which remain inactive for 96 hours).
- When materials are transported off-site, all material shall be covered and effectively wetted to limit visible dust emissions, or at least 6 inches of freeboard space from the top of the container shall be maintained.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring.
- Schedule construction activities that affect traffic flow to off-peak hours.
- Install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip.
- Cleared vegetation shall be treated by means other than open burning, such as chipping, shredding, or grinding.
- The Construction Emissions Mitigation Plan shall identify construction schedules for on-site and off-site activities. Construction activities shall be scheduled to minimize concurrent activities involving extensive use of off-highway equipment (e.g., on-site grading, off-site road construction) from occurring on the same day during the summer months when emissions of ozone precursors (e.g., ROG and NO_x) are of greatest concern.

Timing/Implementation: Prior to and during construction.

Enforcement/Monitoring: City of Anderson and Shasta County AQMD.

MM 4.6.1 would require implementation of SCAQMD-recommended mitigation measures for the control of fugitive and mobile source emissions. The required Emissions Reduction Plan would be prepared in consultation with, and endorsed by, the SCAQMD prior to construction. Implementation of AQMD-recommended mitigation measures would reduce construction-generated fugitive dust emissions by approximately 50 to 75 percent. NO_x and particulate

emissions from mobile-source equipment would be reduced by approximately 20 and 45 percent, respectively. Implementation of the proposed mitigation measures would ensure compliance with SCAQMD rules and regulations sufficient to reduce localized concentrations at nearby receptors to a less than significant level. However, given the regions current and projected nonattainment status for ozone and airborne particulates, the amount of development proposed and anticipated duration of construction-related activities, construction-generated emissions could contribute to existing and projected nonattainment conditions. No additional mitigation measures have been identified that would reduce this impact to a less-than-significant level. As a result, regional air quality impacts associated with construction-related activities are considered **significant and unavoidable**.

Operational Impacts

Impact 4.6.2 On-site sources and vehicle trips to and from the project (at buildout) would result in increased emissions of ozone-precursor pollutants and particulate matter that would exceed Shasta County AQMD significance thresholds. This impact is considered **potentially significant**.

The primary regional air pollutant of concern within the NSVAB includes the ozone-precursor pollutants (i.e., ROG and NO_x), as well as airborne particulate matter (PM₁₀). Ozone is a year-round pollutant that occurs in greater concentrations in the summer months. Because ozone occurs in greater concentrations in the summer months, project summertime emissions of ozone precursors (ROG and NO_x) are of primary concern. Particulate matter is another year-round pollutant that has the potential to exceed the threshold of significance in both summertime and wintertime months. Particulate emissions are typically highest during the winter months due to the use of wood-burning fireplaces. To reduce emissions from these sources, the SCAQMD has adopted *Rule 3.23, Fireplace and Solid Fuel Heating Device Usage*. This rule requires that all new wood-burning heating devices used in new residential or commercial projects, as well as new devices in existing buildings, meet EPA certification requirements.

The daily increase in regional emissions from area and mobile sources (including employee trips) for both summer and winter conditions are shown in **Table 4.6-7**. Emissions were calculated using the URBEMIS2002 computer program for project buildout conditions. At buildout, implementation of the proposed project would generate maximum daily emissions of approximately 609 lbs/day of ROG, 345 lbs/day of NO_x, and 654 lbs/day of PM₁₀. As shown, daily emissions during the summer and winter months would exceed the SCAQMD's Level "A" and Level "B" significance thresholds. As a result, long-term regional air quality impacts associated with the proposed project are considered **potentially significant**.

**TABLE 4.6-7
OPERATIONAL EMISSIONS – PROJECT BUILDOUT**

Source	Emissions (lbs/day)					
	ROG		NO _x		PM ₁₀	
	Summer	Winter	Summer	Winter	Summer	Winter
Natural Gas Use	4.78	7.15	62.05	102.55	0.12	3.39
Consumer Products	258.71	258.71	--	--	--	--
Landscape Maintenance	33.36	--	2.13	--	0.50	--
Architectural Coatings	67.65	67.65	--	--	--	--

