

15 AIR QUALITY

This chapter includes a summary of existing air quality conditions, applicable regulations, and an analysis of potential short-term and long-term air quality impacts of project alternatives. The method of analysis for short-term construction, long-term regional (operational), local mobile source, odor, and toxic air contaminant (TAC) emissions is consistent with the recommendations of the Placer County Air Pollution Control District (PCAPCD). Mitigation measures are recommended, as necessary, to reduce significant air quality impacts.

15.1 AFFECTED ENVIRONMENT

As shown in Exhibit 3-1, the project site is located in the eastern portion of Placer County, California, which is within the Lake Tahoe Air Basin (LTAB). The LTAB also comprises portions of El Dorado County on the California side; and Washoe County, Douglas County, and Carson City Rural District on the Nevada side. The ambient concentrations of air pollutant emissions are determined by the amount of emissions released by pollutant sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and the presence of sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

15.1.1 TOPOGRAPHY, METEOROLOGY, AND CLIMATE

Lake Tahoe lies in a depression between the crests of the Sierra Nevada and Carson ranges on the California-Nevada border at a surface elevation of approximately 6,260 feet above sea level. The LTAB is defined by the 7,000-foot contour, which is continuous around the lake, except near Tahoe City. The mountains surrounding the lake are approximately 8,000 to 9,000 feet in height on average, with some reaching 10,000 feet.

The constant water temperature of Lake Tahoe, at 600 feet below the surface, is approximately 39°F (4°C). This characteristic in combination with the topographic location of the lake define one of the LTAB's most important atmospheric regimes, that in the absence of strong synoptic weather systems, develop shallow subsidence and radiation inversions throughout the year. In addition, the rapid radiation cooling at night regularly generates gentle down-slope nocturnal winds draining from the mountain ridges down to the shore and then fanning across the lake (Cahill and Cliff 2000).

Pollutants from local sources are trapped by frequent inversions in the LTAB, greatly limiting the volume of air into which pollutants are mixed (e.g., diluted) resulting in accumulation and elevated concentrations. Further, each night the down-slope winds transport local pollutants from nearby developed areas out over the lake, increasing the opportunity for pollutants to deposit. This meteorological regime, characterized by weak or calm winds and a strong inversion, is the most common pattern at all times of the year (Cahill and Cliff 2000).

A second important meteorological regime is the transport of pollutants from the Sacramento Valley and San Francisco Bay due to mountain upslope winds that result from the topographic location of the lake directly to the east of the Sierra Nevada crest. This pattern develops when the western slopes of the Sierra Nevada are heated, causing the air to rise in a chimney effect and move upslope to the Sierra crest and over into the LTAB. The strength of this pattern depends on the amount of heating, and thus is strongest in summer, beginning in April and essentially ceasing in late October (Cahill and Cliff 2000).

Other regimes in the LTAB are defined by strong synoptic weather patterns that overcome the dominant terrain-defined meteorology regimes discussed above. The most important is the winter storm regime, which is responsible for precipitation primarily in the form of snow (Cahill and Cliff 2000).

Each of the meteorological regimes has the potential to influence pollution concentrations in the LTAB. Pollution episodes typically occur when local inversions are present, which trap emissions and when conditions allow for the transport of pollution from the western slopes of the Sierra Nevada, the Sacramento Valley, and the San Francisco Bay. Periods of low pollution concentration are associated with winter storms and high winds. Winter storms dilute the local and upwind pollution with strong vertical mixing and the incorporation of clean North Pacific air (Cahill and Cliff 2000).

Local meteorological data representative of the proposed site is recorded at the Tahoe City Station. The normal annual precipitation is approximately 32.2 inches, which primarily occurs from November through March. January temperatures range from a normal minimum of 19.5°F to a normal maximum of 40°F. August temperatures range from a normal minimum of 44.6°F to a normal maximum of 76.6°F (National Oceanic and Atmospheric Administration 1992). The predominant wind direction and speed is from the west-southwest at 14 mph (California Air Resources Board 1994).

15.1.2 CRITERIA AIR POLLUTANTS

Concentrations of the following air pollutants: ozone, respirable and fine particulate matter (PM₁₀ and PM_{2.5}), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead are used as indicators of ambient air quality conditions. Because these are the most prevalent air pollutants known to be deleterious to human health and extensive health-effects criteria documents are available, they are commonly referred to as “criteria air pollutants.”

A brief description of each criteria air pollutant including source types, health effects, and future trends is provided at the beginning of Appendix E. A description of the most current attainment area designations and monitoring data for the project area is provided below.

MONITORING STATION DATA AND ATTAINMENT AREA DESIGNATIONS

Criteria air pollutant concentrations are measured at several monitoring stations in the LTAB. The Tahoe City-Lake Forest Road and South Lake Tahoe–Sandy Way stations are the closest monitoring stations to the project site with recent data for ozone, PM₁₀, PM_{2.5}, CO, and NO₂. In general, the ambient air quality measurements from these monitoring stations are representative of the air quality in the vicinity of the project site, with the exception of concentrations of pollutant types that are more localized rather than regional (e.g., CO). Table 15-1 summarizes the air quality data from these stations for the past 3 years, 2003 through 2005.

TRPA, ARB and the EPA use this type of monitoring data to designate areas according to attainment status for criteria air pollutants established by the agencies. The purpose of these designations is to identify those areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in areas that cannot be classified on the basis of available information as meeting or not meeting the standards. In addition, the California designations include a subcategory of the nonattainment designation, called nonattainment-transitional. The nonattainment-transitional designation is given to nonattainment areas that are progressing and nearing attainment. The most current California and national attainment designations for the LTAB portion of Placer County are shown in Table 15-2 for each criteria air pollutant. The most current TRPA designations are shown in Table 15-3 for each Environmental Threshold Carrying Capacity (ETCC) (Tahoe Regional Planning Agency 2002, 2007).

**Table 15-1
Summary of Annual Ambient Air Quality Data (2003–2005)¹**

	2003	2004	2005
Tahoe City-Lake Forest Road Monitoring Station			
Ozone			
Maximum concentration (1-hr/8-hr, ppm)	0.086/ 0.070	0.065/ 0.061	-/-
Number of days state standard exceeded (1-hr)	0	0	-
Number of days national standard exceeded (1-hr/8-hr)	0/0	0/0	-/-
Respirable Particulate Matter (PM₁₀)			
Maximum concentration (µg/m ³)	87.3	35.4	-
Number of days state standard exceeded (measured/calculated ²)	-/-	-/-	-/-
Number of days national standard exceeded (measured/ calculated ²)	0/-	0/-	-/-
Carbon Monoxide (CO)			
Maximum concentration (1-hr/8-hr, ppm)	1.4/0.8	0.9/0.5	-/-
Number of days state standard exceeded (8-hr)	0	0	-
Number of days national standard exceeded (1-hr/8-hr)	0/0	0/0	-/-
Nitrogen Dioxide (NO₂)			
Maximum concentration (1-hr, ppm)	-	0.026	-
Number of days state standard exceeded (1-hr)	-	0	-
Annual Average (ppm)	-	-	-
South Lake Tahoe-Sandy Way Monitoring Station			
Ozone			
Maximum concentration (1-hr/8-hr, ppm)	0.075/ 0.066	0.066/ 0.058	-/-
Number of days state standard exceeded (1-hr)	0	0	-
Number of days national standard exceeded (1-hr/8-hr)	0/0	0/0	-/-
Respirable Particulate Matter (PM₁₀)			
Maximum concentration (µg/m ³)	61.0	47.0	38.0
Number of days state standard exceeded (measured/calculated ²)	1/6.1	0/-	0/0
Number of days national standard exceeded (measured/ calculated ²)	0/0	0/-	0/0
Fine Particulate Matter (PM_{2.5})			
Maximum concentration (µg/m ³)	24.0	23.2	-
Number of days national standard exceeded (measured ²)	0	0	-
Carbon Monoxide (CO)			
Maximum concentration (1-hr/8-hr, ppm)	2.4/1.5	2.2/1.2	-/-
Number of days state standard exceeded (8-hr)	0	0	-
Number of days national standard exceeded (1-hr/8-hr)	0/0	0/0	-/-
Nitrogen Dioxide (NO₂)			
Maximum concentration (1-hr, ppm)	0.052	0.055	-
Number of days state standard exceeded (1-hr)	0	0	-
Annual Average (ppm)	0.010	-	-
¹ Where, µg/m ³ = micrograms per cubic meter and ppm = parts per million.			
² Measured days are those days that an actual measurement was greater than the level of the state daily standard or the national daily standard. Measurements are typically collected every 6 days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.			
Sources: California Air Resources Board 2007, EPA 2006			

Table 15-2 Ambient Air Quality Standards and Attainment Status Designations							
Pollutant	Averaging Time	California			National Standards ¹		
		Standards ^{2,3}	Attainment Status ⁴	Primary ^{3,5}	Secondary ^{3,6}	Attainment Status ⁷	
Ozone	1-hour	0.09 ppm (180 µg/m ³)	A	– ⁸	Same as Primary Standard	– ⁸	
	8-hour	0.07 ppm (137 µg/m ³)	–	0.08 ppm (157 µg/m ³)		U/A	
Respirable Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	N	–	Same as Primary Standard	U/A	
	24-hour	50 µg/m ³		150 µg/m ³			
Fine Particulate Matter (PM _{2.5})	Annual Arithmetic Mean	12 µg/m ³	A	15 µg/m ³	Same as Primary Standard	U/A	
	24-hour	–	–	65 µg/m ³			
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m ³)	A	35 ppm (40 mg/m ³)	–	U/A	
	8-hour	9 ppm (10 mg/m ³)		9 ppm (10 mg/m ³)			
	8-hour (Lake Tahoe)	6 ppm (7 mg/m ³)					
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.030 ppm (56 µg/m ³)	–	0.053 ppm (100 µg/m ³)	Same as Primary Standard	U/A	
	1-hour	0.18 ppm (338 µg/m ³)	A	–			
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	–	–	0.030 ppm (80 µg/m ³)	–	U	
	24-hour	0.04 ppm (105 µg/m ³)	A	0.14 ppm (365 µg/m ³)			
	3-hour	–	–	–			0.5 ppm (1,300 µg/m ³)
	1-hour	0.25 ppm (655 µg/m ³)	A	–			
Lead ⁹	30-day Average	1.5 µg/m ³	A	–	–	–	
	Calendar Quarter	–	–	1.5 µg/m ³			Same as Primary Standard
Sulfates	24-hour	25 µg/m ³	A		No National Standards		
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m ³)	U				
Vinyl Chloride ⁹	24-hour	0.01 ppm (26 µg/m ³)	U/A				

Table 15-2 Ambient Air Quality Standards and Attainment Status Designations						
Pollutant	Averaging Time	California		National Standards ¹		
		Standards ^{2,3}	Attainment Status ⁴	Primary ^{3,5}	Secondary ^{3,6}	Attainment Status ⁷
Visibility-Reducing Particle Matter	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 the relative humidity is less than 70%.	U			
<p>¹ National standards (other than ozone, PM, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM₁₀ 24-hour standard is attained when 99% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. The PM_{2.5} 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.</p> <p>² California standards for ozone, CO (except Lake Tahoe), SO₂ (1- and 24-hour), NO₂, PM, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.</p> <p>³ Concentration expressed first in units in which it was promulgated [i.e., parts per million (ppm) or micrograms per cubic meter (µg/m³)]. 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.</p> <p>⁴ Unclassified (U): a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment. Attainment (A): a pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a 3-year period. Nonattainment (N): a pollutant is designated nonattainment if there was a least one violation of a state standard for that pollutant in the area. Nonattainment/Transitional (NT): is a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the standard for that pollutant.</p> <p>⁵ National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.</p> <p>⁶ National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.</p> <p>⁷ Nonattainment (N): any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant. Attainment (A): any area that meets the national primary or secondary ambient air quality standard for the pollutant. Unclassifiable (U): any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.</p> <p>⁸ The national 1-hour ozone standard was revoked on June 15, 2005.</p> <p>⁹ ARB has identified lead and vinyl chloride as toxic air contaminants with no threshold 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.</p> <p>¹⁰ Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the EPA revoked the annual PM₁₀ standard on September 21, 2006.</p> <p>Source: California Air Resources Board 2007, EPA 2006</p>						

**Table 15-3
Environmental Threshold Carrying Capacities and Attainment Status Designations**

Threshold	TRPA Attainment Status Designation	
	2001	2006
Ozone: 1-hour	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Nonattainment
Visibility Reducing Particulates	Regional: Nonattainment, Subregion: Attainment	Region: Attainment Subregion: Attainment
Traffic Volume	Unknown/Attainment ¹	Attainment
Wood Smoke	Unknown (Likely Nonattainment) ¹	Unknown
Vehicle Miles of Travel	Nonattainment	Nonattainment
Atmospheric Deposition – TRPA Interim Target	TRPA Interim Target: Attainment, Standard: Unknown ¹	Unknown

¹ The status of these standards are unknown because the technology necessary to determine base year values does not exist, and the original standards and indicators were not well defined.

Source: Tahoe Regional Planning Agency 2002, 2007

15.1.3 TOXIC AIR CONTAMINANTS

Concentrations of toxic air contaminants (TACs) are also used as indicators of ambient-air-quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to the California Almanac of Emissions and Air Quality (California Air Resources Board 2006), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being PM from diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, the ARB has made preliminary concentration estimates based on a PM exposure method. This method uses ARB emissions inventory's PM₁₀ database, ambient PM₁₀ monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene pose the greatest existing ambient risk, for which data are available, in California.

Diesel PM poses the greatest health risk among these ten TACs mentioned. Based on receptor modeling techniques, the ARB estimated its health risk to be 540 excess cancer cases per million people in California. The 2005 emissions inventory for diesel PM in the Placer County portion of the LTAB was estimated as 14 tons per year. Since 1990, diesel PM's health risk has been reduced by 52%. Overall, levels of most TACs have gone down since 1990 except for para-dichlorobenzene and formaldehyde (California Air Resources Board 2006).

15.1.4 ASBESTOS

Asbestos is the common name for a group of naturally occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. Asbestos can be found in building materials (such as insulation) and also as a naturally occurring silicate mineral. (Note: the health hazards posed by the potential presence of asbestos containing materials in existing buildings at the project site are discussed in Chapter 17, “Hazards and Hazardous Materials.”) Naturally occurring asbestos (NOA) was identified as a TAC in 1986 by the ARB. It is located in many parts of California, including several foothill areas of Placer County, and is commonly associated with serpentine.

For individuals living in areas of NOA, there are many potential pathways for airborne exposure. Exposures to soil dust containing asbestos can occur under a variety of scenarios, including children playing in the dirt, dust raised from unpaved roads and driveways covered with crushed serpentine, uncontrolled quarry emissions, grading and construction associated with development of new housing, gardening and other human activities. For homes built on asbestos outcroppings, asbestos can be tracked into the home and can also enter as fibers suspended in outdoor air. Once such fibers are indoors, they can be entrained into the air by normal household activities, such as vacuuming (as many fibers will simply pass through vacuum cleaner bags).

The general public exposed to low levels of asbestos may be at elevated risk (e.g., above background rates) of lung cancer and mesothelioma. The risk is proportional to the cumulative inhaled dose (number of fibers), and also increases with the time since first exposure. Although there are a number of factors that influence the disease-causing potency of any given asbestos, such as fiber length and width, fiber type, and fiber chemistry, all forms are carcinogens.

Geologic maps prepared by the California Geologic Survey (formerly the California Division of Mines and Geology) show areas of higher probability for asbestos containing rock within the broad zone of faults that follows the low foothills and lay in a south-east to north-west band. The Placer County communities of Auburn, Colfax, Meadow Vista, and Foresthill are among those that are within this fault band. Generally, there are no areas of high probability of occurrence for NOA in Placer County that lay either to the west of Folsom Lake or to the south of Wise Road. That is, Roseville (and Granite Bay), Rocklin, Lincoln, Loomis, Penryn, and Newcastle lay within geologic areas that have a lower probability for the presence of NOA. There are some isolated areas of higher probability for the presence of NOA within the Tahoe National Forest.

The identification of locations in Placer County has been improved with the development of an enhanced 1:100,000 scale map by the California Geological Survey. The map denotes areas of Placer County that are more or less likely to contain NOA that is based on available soil and geologic studies, with some field verification.

The characterization of an area as having a lower overall probability of NOA presence means that although the likelihood is slight, in some instances NOA might be found within such an area. Similarly, a location in the area identified as being most likely to have NOA may not contain NOA.

NOA deposits have been found in rock other than ultramafic and serpentine rock; for example NOA deposits have been found in metavolcanic rocks such as the Copper Hill Volcanics in the Folsom vicinity. Metavolcanic rock formations are prevalent to the northeast, north, and west of Auburn. Finally in areas of sedimentary of alluvial rock deposits, such as exist in western Placer County; it is possible that analytically detectible NOA may be found.

According to Special Report 190: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California (Higgins and Clinkenbeard 2006) and the General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos (Churchill and Hill 2000), the proposed project site would not be located in an area that is likely to contain NOA.

15.1.5 ATMOSPHERIC DEPOSITION

Lake Tahoe's clarity has been decreasing by approximately 1 foot per year for over 30 years (see Chapter 8, "Hydrology and Water Quality," for more information). Clarity loss has historically been attributed to increased inputs of the nutrients nitrogen and phosphorous. These nutrients cause an increase in the growth of algae, which results in reduced clarity. Recent data indicate that particles in the water also have a significant impact to lake clarity, and possibly even more than algal growth (NLT Research Symposium 2004). Data from the late 1970s and early 1980s found that nitrogen deposition from the atmosphere was contributing to the nutrient load in the lake. At that time, it was believed that excess nitrogen was having the largest impact on the loss of lake clarity. Therefore, TRPA adopted a threshold indicator for nitrogen deposition to the lake. However, data collected in the 1980s and 1990s indicated that phosphorous also plays a significant role in lake clarity, and in some years its role was equal to or more significant than nitrogen. Research published in 1994 found that phosphorous is also depositing from the air into the lake (Jassby et al. 1994). This has prompted further study into the role of atmospheric deposition, with data indicating that phosphorous loading to the lake must also be reduced if the loss of clarity is to be slowed and, hopefully, reversed. Although TRPA has not yet adopted indicators for deposition of phosphorous, it is expected that as the indicator update process gets underway, an indicator will be included for this nutrient. As discussed above, particle deposition to the lake is also important to clarity. However, it is not yet known if the current federal and state standards for PM are stringent enough to also address the role of PM in lake clarity loss. This is also being evaluated in the indicator update process.