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Source	Emissions (lbs/day)					
	ROG		NO _x		PM ₁₀	
	Summer	Winter	Summer	Winter	Summer	Winter
Motor Vehicles	244.06	257.56	161.01	242.47	650.39	650.39
Total	608.56	591.07	225.19	345.02	651.01	653.78
AQMD Significance Thresholds (Level A/B)	25/137		25/137		80/137	
Exceeds AQMD Significance Threshold?	Yes		Yes		Yes	
Operational emissions were calculated using the URBEMIS2007 computer program based on default vehicle fleet distributions, trip characteristics, and emissions data contained in the model. Totals may not sum due to rounding. Winter natural gas usage emissions include assumed use of natural-gas fired fireplaces for residential dwelling units. Source: AMBIENT Air Quality & Noise Consulting 2007						

Mitigation Measures

MM 4.6.2 The following measures shall be implemented:

- Applicants of development projects located within the Plan Area shall submit to the SCAQMD and receive approval for an Emissions Reduction Plan (ERP) prior to issuance of building permits for the development project in question. The Emissions Reduction Plan shall include applicable SCAQMD Standard Mitigation Measures (SMM) and/or Best Available Mitigation Measures (BAMM) as recommended by the Shasta County AQMD at the time development is proposed. Standard and Best Available Mitigation Measures currently recommended by the SCAQMD are included in **Appendix 4.6-2**.
- All roads and parking areas shall be paved to reduce dust and fugitive emissions.

Timing/Implementation: Prior to issuance of building permits.

Enforcement/Monitoring: City of Anderson and Shasta County AQMD.

The emissions reduction efficiency of individual mitigation measures in reducing emissions of ozone-precursor pollutants would range from less than one percent to as much as approximately 40 percent, depending on the specific measure implemented and pollutant of concern (SCAQMD 2007). In total, emissions reductions associated with commonly applied mitigation measures would be anticipated to achieve a minimum overall reduction of approximately 15 percent (SMAQMD 2007). Implementation of the above mitigation measures would reduce long-term operational emissions of ozone-precursor pollutants, but not necessarily to a less-than-significant level. Emissions offsets may also be required by the SCAQMD in lieu or in addition to recommended SMM or BAMM and would be determined on a project-by-project basis (subject to availability) during review of the ERP. However, even with implementation of SCAQMD-recommended mitigation measures and given uncertainties concerning the availability of emissions offsets in future years, emissions of criteria air pollutants would still be anticipated to exceed applicable thresholds of significance. As a result, this impact would be considered **significant and unavoidable**.

Exposure of Sensitive Receptors to Localized Carbon Monoxide Concentrations

Impact 4.6.3 The project at buildout would change traffic volumes and congestion levels, changing carbon monoxide concentrations at land uses near roadways. This impact is considered **less than significant**.

On the local scale, the pollutant of greatest interest is carbon monoxide. Concentrations of this pollutant are related to the levels of traffic and congestion along streets and at intersections. The project would increase traffic on existing roads and elevate carbon monoxide concentrations near these roads. Considering that the project is in an area of very low background carbon monoxide concentrations, the county is an attainment area for the carbon monoxide ambient standards and that carbon monoxide concentrations have been trending downward for over 20 years, the increases in carbon monoxide concentrations resulting from project traffic would not result in violations of any state or federal ambient air quality standard for this pollutant and no quantitative analysis of carbon monoxide concentrations is required. Project impacts on carbon monoxide concentrations would be **less than significant**.

Mitigation Measures

None required.

Exposure of Sensitive Receptors to Odorous Emissions

Impact 4.6.4 Receptors located in the vicinity of nonresidential land uses may be exposed to odorous emissions. This impact is considered **potentially significant**.

The occurrence and severity of odor impacts depends on numerous factors, including: the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of the receptors. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and regulatory agencies. Projects with the potential to frequently expose members of the public to objectionable odors would be deemed to have a significant impact. Land uses commonly considered to be potential sources of odorous emissions include wastewater treatment plants, sanitary landfills, food processing facilities, chemical manufacturing plants, rendering plants, paint/coating operations, and agricultural feed lots and dairies.

The proposed project is not anticipated to result in the installation of any major odor emission sources that would result in a potentially significant impact to the occupants of the proposed on-site or existing off-site land uses. However, although specific commercial uses have not yet been identified, uses considered to be minor sources of odors may be developed. Such sources typically include dry cleaning establishments and gasoline stations. Receptors located in the general vicinity of such sources may be exposed to odorous emissions. Odors from such facilities may be considered objectionable to some individuals. As a result, potential exposure of on-site sensitive receptors to odors would, therefore, be considered **potentially significant**.