15.1.6 ODORS

Typically odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor, and an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant). It is important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the odor concentration in the air. When an odorous sample is progressively diluted, the odor concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odor reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

15.2 REGULATORY SETTING

Air quality within the LTAB portion of Placer County is regulated by such agencies as the EPA, ARB, TRPA, and PCAPCD. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent.

15.2.1 FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

At the federal level, the EPA implements national air quality programs. The EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress were in 1990.

The CAA required the EPA to establish national ambient air quality standards (NAAQS). As shown in Table 15-2, the EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, PM₁₀, PM_{2.5}, CO, NO₂, SO₂, and lead. The primary standards protect the public health and the secondary standards protect public welfare. 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 conformation 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. It is important to note that because the project site would not be located in a nonattainment or maintenance area with respect to any of the NAAQS and because there would be no federal funding, CAA conformity determination is not required for the proposed project.

15.2.2 STATE PLANS, POLICIES, REGULATIONS, AND LAWS

The ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required the ARB to establish California ambient air quality standards (CAAQS) (Table 15-2). The ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above mentioned criteria air pollutants. In most cases the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained by the health effects studies considered during the standard setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

Other ARB responsibilities include, but are not limited to, overseeing local air district compliance with California and federal laws, approving local air quality plans, submitting SIPs to the EPA, monitoring air quality, determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

15.2.3 REGIONAL PLANS, POLICIES, REGULATIONS, AND LAWS

TAHOE REGIONAL PLANNING AGENCY

Environmental Threshold Carrying Capacities

The TRPA has adopted ETCC in compliance with the requirements of the TRPA Compact to maintain the natural value of the LTAB and public safety in the region. The current ETCC thresholds are as follows:

Carbon Monoxide

- ▶ Numerical Standard: Maintain carbon monoxide concentrations at or below 6.0 parts per million (ppm) averaged over 8 hours.
- ▶ Management Standard: Reduce traffic volume on the U.S. Highway 50 (U.S. 50) corridor by 7% during the winter from the 1981 base year, between 4:00 PM and midnight.

Ozone

- ▶ Numerical Standard: Maintain ozone concentration below the 0.08 ppm averaged over 1 hour.

Regional Visibility

- ▶ Numerical Standard: Achieve 156 kilometers (97 miles) at least 50% of the year as measured by aerosol concentrations measured at Bliss State Park monitoring site.
- ▶ Numerical Standard: Achieve 115 kilometers (71 miles) at least 90% of the year as measured by aerosol concentrations measured at Bliss State Park monitoring site.
- ▶ Management Standard: Reduce wood smoke emissions by 15% of the 1981 base values through technology, management practices, and educational programs.

Subregional Visibility

- ▶ Numerical Standard: Achieve 78 kilometers (48 miles) at least 50% of the year as measured by particulate concentrations measured at the South Lake Tahoe monitoring site.
- ▶ Numerical Standard: Achieve 31 kilometers (19 miles) at least 90% of the year as measured by particulate concentrations measured at the South Lake Tahoe monitoring site.
- ▶ Management Standard: Reduce suspended soil particles by 30% of the 1981 base values through technology, management practices, and educational programs.
- ▶ Management Standard: Reduce wood smoke emissions by 15% of the 1981 base values through technology, management practices, and educational programs.
- ▶ Management Standard: Reduce vehicle miles of travel by 10% of the 1981 base values.

Atmospheric Deposition

- ▶ Water Quality (WQ) Numerical Standard: Reduce dissolved inorganic nitrogen loading to Lake Tahoe from all sources by 25% of the 1973–1981 annual average.

- ▶ Management Standard: Reduce dissolved inorganic nitrogen loads from surface runoff by approximately 50%, from groundwater approximately 30%, and from atmospheric sources approximately 20% of the 1973–1981 annual average. This threshold relies on predicted reductions in pollutant loadings from out-of-Basin sources as part of the total pollutant loading reduction.
- ▶ Management Standard: Reduce the transport of nitrates into the LTAB and reduce oxides of nitrogen produced in the LTAB consistent with water quality thresholds.
- ▶ Management Standard: Reduce vehicles miles of travel in the Lake Tahoe Basin by 10% of the 1981 base year values.

TRPA has also adopted the Regional Transportation Plan-Air Quality Plan for the Lake Tahoe Region to attain and maintain the ETCC. A review of the ETCC was last performed for 2006, and the 2006 Threshold Evaluation Report was published in 2007 (TRPA 2007).

Code of Ordinances

TRPA adopted Chapter 91 (Air Quality Control) and Chapter 93 (Traffic and Air Quality Mitigation Program) of the TRPA Code of Ordinances. The applicable provisions of these chapters are described below.

Chapter 91 Air Quality Control

The provisions of Chapter 91 apply to direct sources of air pollutions in the Tahoe Region, including certain motor vehicles registered in the region, combustion heaters installed in the region, open burning, stationary sources of air pollution, and idling combustion engines.

Section 91.2, Vehicle Inspection and Maintenance Program, states that to avoid duplication of effort in implementation of an inspection/maintenance program for certain vehicles registered in the CO non-attainment area, TRPA shall work with the affected state agencies to plan for the application of state inspection/maintenance programs to the Tahoe Region.

Section 91.3, Combustion Appliances, establishes emission standards for wood heaters, as well as natural gas or propane-fired water heaters and central furnaces.

Section 91.5.B states that any new stationary source of air pollution that produces emissions for the peak 24-hour period beyond any of the limits in Table II, reproduced as Table 15-4 below, shall be considered to have a significant adverse environmental impact. New stationary sources that have a significant adverse environmental impact shall be prohibited.

Pollutant	Kilograms	Pounds
Nitrogen Dioxide	11.0	24.2
PM ₁₀	10.0	22.0
Volatile Organic Compounds (Reactive Organic Gases)	57.0	125.7
Sulfur Dioxide	6.0	13.2
Carbon Monoxide	100.0	220.5

Source: TRPA Code of Ordinances as amended August 26, 1999

Chapter 93 Traffic and Air Quality Mitigation Program

The purpose of Chapter 93 is to establish fees and other procedures to offset impacts from indirect sources of air pollution. As part of the project application for additional development that would result in an increase of more than 200 daily vehicle trips, a technically adequate analysis of potential traffic and air quality impacts shall be prepared (Section 93.3.B). To offset regional and cumulative impacts, additional development shall contribute to the Air Quality Mitigation Fund. Instead of a contribution, additional development may provide mitigation measures, the cost of which shall be equal to, or greater than, the required contribution to the Air Quality Mitigation Fund (Section 93.3.C). For new residential units, the required contribution would be at least \$270 per daily vehicle trip (Section 93.3.D).

15.2.4 LOCAL PLANS, POLICIES, REGULATIONS, AND LAWS

PLACER COUNTY AIR POLLUTION CONTROL DISTRICT

The PCAPCD attains and maintains air quality conditions in Placer County through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of the PCAPCD includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. The PCAPCD also inspects stationary sources of air pollution and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by the CAA, CAAA, and the CCAA. Air quality plans applicable to the proposed project are discussed below.

As mentioned above, the PCAPCD adopts rules and regulations. All projects are subject to PCAPCD rules and regulations in effect at the time of construction. Specific rules applicable to the construction of the proposed project may include, but are not limited to:

- ▶ Rule 202-Visible Emissions. A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated as number 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.
- ▶ Rule 217-Cutback and Emulsified Asphalt Paving Materials. A person shall not manufacture for sale nor use for paving, road construction or road maintenance any: rapid cure cutback asphalt; slow cure cutback asphalt containing organic compounds which evaporate at 500°F or lower as determined by current American Society for Testing and Materials (ASTM) Method D402; medium cure cutback asphalt except as provided in Section 1.2.; or emulsified asphalt containing organic compounds which evaporate at 500°F or lower as determined by current ASTM Method D244, in excess of 3% by volume.
- ▶ Rule 218-Application of Architectural Coatings. No person shall manufacture, blend, or repackage for sale within PCAPCD; supply, sell, or offer for sale within PCAPCD; or solicit for application or apply within the PCAPCD, any architectural coating with a volatile organic carbon (VOC) content in excess of the corresponding specified manufacturer's maximum recommendation.
- ▶ Rule 228-Fugitive Dust.
 - a. Visible Emissions Not Allowed Beyond the Boundary Line: A person shall not cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area (including disturbance as a result of the raising and/or keeping of animals or by vehicle use), such that the presence of such dust remains visible in the atmosphere beyond the boundary line of the emission source.

- b. Visible Emissions from Active Operations: In addition to the requirements of Rule 202, Visible Emissions, a person shall not cause or allow fugitive dust generated by active operations, an open storage pile, or a disturbed surface area, such that the fugitive dust is of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke as dark or darker in shade as that designated as number 2 on the Ringelmann Chart, as published by the United States Bureau of Mines.
- c. Concentration Limit: A person shall not cause or allow PM₁₀ levels to exceed 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) (24-hour average) when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other EPA-approved equivalent method for PM₁₀ monitoring.
- d. Track-Out onto Paved Public Roadways: Visible roadway dust as a result of active operations, spillage from transport trucks, and the track-out of bulk material onto public paved roadways shall be minimized and removed.
- The track-out of bulk material onto public paved roadways as a result of operations, or erosion, shall be minimized by the use of track-out and erosion control, minimization, and preventative measures, and removed within one hour from adjacent streets such material anytime track-out extends for a cumulative distance of greater than 50 feet onto any paved public road during active operations.
 - All visible roadway dust tracked-out upon public paved roadways as a result of active operations shall be removed at the conclusion of each work day when active operations cease, or every 24 hours for continuous operations. Wet sweeping or a High Efficiency Particulate Air (HEPA) filter equipped vacuum device shall be used for roadway dust removal.
 - Any material tracked-out, or carried by erosion, and clean-up water, shall be prevented from entering waterways or storm water inlets as required to comply water quality control requirements.
- e. Minimum Dust Control Requirements: The following dust mitigation measures are to be initiated at the start and maintained throughout the duration of the construction or grading activity, including any construction or grading for road construction or maintenance.
- Unpaved areas subject to vehicle traffic must be stabilized by being kept wet, treated with a chemical dust suppressant, or covered.
 - The speed of any vehicles and equipment traveling across unpaved areas must be no more than 15 miles per hour unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust exceeding Ringelmann 2 or visible emissions from crossing the project boundary line.
 - Storage piles and disturbed areas not subject to vehicular traffic must be stabilized by being kept wet, treated with a chemical dust suppressant, or covered when material is not being added to or removed from the pile.
 - Prior to any ground disturbance, including grading, excavating, and land clearing, sufficient water must be applied to the area to be disturbed to prevent emitting dust exceeding Ringelmann 2 and to minimize visible emissions from crossing the boundary line.
 - Construction vehicles leaving the site shall be cleaned to prevent dust, silt, mud, and dirt, from being released or tracked offsite.

- When wind speeds are high enough to result in dust emissions crossing the boundary line, despite the application of dust mitigation measures, grading and earthmoving operations shall be suspended.
 - No trucks are allowed to transport excavated material off-site unless the trucks are maintained such that no spillage can occur from holes or other openings in cargo compartments, and loads are either covered with tarps; or wetted and loaded such that the material does not touch the front, back, or sides of the cargo compartment at any point less than 6 inches from the top and that no point of the load extends above the top of the cargo compartment.
- f. Wind-Driven Fugitive Dust Control: A person shall take action(s), such as surface stabilization, establishment of a vegetative cover, or paving, to minimize wind-driven dust from inactive disturbed surface areas.
- Rule 501-General Permit Requirements. Any person operating an article, machine, equipment or other contrivance, the use of which may cause, eliminate, reduce, or control the issuance of air contaminants, shall first obtain a written permit from the Air Pollution Control Officer (APCO). Stationary sources subject to the requirements of Rule 507, Federal Operating Permit Program, must also obtain a Title V permit pursuant to the requirements and procedures of that rule.

15.2.5 ODORS

PCAPCD recommends that odor impacts be addressed in a qualitative manner. Such an analysis shall determine whether the project would result in excessive nuisance odors, as defined under the California Code of Regulations and Section 41700 of the California Health and Safety Code.

15.2.6 TOXIC AIR CONTAMINANTS

Air quality regulations also focus on TACs, or in federal parlance hazardous air pollutants (HAPs). In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. There is no threshold level below which adverse health impacts may not be expected to occur. This contrasts with the criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 15-2). Instead, the EPA and ARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology for toxics (MACT and BACT) to limit emissions. These in conjunction with additional rules set forth by the ARB (for mobile sources) and PCAPCD establish the regulatory framework for TACs.

FEDERAL HAZARDOUS AIR POLLUTANT PROGRAMS

The EPA has programs for identifying and regulating HAPs. Title III of the CAAA directed the EPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP may differ for major sources than for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (TPY) of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources. The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), the EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring MACT. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), the EPA is required to promulgate health risk–based emissions standards where deemed necessary to address risks remaining after implementation of the technology-based NESHAP standards.

The CAAA also required the EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions, at a minimum to benzene and formaldehyde. Performance criteria were established to

limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

STATE AND LOCAL TOXIC AIR CONTAMINANT PROGRAMS

TACs in California are primarily regulated through the Tanner Air Toxics Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB can designate a substance as a TAC. To date, ARB has identified over 21 TACs, and adopted the EPA's list of HAPs as TACs. Most recently, diesel PM was added to the ARB list of TACs.

Once a TAC is identified, the ARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions.

The Hot Spots Act requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

The ARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses, and off-road diesel equipment (e.g., tractors, generators). In February 2000, the ARB adopted a new public transit bus fleet rule and emission standards for new urban buses. These new rules and standards provide for 1) more stringent emission standards for some new urban bus engines beginning with 2002 model year engines; 2) zero-emission bus demonstration and purchase requirements applicable to transit agencies; and 3) reporting requirements with which transit agencies must demonstrate compliance with the urban transit bus fleet rule. Upcoming milestones include the low sulfur diesel fuel requirement, and tighter emission standards for heavy-duty diesel trucks (2007) and off-road diesel equipment (2011) nationwide. Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially less TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade, and will be reduced further in California through a progression of regulatory measures [e.g., Low Emission Vehicle (LEV)/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of ARB's Risk Reduction Plan, it is expected that diesel PM concentrations will be reduced by 75% in 2010 and 85% in 2020 from the estimated year 2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

The ARB recently published the Air Quality and Land Use Handbook: A Community Health Perspective, which provides guidance concerning land use compatibility with TAC sources (California Air Resources Board 2005). While not a law or adopted policy, the handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries dry cleaners, gasoline stations, and industrial facilities to help keep children and other sensitive populations out of harm's way. A number of comments on the Handbook were provided to the ARB by air districts, other agencies, real estate representatives, and others. The comments included concern over whether the ARB was playing a role in local land use planning, the validity of relying on static air quality conditions over the next several decades in light of technological improvements, and support for providing information that can be used in local decision making.

At the local level, air pollution control or management districts may adopt and enforce ARB control measures. Under PCAPCD Rule 501 (General Permit Requirements), Rule 502 (New Source Review), Rule 507 (Federal Operating Permit), and Rule 513 (Toxics New Source Review) all sources that possess the potential to emit TACs are required to obtain permits from the District. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. The PCAPCD limits emissions and public exposure to TACs through a number of programs. The PCAPCD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

Sources that require a permit are analyzed by the PCAPCD (e.g., health risk assessment) based on their potential to emit toxics. If it is determined that the project would emit toxics in excess of PCAPCD's threshold of significance for TACs, as identified below, sources have to implement the best available control technology for TACs (T-BACT) to reduce emissions. If a source cannot reduce the risk below the threshold of significance even after T-BACT has been implemented, the PCAPCD will deny the permit required by the source. This helps to prevent new problems and reduces emissions from existing older sources by requiring them to apply new technology when retrofitting with respect to TACs. It is important to note that PCAPCD's air quality permitting process applies to stationary sources; properties which are exposed to elevated levels of non-stationary type sources of TACs, and the non-stationary type sources themselves (e.g., on-road vehicles) are not subject to air quality permits. Further, because of feasibility and practicality reasons, mobile sources (cars, trucks, etc.) are not required to implement T-BACT on a project-specific basis, even if they do have the potential to expose adjacent properties to elevated levels of TACs. Rather, emissions controls on such sources (e.g., vehicles) are subject to regulations implemented on the state and federal level. This regulatory program constitutes programmatic mitigation for these sources.

15.3 ENVIRONMENTAL CONSEQUENCES AND RECOMMENDED MITIGATION MEASURES

15.3.1 CRITERIA OF SIGNIFICANCE

CEQA CRITERIA

For the purpose of this analysis, the following thresholds of significance, as identified by the State CEQA Guidelines (Appendix G) and the PCAPCD have been used to determine whether implementation of the proposed project would result in significant air quality impacts. Based on Appendix G of the State CEQA Guidelines, an air quality impact is considered significant if implementation of the proposed project under consideration would do any of the following:

- ▶ conflict with or obstruct implementation of the applicable air quality plan,
- ▶ violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- ▶ result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is nonattainment under any applicable national or state ambient air quality standards (including releasing emissions that exceed quantitative thresholds for ozone precursors),
- ▶ expose sensitive receptors to substantial pollutant concentrations, or
- ▶ create objectionable odors affecting a substantial number of people.

As stated in Appendix G, the significance of criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. Thus, as identified by the

PCAPCD, implementation of the proposed project would result in significant air quality impacts if (Backus, pers. comm., 2006):

- ▶ construction-generated emissions of ROG, NO_x, or PM₁₀ exceed the PCAPCD-recommended mass emissions threshold of 82 pounds per day (lbs/day);
- ▶ long-term operational (regional) emissions of ROG, NO_x, or PM₁₀ exceed PCAPCD's mass emissions threshold of 82 lbs/day; or
- ▶ long-term operational (regional) emissions of ROG or NO_x exceed PCAPCD's cumulative mass emissions threshold of 10 lbs/day.

TRPA CRITERIA

For the purpose of this analysis, the following thresholds of significance, as identified by TRPA, have also been used to determine whether implementation of the proposed project would result in significant air quality impacts. Thus, as specified by TRPA, implementation of the proposed project would result in significant air quality impacts if:

- ▶ long-term operational (e.g., regional and local) emissions exceed TRPA's numerical ETCC thresholds (e.g., 6 ppm [CO, 8-hr], 0.08 ppm [ozone, 1-hr]).
- ▶ project-generated stationary-source emissions exceed TRPA's peak 24-hour period significance thresholds established by Chapter 91 of the Code of Ordinances (Table 15-4).

Note that PCAPCD's mass emission thresholds, identified above, for ROG, NO_x, and PM₁₀ are also used to determine whether project implementation would exceed TRPA's numerical thresholds and/or affect related-attainment designations (e.g., atmospheric deposition). In addition, the required contribution to the Air Quality Mitigation Fund for new residential units, pursuant to TRPA Code of (Section 93.3.D), is discussed in the traffic analysis of this report (Chapter 14, "Traffic, Parking, and Circulation") because it is a direct function of the number of daily vehicle trips generated by the project and does not concern emissions from stationary and area sources.