Mitigation Measures

MM 4.6.4 Future development projects located within the Specific Plan area shall implement the following measures to reduce exposure of sensitive receptors to odorous emissions from on-site sources:

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- Land uses that have the potential to emit objectionable odorous emissions (e.g., agricultural fertilizer use) shall be located as far away as possible from existing and proposed sensitive receptors or downwind of nearby receptors.
- If an odor-emitting facility is to occupy space in the commercial area, odor control devices shall be installed to reduce the exposure of receptors to objectionable odorous emissions. The Shasta County AQMD shall be consulted to determine applicable/feasible control devices to be installed.
- Refuse containers from food establishments, grocery stores or other uses that could generate odors, shall be emptied daily.

Timing/Implementation: Prior to Tentative Map approval.

Enforcement/Monitoring: City of Anderson and Shasta County AQMD

Use of setbacks, site design considerations, and emission controls are typically sufficient to ensure that receptors located near commercial uses would not be exposed to odorous emissions on a frequent basis. Through mitigation, and given that emissions from proposed commercial land uses would typically be intermittent and would disperse rapidly with increased distance from the source, emissions from proposed on-site land uses would not be anticipated to result in a frequent exposure of a substantial number of people to odorous emissions. As a result, this impact would be considered **less than significant**.

Exposure of Sensitive Receptors to Toxic Air Contaminants

Impact 4.6.5 Implementation of the project would not result in increased exposure of existing or planned sensitive receptors to stationary or mobile-source TACs that would exceed applicable standards. As a result, this impact is considered **less than significant**.

No major existing stationary sources of toxic air contaminants (TACs) were identified within one-quarter mile of the proposed project site (CHAPIS 2007). Implementation of the proposed project would result in the development of residential, commercial, and public uses. No major stationary sources of TACs would be developed as part of the proposed project.

In addition to stationary sources of emissions, mobile sources of emissions may also contribute to localized concentrations of TACs that could adversely affect sensitive population groups. As discussed earlier in this report, the CARB recently released the *Air Quality and Land Use Handbook: A Community Health Perspective (Handbook)* (2005). According to the Handbook, sensitive land uses should generally not be located within 500 feet of a freeway or urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day. Traffic volumes along adjacent and on-site roadways would not exceed 50,000 vehicles/day (Fehr & Peers 2007). In addition, the nearest on-site uses would be located approximately 2,400 feet from I-5, which generally extends in a north-south direction near the eastern boundary of the plan area. In accordance with CARB-recommended guidance, further analysis of mobile-source TACs would not be required for the proposed project. For the above discussed reasons, exposure to stationary- and mobile-source TACs would not be anticipated to exceed applicable thresholds. As a result, this impact would be considered **less than significant**.

Mitigation Measures

None required.

PROJECT LEVEL (PHASE 2) IMPACTS AND MITIGATION MEASURES

Construction Impacts

Impact 4.6.6 Construction activities associated with Phase 2, such as clearing, excavation and grading operations, as well as construction vehicle traffic and wind blowing over exposed earth, would generate increased particulate matter and ozone precursor emissions that would temporarily affect local air quality. This impact is considered **potentially significant**.

Construction activities associated with development of Phase 2 of the project would generate temporary emissions of criteria air pollutants, including ozone-precursor pollutants (i.e., ROG and NO_x) and PM₁₀. As previously discussed, construction-generated emissions would be primarily associated with site grading and excavation, road paving, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment, especially on unpaved surfaces. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities as well as weather conditions and the appropriate application of water.

Detailed construction information (e.g., equipment and personnel requirements) is not currently available for the proposed Phase 2 development. Short-term emissions of ROG and NO_x were, therefore, estimated based on the default assumptions contained in the model. For modeling purposes, construction activities were assumed to occur over an estimated 5-year period. To ensure a conservative analysis, modeling assumes that one-quarter of the total project area (i.e., approximately 31 acres) could be disturbed on a daily basis. Actual emissions will vary depending on how development proceeds. Estimated construction-generated emissions associated with Phase 2 of the proposed project are summarized in **Table 4.6-8**.