15.3.2 METHODOLOGY

Short-term construction-generated criteria air pollutant (e.g., PM₁₀) and ozone precursor emissions (ROG and NO_x) were assessed in accordance with PCAPCD-recommended methods using the URBEMIS 2002 Version 8.7 computer model. Modeling was based on project-specific data (e.g., estimated duration of construction, size and type of proposed land uses) and URBEMIS default settings.

Long-term (i.e., operational) regional criteria air pollutant and precursor emissions, including stationary, area, and mobile source emissions, were also quantified using the URBEMIS 2002 Version 8.7 computer model. Modeling was based on project-specific data (e.g., size and type of proposed uses), URBEMIS default settings, and trip generation data from the traffic analysis (Fehr & Peers 2006).

All other air quality impacts (i.e., local mobile source, odor, and TAC emissions) were assessed in accordance with ARB and PCAPCD-recommended methodologies. Such methodologies include the use of a screening level procedure for local mobile-source CO concentrations, and a qualitative assessment for the exposure of sensitive receptors to odor or TAC emissions.

15.3.3 IMPACT ANALYSIS

ALTERNATIVE A—PROPOSED PROJECT

Short-Term Construction Air Quality Impacts

IMPACT **Short-Term Construction Emissions of ROG, NO_x, and PM₁₀.** *Project-related construction emissions of criteria air pollutants would exceed the PCAPCD significance thresholds of 82 lbs/day for NO_x. In addition, construction emissions would potentially contribute to existing nonattainment conditions in the LTAB for PM₁₀.*

Significance *Significant*

Mitigation *Mitigation Measure 15.A-1. Reduce Temporary Construction Emissions of ROG, NO_x, and PM₁₀.*

Significance after Mitigation *Less Than Significant*

Construction emissions are described as “short-term” or temporary in duration and have the potential to represent a significant impact with respect to air quality. ROG and NO_x emissions are primarily associated with gas and diesel equipment exhaust and the application of architectural coatings. Fugitive PM₁₀ dust emissions are primarily associated with site preparation and vary as a function of such parameters as soil silt content, soil moisture, wind speed, acreage of disturbance area, and VMT by construction vehicles on- and off-site.

With respect to the proposed project, the initial site preparation and building phases of construction would result in the temporary generation of ROG, NO_x, and PM₁₀ emissions from site preparation (e.g., demolition, excavation, grading, and clearing); off-road equipment, material import/export, and worker commute exhaust emissions; paving; application of architectural coatings; other miscellaneous activities.

Short-term construction emissions of ROG, NO_x, and PM₁₀ under Alternative A were modeled using the ARB-approved URBEMIS 2002 Version 8.7 computer program as recommended by the PCAPCD. URBEMIS is designed to model construction emissions for land use development projects and allows for the input of project-specific information. Input parameters were based on default model settings and information provided in the Project Description. The modeled maximum daily construction emissions are summarized in Table 15-5 and included in Appendix E.

Based on the modeling conducted, project construction would result in worst-case maximum unmitigated daily emissions of approximately 19.0 lbs/day of ROG, 98.6 lbs/day of NO_x, and 20.4 lbs/day of PM₁₀. The level of NO_x would exceed the PCAPCD’s significance thresholds of 82 lbs/day. While the level of PM₁₀ emissions is below the PCAPCD thresholds, fugitive dust emissions could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of the LTAB portion of Placer County with respect to the California and TRPA standards. Therefore, construction would result in a **significant** impact to air quality.

**Table 15-5
Summary of Modeled Worst-Case Daily Short-Term Construction-Generated Emissions under
Alternative A¹**

Source	lbs/day		
	ROG	NO _x	PM ₁₀
Initial Site Preparation (Demolition & Grading) Phase¹			
Demolition			
Fugitive Dust	-	-	15.1
Off-Road Diesel	1.8	10.5	0.3
On-Road Diesel	2.7	49.6	1.3
Worker Commute	-	-	-
Maximum Daily Total, Unmitigated	4.5	60.1	16.7
PCAPCD Significance Threshold		82	
Site Grading			
Fugitive Dust	-	-	16.0
Off-Road Diesel	12.9	98.6	4.4
On-Road Diesel	-	-	-
Worker Commute	0.1	-	-
Maximum Daily Total, Unmitigated	13.0	98.6	20.4
PCAPCD Significance Threshold		82	
Building Construction Phase 1²			
Off-Road Diesel	10.4	67.0	2.4
On-Road Diesel	-	0.3	-
Worker Commute	0.2	0.2	-
Architectural Coatings (Off-Gassing)	2.0	-	-
Asphalt (Off-Gassing)	0.1	-	-
Maximum Daily Total, Unmitigated	12.7	67.5	2.4
PCAPCD Significance Threshold		82	
Building Construction Phase 2³			
Off-Road Diesel	13.2	83.9	3.1
On-Road Diesel	-	0.6	-
Worker Commute	0.3	0.6	0.1
Architectural Coatings (Off-Gassing)	5.4	-	-
Asphalt (Off-Gassing)	0.1	-	-
Maximum Daily Total, Unmitigated	19.0	85.1	3.2
PCAPCD Significance Threshold		82	
¹ Modeled emissions from demolition were based on the following assumptions from URBEMIS2002 Version 8.7.0 default model settings and information in the Project Description: duration of 1.3 months starting May 2008, total demolition volume of 36,000 cubic feet, on-road truck travel of 2,001 miles to remove material, and use of one rubber tired loader 10.5 hours per day. Modeled emissions from site grading were based on the following assumptions from URBEMIS2002 Version 8.7.0 default model settings or information in the Project Description: duration of 2.7 months, use of 3 rubber tired loaders and 3 tractors/loaders/backhoes, total area of 6.25 acres, and a maximum daily disturbed area of 1.6 acres. Hours of equipment operation per day (10.5) assumes compliance with TRPA Code Section 62.4.A and TRPA's exemption for construction noise between 8:00 AM and 6:30 PM, as discussed in Chapter 16, "Noise."			
² Modeled emissions from building construction of Phase 1 (10 affordable/employee units, clubhouse/administration building with 5 TAU			

**Table 15-5
Summary of Modeled Worst-Case Daily Short-Term Construction-Generated Emissions under Alternative A ¹**

units, and associated pool/spa and deck area) were based on the following assumptions from URBEMIS2002 Version 8.7.0 default model settings and information in the Project Description: duration of 10 months starting June 2008, use of one concrete/industrial saw, 1 rough terrain forklift, 1 grader, 1 paver, 1 roller, and 1 piece of other miscellaneous 10.5 hours per day. As recommended by PCAPCD, An emission factor of 0.0013 pounds per square foot was used for architectural coatings (Chang, pers. comm., 2005).

³ Modeled emissions from building construction of Phase 2 (20 duplex buildings that would house 40 TAU units, associated 7 garage buildings, and modifications to the rear area of the existing main 2-story commercial building) were based on the following assumptions from URBEMIS2002 Version 8.7.0 default model settings and information in the Project Description: duration of 10 months starting September 2009, use of one concrete/industrial saw, 1 rough terrain forklift, 1 grader, 1 paver, 1 roller, and 2 pieces of other miscellaneous 10.5 hours per day. As recommended by PCAPCD, An emission factor of 0.0013 pounds per square foot was used for architectural coatings (Chang, pers. comm., 2005).

See Appendix E for detailed input parameters and modeling results.

Sources: Modeling performed by EDAW 2006.

Long-Term Operational Air Quality Impacts

IMPACT
15.A-2 *Long-Term Operational (Regional) Emissions. The total of stationary, area, and mobile source emissions associated with the long-term operation of the project would not exceed the PCAPCD's significance threshold of 82 lbs/day for ROG, NO_x, or PM₁₀. In addition, emissions from stationary sources associated with the project would not exceed the TRPA thresholds for stationary sources. However, PCAPCD maintains a 10 lbs/day cumulative threshold for ROG and NO_x, and the project would exceed the NO_x threshold.*

Significance *Significant*

Mitigation *Mitigation Measure 15.A-2. Contribute to TRPA Air Quality Mitigation Fund to Reduce VMT Pursuant to Mitigation Measure 14.A-1a.*

Significance after Mitigation *Less Than Significant*

Regional stationary-, area- and mobile-source emissions of ROG, NO_x, PM₁₀, CO, and SO_x associated with implementation of the proposed project were estimated using URBEMIS 2002 Version 8.7.0 computer program, which is designed to model emissions for land use development projects. URBEMIS allows land use selections that include project location specifics and trip generation rates. URBEMIS accounts for stationary- and area-source emissions from the usage of natural gas, wood stoves, fireplaces, landscape maintenance equipment, and consumer products; and mobile-source emissions associated with vehicle trips. Regional stationary-, area-, and mobile-source emissions were estimated based on proposed land use types and sizes identified in the Project Description and the net increase in trip generation from the traffic analysis prepared for this project in Chapter 14, "Traffic, Parking, and Circulation." Because wood stoves and fireplaces would not be installed in the proposed uses, they were not included in the analysis of stationary-source emissions. Project-related stationary sources (e.g., natural gas fired water heaters and central furnaces) would comply with Section 91.3 of the TRPA Code of Ordinances. Project implementation would not include the construction or operation of any major stationary sources of emissions.