As depicted in **Table 4.6-8**, the site preparation phase would be anticipated to generate the greatest emissions. Based on the modeling conducted, initial site preparation activities would generate approximately 9 lbs/day of ROG, 69 lbs/day of NO_x and 619 lbs/day of PM₁₀. Due to reductions in the use of heavy-duty equipment, emissions would be anticipated to decrease during the building phase of construction to approximately 16 lbs/day of ROG, 57 lbs/day of NO_x, and 4 lbs/day of PM₁₀. Evaporative emissions from architectural coatings and asphalt paving products would also contribute to significant increases in daily emissions of ROG. Depending on how development proceeds, it is conceivable that multiple construction-related activities (i.e., grading, asphalt paving, building construction, etc.) could occur simultaneously on any given day. As a result, short-term construction-generated emissions associated with the proposed Phase 2 development would be anticipated to exceed the SCAQMD thresholds of significance. This impact would, therefore, be considered **potentially significant**.

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**TABLE 4.6-8
CONSTRUCTION-GENERATED EMISSIONS – PHASE 2**

Source	Emissions (lbs/day)		
	ROG	NO _x	PM ₁₀
Site Preparation & Grading	8.47	69.23	618.52
Building Construction	15.75	56.90	4.09
Asphalt Paving	7.88	36.53	2.87
Architectural Coatings	34.90	--	--
AQMD Significance Thresholds (Level A/B)	25/137	25/137	80/137
Exceeds AQMD Significance Threshold?	Yes	Yes	Yes
Construction-generated emissions were calculated using the URBEMIS2007 computer program based on an overall construction duration of 60 months and default construction activity schedules derived from the URBEMIS2007 computer program. Site preparation activities assume 31 acres of active ground disturbance per day. Construction equipment assumptions derived from SMAQMD-recommended modeling input assumptions for construction activities based on estimated maximum daily area of disturbance. <i>Source: AMBIENT Air Quality & Noise Consulting 2007</i>			

Mitigation Measures

Implement **MM 4.6.1**.

MM 4.6.1 would require implementation of SCAQMD-recommended mitigation measures for the control of fugitive and mobile source emissions. The required Emissions Reduction Plan would be prepared in consultation with, and endorsed by, the SCAQMD prior to construction. Implementation of AQMD-recommended mitigation measures would reduce construction-generated fugitive dust emissions by approximately 50 to 75 percent. NO_x and particulate emissions from mobile-source equipment would be reduced by approximately 20 and 45 percent, respectively. Implementation of the proposed mitigation measures would ensure compliance with SCAQMD rules and regulations sufficient to reduce localized construction-related impacts to nearby receptors to a less than significant level. However, even with implementation of SCAQMD-recommended control measures, construction-generated emissions could still exceed applicable significance thresholds. Given the regions current and projected nonattainment status for ozone and airborne particulates, construction-generated emissions could contribute to existing and projected nonattainment conditions. No additional mitigation measures have been identified that would reduce this impact to a less-than-significant level. As a result, regional air quality impacts associated with construction-related activities would be considered **significant and unavoidable**.

Operational Impacts

Impact 4.6.7 On-site sources and vehicle trips to and from Phase 2 of the project would result in increased emissions of ozone-precursor pollutants and particulate matter that would be anticipated to exceed Shasta County AQMD significance thresholds. This impact is considered **potentially significant**.

The primary regional air pollutant of concern within the NSVAB includes the ozone-precursor pollutants (i.e., ROG and NO_x), as well as airborne particulate matter (PM₁₀). Ozone is a year-round pollutant that occurs in greater concentrations in the summer months. Because ozone occurs in greater concentrations in the summer months, project summertime emissions of ozone

precursors are of primary concern. Particulate matter is another year-round pollutant that has the potential to exceed the threshold of significance in both summertime and wintertime months. Particulate emissions are typically highest during the winter months due to the use of wood-burning fireplaces. To reduce emissions from these sources, the SCAQMD has adopted *Rule 3:23, Fireplace and Solid Fuel Heating Device Usage*. This rule requires that all new wood-burning heating devices used in new residential or commercial projects, as well as new devices in existing buildings, meet EPA certification requirements.

The daily increases in regional emissions associated with Phase 2 of the proposed project, for both summer and winter conditions, are shown in **Table 4.6-9**. Emissions were calculated using the URBEMIS2002 computer program. As shown, Phase 2 of the proposed project would generate maximum daily emissions of approximately 115 lbs/day of ROG, 108 lbs/day of NO_x, and 83 lbs/day of PM₁₀. Estimated daily emissions during the summer and winter months would exceed the SCAQMD-recommended Level "A" significance thresholds. As a result, long-term regional air quality impacts are considered **potentially significant**.

**TABLE 4.6-9
OPERATIONAL EMISSIONS – PHASE 2**

Source	Emissions (lbs/day)					
	ROG		NO _x		PM ₁₀	
	Summer	Winter	Summer	Winter	Summer	Winter
Natural Gas Use	0.71	1.06	9.18	15.17	0.02	0.50
Consumer Products	35.32	35.32	--	--	--	--
Landscape Maintenance	5.95	--	0.38	--	0.09	--
Architectural Coatings	10.39	10.39	--	--	--	--
Motor Vehicles	62.64	67.22	61.85	92.76	82.19	82.19
Total	115.01	113.99	71.41	107.93	82.30	82.69
AQMD Significance Thresholds (Level A/B)	25/137		25/137		80/137	
Exceeds AQMD Significance Threshold?	Yes		Yes		Yes	
Operational emissions were calculated using the URBEMIS2007 computer program based on default vehicle fleet distributions, trip characteristics, and emissions data contained in the model. Totals may not sum due to rounding. Winter natural gas usage emissions include assumed use of natural-gas fired fireplaces for residential dwelling units. Source: AMBIENT Air Quality & Noise Consulting 2007						

Mitigation Measures

Implement **MM 4.6.2**.

Implementation of **MM 4.6.2** would reduce long-term operational emissions of ozone-precursor pollutants, but not necessarily to a less-than-significant level. As noted in Impact 4.6.2, implementation of MM 4.6.2 would reduce operational emissions by up to approximately 15 percent. Emissions offsets may also be required by the SCAQMD in lieu or in addition to recommended SMM or BMM and would be determined on a project-by-project basis (subject to availability) during review of the ERP. However, even with implementation of SCAQMD-recommended mitigation measures and given uncertainties concerning the availability of emissions offsets in future years, emissions of criteria air pollutants would still be anticipated to exceed applicable thresholds of significance. As a result, this impact would be considered **significant and unavoidable**.

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Exposure of Sensitive Receptors to Localized Carbon Monoxide Concentrations

Impact 4.6.8 Development of Phase 2 would change traffic volumes and congestion levels, as well as change carbon monoxide concentrations at land uses near roadways. This impact is considered **less than significant**.

On the local scale, the pollutant of greatest interest is carbon monoxide. Concentrations of this pollutant are related to the levels of traffic and congestion along streets and at intersections. The project would increase traffic on existing roads and elevate carbon monoxide concentrations near these roads. Considering that the project is in an area of very low background carbon monoxide concentrations, the county is an attainment area for the carbon monoxide ambient standards and that carbon monoxide concentrations have been trending downward for over 20 years, the increases in carbon monoxide concentrations resulting from project traffic would not result in violations of any state or federal ambient air quality standard for this pollutant and no quantitative analysis of carbon monoxide concentrations is required. Project impacts on carbon monoxide concentrations would be **less than significant**.

Exposure of Sensitive Receptors to Odorous Emissions.

Impact 4.6.9 Receptors located in the general vicinity of such sources may be exposed to odorous emissions. As a result, this impact is considered **potentially significant**.

The proposed project is not anticipated to result in the installation of any major odor emission sources that would result in a potentially significant impact to the occupants of the proposed on-site or existing off-site land uses. However, although specific commercial uses have not yet been identified, uses considered to be minor sources of odors may be developed. Such sources typically include dry cleaning establishments and gasoline stations. Receptors located in the general vicinity of such sources may be exposed to odorous emissions. Odors from such facilities may be considered objectionable to some individuals. As a result, potential exposure of on-site sensitive receptors to odors would, therefore, be considered **potentially significant**.

Mitigation Measures

Implement **MM 4.6.4**.