The modeled maximum daily operational emissions under Alternative A are summarized in Table 15-6 and included in Appendix E. As shown in Table 15-6, the sum total emissions for ROG, NO_x, and PM₁₀ would not exceed the PCAPCD per-project thresholds. Stationary source emissions of ROG, NO_x, PM₁₀, CO, or SO_x would be less than TRPA significance thresholds, and because the project's operational emissions of NO_x would not

exceed PCAPCD’s NO_x threshold, Alternative A would not affect TRPA’s attainment designation for atmospheric deposition. However, the PCAPCD also has a 10 lbs/day threshold for ROG and NO_x, for a project’s contribution to cumulative regional emissions. The project would exceed the threshold for NO_x. Therefore, emissions associated with project operation would result in a **significant** impact.

The traffic analysis in Chapter 14, “Traffic, Parking, and Circulation,” discusses the amount of the contribution to the Air Quality Mitigation Fund, as required by Chapter 93.3.D of the TRPA Code of Ordinances. This discussion is included in the traffic analysis because the contribution amount is a direct function of the number of daily vehicle trips generated by the project, rather than the actual emissions from stationary, area, and mobile sources.

Table 15-6 Summary of Modeled Long-Term Operational (Regional) Emissions under Alternative A					
Sources	lbs/day				
	ROG	NO _x	PM ₁₀	CO	SO _x
Stationary Sources (Natural Gas Usage) ¹	0.1	0.7	-	0.3	-
Area sources (Consumer Product Usage, Landscaping, and Application of Architectural Coatings)	2.7	-	-	-	-
Mobile Source	6.2	10.9	8.5	75.7	0.1
Maximum Daily Total, Unmitigated ²	9.0	11.6	8.5	76.0	0.1
PCAPCD Significance Threshold (total emissions)	82.0	82.0	82.0	—	—
PCAPCD Significance Threshold (cumulative contribution)	10.0	10.0	—	—	—
TRPA Threshold (Stationary Sources Only)	125.7	24.2	22.0	220.5	13.2

¹ Includes the use of natural gas fueled fireplaces.

² Stationary-, area-, and mobile-source emissions were modeled using URBEMIS2002 Version 8.7.0 based on default model settings for the proposed land use types and sizes, the net increase in trip generation from the traffic analysis prepared for the project (Chapter 14, “Traffic, Parking and Circulation”), and 2009 conditions in the LTAB portion of Placer County. The modeling presented here represents worst-case daily operational emissions based on winter conditions and a net increase of 522 daily vehicle trips as identified in the traffic analysis prepared for this project.

See Appendix E for detailed input parameters and modeling results.
Source: Modeling conducted by EDAW 2006

IMPACT **Long-Term Operational (Local) Mobile-Source Carbon Monoxide Emissions.** *Long-term operational (local) mobile-source CO emissions under Alternative A would not violate an air quality standard (i.e., 1-hour CAAQS of 20 ppm, 8-hour TRPA standard of 6 ppm), contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations.*

Significance *Less Than Significant*

Mitigation *No Mitigation is Required*

Significance after Mitigation *Less Than Significant*

CO concentration is a direct function of motor vehicle activity (e.g., idling time and traffic flow conditions), particularly during peak commute hours, and meteorological conditions. Under specific meteorological conditions, CO concentrations may reach unhealthy levels with respect to local sensitive land-uses such as

residential areas, schools, and hospitals. As a result, the PCAPCD also recommends analysis of CO emissions at a local level.

The Transportation Project-Level Carbon Monoxide Protocol (Garza et al. 1997) states that signalized intersections which operate at an unacceptable level of service (LOS) represent a potential for a CO violation, also known as a “hot spot.” Thus, an analysis of CO concentrations is typically recommended for receptors located near signalized intersections that are projected to operate at LOS E or F.

According to the traffic analysis prepared for this project, signalized intersections in the vicinity of the project site under existing plus Alternative A project conditions would operate at LOS B or better (refer to Table 14-7) (Fehr & Peers 2006). In addition, local CO emissions attributable to projects that consist of less than 656 single-family residential units in this area are considered insignificant and, as such, would be adequately controlled by California and federal vehicle and engine emission control programs (SMAQMD 2004). Thus, long-term operational (local) mobile-source CO emissions under Alternative A would not violate an air quality standard (i.e., 1-hour CAAQS of 20 ppm, 8-hour TRPA standard of 6 ppm), contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. As a result, this impact would be **less than significant**.

IMPACT **Odor Emissions.** *Neither project construction nor operation of Alternative A would create objectionable odors affecting a substantial number of people.*
15.A-4

Significance *Less Than Significant*

Mitigation *No Mitigation is Required*

Significance after *Less Than Significant*
Mitigation

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

Project implementation would not result in any major sources of odor as the project type is not one of the common types of facilities that are known to produce odors (e.g., landfill, coffee roaster, wastewater treatment). In addition, no existing odor sources are located in the vicinity of the proposed project site. Diesel exhaust from the use of on-site construction equipment would be intermittent and temporary, and would dissipate rapidly from the source with an increase in distance. This would also be the case for any people who occupy on-site affordable/employee housing or TAU units before construction of other buildings is complete. Also, because all of the initial site preparation would occur before any structures would be built and occupied; these on-site residents and TAU occupants would not be present during most of the heavy-duty equipment operation. Thus, neither project construction nor operation of Alternative A would create objectionable odors affecting a substantial number of people. As a result, this impact would be considered **less than significant**.

IMPACT **Toxic Air Contaminant Emissions.** *Neither construction nor operation of Alternative A would result in the exposure of sensitive receptors to substantial TAC emissions.*

15.A-5

Significance *Less Than Significant*

Mitigation *No Mitigation is Required*

Significance after *Less Than Significant*
Mitigation

The exposure of sensitive receptors to emissions of TAC can occur during both the construction and operational phases of a project, as discussed separately below.

Construction of the proposed project would result in short-term diesel exhaust emissions from on-site heavy duty equipment. Diesel PM were identified as a TAC by the ARB in 1998. Construction of this alternative would result in the generation of diesel PM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities. According to the ARB, the potential cancer risk from the inhalation of diesel PM, as discussed below, outweighs the potential non-cancer health impacts.

It is important to note that construction equipment emissions will be reduced over the period of project development. In January 2001, the EPA promulgated a Final Rule to reduce emission standards for 2007 and subsequent model year heavy-duty diesel engines. These emission standards represent a 90% reduction in NO_x, 72% reduction of non-methane hydrocarbon (NMHC) emissions, and 90% reduction of PM emissions in comparison to the 2004 model year emission standards. In December 2004, the ARB adopted a fourth phase of emission standards (Tier 4) in the Clean Air Non-road Diesel Rule that are nearly identical to those finalized by EPA on May 11, 2004. As such, engine manufacturers are now required to meet after treatment-based exhaust standards NO_x and PM starting in 2011 that are over 90% lower than current levels, putting emissions from off-road engines virtually on par with those from on-road heavy-duty diesel engines.

More specifically, the dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (Salinas, pers. comm., 2004). Thus, because the use of off-road construction equipment would be temporary in combination with the highly dispersive properties of diesel PM (Zhu and Hinds 2002), future reductions in exhaust emissions, and the small scale of the proposed construction-related activities, short-term construction activities would not expose sensitive receptors to substantial TAC emissions. In addition, according to Special Report 190: Relative Likelihood for the Presence of Naturally Occurring Asbestos in Placer County, California (Higgins and Clinkenbeard 2006) and the General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos (Churchill and Hill 2000), the proposed project site would not be located in an area that is likely to contain naturally occurring asbestos (refer to Section 15.1.4, “Asbestos”). (Note: the health hazards posed by the potential presence of asbestos containing materials in existing buildings at the project site are discussed in Chapter 17, “Hazards and Hazardous Materials.”)

The proposed project would not include the construction or operation of any major stationary sources of TAC emissions, or result in an increase in mobile-source TAC emissions (e.g., diesel truck traffic). In addition, there are no major existing sources of TACs in the vicinity of the project site. Nonetheless, pursuant to PCAPCD Rule

513, all sources having the potential to emit TACs are required to obtain permits. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including PCAPCD Rules 902–06. Given that compliance with applicable standards would be required for the development and operation of facilities that may emit TACs, the TAC emissions at the project site would be expected to be within established standards.

Thus, neither construction nor operation of Alternative A would result in the exposure of sensitive receptors to substantial TAC emissions. As a result, this impact would be **less than significant**.

ALTERNATIVE B—REDUCED DEVELOPMENT

Short-Term Construction Air Quality Impacts

IMPACT **Short-Term Construction Emissions of ROG, NO_x, and PM₁₀.** *Project-related construction emissions of criteria air pollutants would exceed the PCAPCD significance thresholds of 82 lbs/day for NO_x. In addition, construction emissions would potentially contribute to existing nonattainment conditions in the LTAB for PM₁₀.*

Significance *Significant*

Mitigation *Mitigation Measure 15.B-1. Reduce Temporary Construction Emissions of ROG, NO_x, and PM₁₀.*

Significance after Mitigation *Less Than Significant*

Short-term construction emissions of ROG, NO_x, and PM₁₀ under Alternative B would be substantially similar to those of Alternative A and were also modeled using the ARB-approved URBEMIS 2002 Version 8.7 computer program as recommended by the PCAPCD. The modeled maximum daily construction emissions are summarized in Table 15-7 and described in more detail below and in Appendix E.

Table 15-7 Summary of Modeled Worst-Case Daily Short-Term Construction-Generated Emissions under Alternatives B & C¹			
Source	lbs/day		
	ROG	NO _x	PM ₁₀
Initial Site Preparation (Demolition & Grading) Phase¹			
Demolition			
Fugitive Dust	-	-	15.1
Off-Road Diesel	1.8	10.5	0.3
On-Road Diesel	2.7	49.6	1.3
Worker Commute	-	-	-
Maximum Daily Total, Unmitigated	4.5	60.1	16.7
PCAPCD Significance Threshold		82	
Site Grading			
Fugitive Dust	-	-	16.0
Off-Road Diesel	12.9	98.6	4.4
On-Road Diesel	-	-	-
Worker Commute	0.1	-	-
Maximum Daily Total, Unmitigated	13.0	98.6	20.4
PCAPCD Significance Threshold		82	

**Table 15-7
Summary of Modeled Worst-Case Daily Short-Term Construction-Generated Emissions under
Alternatives B & C¹**

Building Construction Phase 1²			
Off-Road Diesel	10.4	67.0	2.4
On-Road Diesel	-	0.3	-
Worker Commute	0.2	0.2	-
Architectural Coatings (Off-Gassing)	2.0	-	-
Asphalt (Off-Gassing)	0.1	-	-
Maximum Daily Total, Unmitigated	12.7	67.5	2.4
PCAPCD Significance Threshold		82	
Building Construction Phase 2³			
Off-Road Diesel	10.4	65.2	2.3
On-Road Diesel	-	0.4	-
Worker Commute	0.3	0.5	0.1
Architectural Coatings (Off-Gassing)	4.6	-	-
Asphalt (Off-Gassing)	0.1	-	-
Maximum Daily Total, Unmitigated	15.4	66.1	2.4
PCAPCD Significance Threshold		82	
¹ Modeled emissions from demolition were based on the following assumptions from URBEMIS2002 Version 8.7.0 default model settings and information in the Project Description: duration of 1.3 months starting May 2008, total demolition volume of 36,000 cubic feet, on-road truck travel of 2,001 miles to remove material, and use of one rubber tired loader 10.5 hours per day. Modeled emissions from site grading were based on the following assumptions from URBEMIS2002 Version 8.7.0 default model settings or information in the Project Description: duration of 2.7 months, use of 3 rubber tired loaders and 3 tractors/loaders/backhoes, total area of 6.25 acres, and a maximum daily disturbed area of 1.6 acres. Hours of equipment operation per day (10.5) assumes compliance with TRPA Code Section 62.4.A and TRPA's exemption for construction noise between 8:00 PM and 6:30 PM, as discussed in Chapter 16, "Noise."			
² Modeled emissions from building construction of Phase 1 (10 affordable/employee units, clubhouse/administration building with 5 TAU units, and associated pool/spa and deck area) were based on the following assumptions from URBEMIS2002 Version 8.7.0 default model settings and information in the Project Description: duration of 10 months starting June 2008, use of one concrete/industrial saw, 1 rough terrain forklift, 1 grader, 1 paver, 1 roller, and 1 piece of other miscellaneous 10.5 hours per day. As recommended by PCAPCD, An emission factor of 0.0013 pounds per square foot was used for architectural coatings (Chang, pers. comm., 2005).			
³ Modeled emissions from building construction of Phase 2 (34 units, associated garage buildings, and modifications to the rear area of the existing main 2-story commercial building) were based on the following assumptions from URBEMIS2002 Version 8.7.0 default model settings and information in the Project Description: duration of 10 months starting September 2009, use of one concrete/industrial saw, 1 rough terrain forklift, 1 grader, 1 paver, 1 roller, and 2 pieces of other miscellaneous 10.5 hours per day. As recommended by PCAPCD, An emission factor of 0.0013 pounds per square foot was used for architectural coatings (Chang, pers. comm., 2005).			
See Appendix E for detailed input parameters and modeling results.			
Sources: Modeling performed by EDAW 2006.			

Based on the modeling conducted, Alternative B construction would result in worst-case maximum unmitigated daily emissions of approximately 15.4 lbs/day of ROG, 98.6 lbs/day of NO_x, and 20.4 lbs/day of PM₁₀. The level of NO_x would exceed the PCAPCD's significance thresholds of 82 lbs/day. While the level of PM₁₀ emissions is below the PCAPCD thresholds, fugitive dust emissions could violate or contribute substantially to an existing or projected air quality violation, and/or expose sensitive receptors to substantial pollutant concentrations, especially considering the nonattainment status of the LTAB portion of Placer County with respect to the California and TRPA standards. Therefore, construction would result in a **significant** impact to air quality.

Long-Term Operational Air Quality Impacts

IMPACT **Long-Term Operational (Regional) Emissions.** *The total of stationary, area, and mobile source emissions associated with the long-term operation of Alternative B would not exceed the PCAPCD's significance threshold of 82 lbs/day for ROG, NO_x, or PM₁₀. In addition, emissions from stationary sources associated with the project would not exceed the TRPA thresholds for stationary sources. However, PCAPCD maintains a 10 lbs/day cumulative threshold for ROG and NO_x, and Alternative B would exceed the NO_x threshold.*

Significance *Significant*

Mitigation *Mitigation Measure 15.B-2. Contribute to TRPA Air Quality Mitigation Fund to Reduce VMT Pursuant to Mitigation Measure 14.B-1a.*

Significance after Mitigation *Less Than Significant*

The modeled maximum daily operational emissions under Alternative B would be substantially similar to those under Alternative A, and are summarized in Table 15-8 and included in Appendix E. As shown in Table 15-8, the sum total emissions for ROG, NO_x, and PM₁₀ would not exceed the PCAPCD per-project thresholds. Stationary source emissions of ROG, NO_x, PM₁₀, CO, or SO_x would be less than TRPA significance thresholds, and because Alternative B's operational emissions of NO_x would not exceed PCAPCD's NO_x threshold, Alternative B would not affect TRPA's attainment designation for atmospheric deposition. However, the PCAPCD also has a 10 lbs/day threshold for ROG and NO_x, for a project's contribution to cumulative regional emissions. Alternative B would exceed the threshold for NO_x. Therefore, emissions associated with Alternative B operation would result in a **significant** impact.

**Table 15-8
Summary of Modeled Long-Term Operational (Regional) Emissions under Alternatives B & C**

Sources	lbs/day				
	ROG	NO _x	PM ₁₀	CO	SO _x
Stationary Sources (Natural Gas Usage) ¹	0.1	0.6	-	0.2	-
Area sources (Consumer Product Usage, Landscaping, and Application of Architectural Coatings)	2.5	-	-	-	-
Mobile Source	5.5	9.6	7.5	66.8	-
Maximum Daily Total, Unmitigated ²	8.1	10.2	7.5	67.0	-
PCAPCD Significance Threshold	82.0	82.0	82.0	—	—
PCAPCD Significance Threshold (cumulative contribution)	10.0	10.0	—	—	—
TRPA Threshold (Stationary Sources Only)	125.7	24.2	22.0	220.5	13.2

¹ Includes the use of natural gas fueled fireplaces.

² Stationary-, area-, and mobile-source emissions were modeled using URBEMIS2002 Version 8.7.0 based on default model settings for the proposed land use types and sizes, the net increase in trip generation from the traffic analysis prepared for the project (Chapter 14, "Traffic, Parking, and Circulation"), and 2009 conditions in the LTAB portion of Placer County. The modeling presented here represents worst-case daily operational emissions based on winter conditions and a net increase of 522 daily vehicle trips as identified in the traffic analysis prepared for this project.

See Appendix E for detailed input parameters and modeling results.

Source: Modeling conducted by EDAW 2006

IMPACT 15.B-3 **Long-Term Operational (Local) Mobile-Source Carbon Monoxide Emissions.** *Long-term operational (local) mobile-source CO emissions under Alternative B would not violate an air quality standard (i.e., 1-hour CAAQS of 20 ppm, 8-hour TRPA standard of 6 ppm), contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations.*

Significance *Less Than Significant*

Mitigation *No Mitigation is Required*

Significance after Mitigation *Less Than Significant*

As with Alternative A, signalized intersections in the vicinity of the project site under existing plus Alternative B project conditions would operate at LOS B or better (Refer to Table 14-12) (Fehr & Peers 2006). In addition, local CO emissions attributable to projects that consist of less than 656 single-family residential units in this area are considered insignificant and, as such, would be adequately controlled by California and federal vehicle and engine emission control programs (SMAQMD 2004). Thus, long-term operational (local) mobile-source CO emissions under Alternative B would not violate an air quality standard (i.e., 1-hour CAAQS of 20 ppm, 8-hour TRPA standard of 6 ppm), contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. As a result, this impact would be **less than significant**.