Use of setbacks, site design considerations, and emission controls are typically sufficient to ensure that receptors located near nonresidential uses, including agricultural operations, would not be exposed to odorous emissions on a frequent basis. Through mitigation, and given that emissions from proposed nonresidential land uses would typically be intermittent and would disperse rapidly with increased distance from the source, emissions from proposed on-site land uses would not be anticipated to result in frequent exposure of a substantial number of people to odorous emissions. As a result, this impact would be considered **less than significant**.

Exposure of Sensitive Receptors to Toxic Air Contaminants

Impact 4.6.10 Development of Phase 2 would not result in increased exposure of existing or planned sensitive receptors to stationary or mobile-source TACs that would exceed applicable standards. As a result, this impact is considered **less than significant**.

No major stationary sources of TACs would be developed as part of the proposed project. No major existing stationary sources of toxic air contaminants (TACs) were identified within one-

quarter mile of the proposed project site (CHAPIS 2007). In addition, the proposed project would not be located in the vicinity of any major transportation corridors that would include the use of diesel-fueled vehicles, such as freeways or railway corridors. As a result, this impact would be considered **less than significant**.

4.6.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The geographic extent of the cumulative setting for the project consists of the City of Anderson as well as the City's Sphere of Influence, the unincorporated areas near the City, as well as consideration of regional activities and attributes (e.g., regional traffic volumes and patterns associated with State Route 273 and Interstate 5). This setting includes consideration of existing, planned and future land use development (see Sections 4.0, 4.2 and 4.4 regarding assumed development conditions in the City of Anderson and surrounding area), and future (year 2030) traffic volumes and buildout of the project.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Cumulative Contribution to Regional Air Quality Impacts

Impact 4.6.11 Residential wood burning and open burning from the proposed project and other regional development could result in and contribute to a cumulative increase in odor or nuisance complaints as well as result in potential violation of state and federal particulate matter ambient air quality standards in the future. This impact is considered **potentially significant**.

Due to the region's non-attainment status for ozone and PM₁₀, if project-generated emissions of either of the ozone precursor pollutants (i.e., ROG and NO_x) or PM₁₀ would exceed the long-term thresholds, then the project's cumulative impacts would be considered significant. As discussed in **Impact 4.4.3**, predicted long-term operational emissions would exceed Shasta County AQMD significance thresholds and contribute (in combination with planned and anticipated development in the region) to the County's non-attainment status. In addition, implementation of the proposed project may result in an increase in emissions beyond that identified in the emissions inventories used for the development of the AQAP. As a result, this impact would be considered **potentially significant**.

Mitigation Measures

Implement **MM 4.6.1** and **MM 4.6.2**.

Implementation of mitigation measures **MM 4.6.1** and **MM 4.6.2** would substantially reduce operational emissions of the project. Various measures have been incorporated to reduce the project's long-term increases in emissions, including measures that would reduce energy consumption associated with proposed land uses. Such measures would include increased use of shade trees to reduce building cooling demands during the warmer summer months; as well as site design considerations, such as orienting building in a north-south direction to increase use of solar heating during the cooler months. Increased building insulation and requirements that would exceed California Title 24 energy standards would result in further reductions in energy usage and related emissions. However, predicted increases in emissions would still be anticipated to occur, primarily due to the increased use of motor vehicles. Motor vehicle

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emissions are regulated by the State and there are no additional reasonable mitigation measures that have been identified that would reduce mobile-source emissions attributable to the proposed project. Increases in emissions, particularly ozone precursor pollutants (i.e., ROG and NO_x) and airborne particulate matter (i.e., PM₁₀ and PM_{2.5}) along with emissions from other existing and future development projects would contribute to the region's non-attainment conditions. As a result, the project's cumulative contribution to regional air quality conditions would be considered **significant and unavoidable**.

Cumulative Contribution to Localized Air Quality Impacts

Impact 4.6.12 The project would contribute to cumulative carbon monoxide emissions along regional roadways. This impact is considered **less than significant**.

The project and cumulative development would also result in increased traffic on existing roads and elevate carbon monoxide concentrations at nearby congested roadways and intersections. However, as previously discussed, projected carbon monoxide concentrations would be well below those associated with violations of the ambient air quality standards. In addition, implementation of the proposed project would not result in the introduction of any major stationary sources of TACs or odorous emissions. As a result the proposed project's cumulative contribution to localized air quality impacts would be considered **less than significant**.

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