IMPACT 15.B-4 **Odor Emissions.** *Because implementation of Alternative B would result in the same type of proposed uses on the same project site as Alternative A, this impact would be the same as Impact 15.A-4. Thus, neither construction nor operation of Alternative B would create objectionable odors affecting a substantial number of people.*

Significance *Less Than Significant*

Mitigation *No Mitigation is Required*

Significance after Mitigation *Less Than Significant*

IMPACT 15.B-5 **Toxic Air Contaminant Emissions.** *Because implementation of Alternative B would result in the same type of proposed uses and on the same project site as Alternative A, this impact would be the same as Impact 15.A-5. Thus, neither construction nor operation of Alternative B would result in the exposure of sensitive receptors to substantial TAC emissions.*

Significance *Less Than Significant*

Mitigation *No Mitigation is Required*

Significance after Mitigation *Less Than Significant*

ALTERNATIVE C—REDUCED DEVELOPMENT WITH RECREATION ELEMENTS

Short-Term Construction Air Quality Impacts

IMPACT 15.C-1	Short-Term Construction Emissions of ROG, NO_x, and PM₁₀. <i>This impact is the same as Impact 15.B-1 described above for Alternative B. Project-related construction emissions of criteria air pollutants would exceed the PCAPCD significance thresholds of 82 lbs/day for NO_x. In addition, construction emissions would potentially contribute to existing nonattainment conditions in the LTAB for PM₁₀.</i>
Significance	<i>Significant</i>
Mitigation	<i>Mitigation Measure 15.C-1. Reduce Temporary Construction Emissions of ROG, NO_x, and PM₁₀.</i>
Significance after Mitigation	<i>Less Than Significant</i>

Long-Term Operational Noise Impacts

IMPACT 15.C-2	Long-Term Operational (Regional) Emissions. <i>Because the trip generation and the proposed land use types and sizes would be the same for Alternatives C as under Alternative B, this impact would be the same as Impact 15.B-2. The total of stationary, area, and mobile source emissions associated with the long-term operation of Alternative C would not exceed the PCAPCD's significance threshold of 82 lbs/day for ROG, NO_x, or PM₁₀. In addition, emissions from stationary sources associated with the project would not exceed the TRPA thresholds for stationary sources. However, PCAPCD maintains a 10 lbs/day cumulative threshold for ROG and NO_x, and Alternative C would exceed the NO_x threshold.</i>
Significance	<i>Significant</i>
Mitigation	<i>Mitigation Measure 15.C-2. Contribute to TRPA Air Quality Mitigation Fund to Reduce VMT Pursuant to Mitigation Measure 14.C-1a.</i>
Significance after Mitigation	<i>Less Than Significant</i>

IMPACT 15.C-3	Long-Term Operational (Local) Mobile-Source Carbon Monoxide Emissions. <i>Because the trip generation for Alternative C would be the same as under Alternative B, this impact would be the same as Impact 15.B-3. Thus, long-term operational (local) mobile-source CO emissions under Alternative C would not violate an air quality standard (i.e., 1-hour CAAQS of 20 ppm, 8-hour TRPA standard of 6 ppm), contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations.</i>
Significance	<i>Less Than Significant</i>
Mitigation	<i>No Mitigation is Required</i>
Significance after Mitigation	<i>Less Than Significant</i>

IMPACT 15.C-4 **Odor Emissions.** *Because implementation of Alternative C would result in the same type of proposed uses on the same project site as Alternative A, this impact would be the same as Impact 15.A-4. Thus, neither construction nor operation of Alternative C would create objectionable odors affecting a substantial number of people.*

Significance *Less Than Significant*

Mitigation *No Mitigation is Required*

Significance after Mitigation *Less Than Significant*

IMPACT 15.C-5 **Toxic Air Contaminant Emissions.** *Because implementation of Alternative C would result in the same type of proposed uses and on the same project site as Alternative A, this impact would be the same as Impact 15.A-5. Thus, neither construction nor operation of Alternative C would result in the exposure of sensitive receptors to substantial TAC emissions.*

Significance *Less Than Significant*

Mitigation *No Mitigation is Required*

Significance after Mitigation *Less Than Significant*

ALTERNATIVE D—NO PROJECT

With Alternative D, the construction and operation of the proposed project would not occur. As a result, significant air quality impacts associated with the construction and operation of the proposed project also would not occur.

15.3.4 MITIGATION MEASURES

ALTERNATIVE A—PROPOSED PROJECT

Mitigation Measure 15.A-1. Reduce Temporary Construction Emissions of ROG, NO_x, and PM₁₀.

In accordance with the PCAPCD, the project applicant shall implement the following recommended mitigation measures (Backus, pers. comm., 2006) during construction of the proposed project. In addition to the mitigation measures identified below, construction of the project is required to comply with all applicable PCAPCD rules, including Rule 202 regarding visible emissions, Rule 228 regarding fugitive dust, Rule 218 regarding the application of architectural coatings, and Rule 217 regarding cutback and emulsified asphalt paving materials.

1. The applicant shall submit to the PCAPCD and receive approval of a Construction Emission/Dust Control Plan prior to any groundbreaking or tree removal activities. This plan must address the minimum Administrative Requirements defined in section 300 and 400 of District Rule 228, Fugitive Dust (www.placer.ca.gov/airpollution/airpolut.htm).

2. Fugitive dust shall not exceed 40% opacity and not go beyond the property boundary at any time during project construction. If lime or other drying agents are utilized to dry out wet grading areas they shall be controlled as to not to exceed Rule 228 limitations.
3. Construction equipment exhaust emissions shall not exceed Rule 202 limitations. Operators of vehicles and equipment that exceed opacity limits shall be immediately notified and the equipment must be repaired within 72 hours.
4. The prime contractor shall submit to the PCAPCD a comprehensive inventory (i.e., make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower or greater) that will be used an aggregate of 40 or more hours for the construction project. The project representative shall provide the PCAPCD with the anticipated construction timeline including start date, and name and phone number of the project manager and on-site foreman. The project representative shall provide a plan for approval by the PCAPCD demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20% NO_x reduction and 45% particulate reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available.
5. No open burning of removed vegetation shall occur during infrastructure improvements.
6. Minimize idling time to 5 minutes for all diesel-power equipment.
7. Use ARB diesel fuel for all diesel-powered equipment.
8. Apply water to control dust as needed to prevent dust impacts offsite. Operational water truck(s), shall be onsite, as required, to control fugitive dust. Construction vehicles leaving the site shall be cleaned to prevent dust, silt, mud, and dirt from being released or tracked off-site.
9. Apply approved chemical soil stabilizers, vegetative mats, or other appropriate best management practices to manufacturer's specifications, to all-inactive construction areas (previously graded areas which remain inactive for 96 hours).
10. Spread soil binders on unpaved roads and employee/equipment parking areas and wet broom or wash streets if silt is carried over to adjacent public thoroughfares.
11. Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary diesel power generators. If not available, low sulfur fuel is to be used for diesel-powered generators.

Implementation of Mitigation Measure 15.A-1 would reduce fugitive PM₁₀ dust emissions a minimum of approximately 50% and prevent dispersion, thereof, beyond the property boundary. Implementation of Mitigation Measure 15.A-1 would also reduce diesel equipment exhaust emissions of ROG, NO_x, and PM₁₀ a minimum of 5%, 20%, and 45%, respectively.

Mitigation Measure 15.A-2. Contribute to TRPA Air Quality Mitigation Fund to Reduce VMT Pursuant to Mitigation Measure 14.A-1a.

The air quality mitigation fee implemented as part of Mitigation Measure 14.A-1a (see Chapter 14, "Traffic, Parking, and Circulation") would provide necessary funding for projects that would offset the project's cumulative contribution to long-term NO_x emissions. Projects that would be implemented under the TRPA program would reduce NO_x emissions by greater than 1.6 lbs/day, the amount necessary to reduce the project's

contribution to cumulative air quality impacts to a less-than-significant level. The total estimated fee for Alternative A is \$80,730. Per TRPA Code of Ordinance Section 93.3.C, the Air Quality Mitigation Fund provides for regional and cumulative mitigation measures that may include, but are not limited to:

- ▶ Transit facility construction;
- ▶ Transportation Systems Management measures, including, but not limited to, bicycle facilities, pedestrian facilities, and use of alternative fuels in fleet vehicles; or
- ▶ Transfer and retirement of off-site development rights.

As required in Mitigation Measure 14.A-1a, the applicant shall contribute the required corresponding mitigation fee to the Air Quality Mitigation Fund prior to issuance of grading and construction permits for Alternative A.

ALTERNATIVE B—REDUCED DEVELOPMENT

Mitigation Measure 15.B-1. Reduce Temporary Construction Emissions of ROG, NO_x, and PM₁₀.

See Mitigation Measure 15.A-1 described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 15.B-2. Contribute to TRPA Air Quality Mitigation Fund to Reduce VMT Pursuant to Mitigation Measure 14.B-1a.

The air quality mitigation fee implemented as part of Mitigation Measure 14.B-1a (see Chapter 14, “Traffic, Parking, and Circulation”) would provide necessary funding for projects that would offset the cumulative contribution of Alternative B to long-term NO_x emissions. Projects that would be implemented under the TRPA program would reduce NO_x emissions by greater than 0.2 lbs/day, the amount necessary to reduce the contribution to cumulative air quality impacts of Alternative B to a less-than-significant level. The total estimated fee for Alternative B is \$64,260. The applicant shall contribute the required corresponding mitigation fee to the Air Quality Mitigation Fund prior to issuance of grading and construction permits for Alternative B.

ALTERNATIVE C—REDUCED DEVELOPMENT WITH RECREATION ELEMENTS

Mitigation Measure 15.C-1. Reduce Temporary Construction Emissions of ROG, NO_x, and PM₁₀.

See Mitigation Measure 15.A-1 described above for Alternative A. The same mitigation measure would apply.

Mitigation Measure 15.C-2. Contribute to TRPA Air Quality Mitigation Fund to Reduce VMT Pursuant to Mitigation Measure 14.C-1a.

See Mitigation Measure 15.B-2 described above for Alternative A. The same mitigation measure would apply.

ALTERNATIVE D—NO PROJECT

No mitigation is required.