10.0
AIR QUALITY

10.0 AIR QUALITY

This section examines the air quality in the project area, includes a summary of applicable air quality regulations, and analyzes potential air quality impacts associated with the proposed project.

10.1 EXISTING SETTING

10.1.1 AIR BASIN CHARACTERISTICS

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The project site is located in the eastern portion of Placer County, spanning portions of both the Mountain Counties Air Basin (MCAB) and the Lake Tahoe Air Basin (LTAB).

The MCAB consists of nine counties or portions of counties stretching from Plumas County on the north to Mariposa County on the south. The MCAB exhibits large variations in terrain and consequently exhibits large variations in climate, both of which affect air quality. The western portions of the basin slope relatively gradually, with deep river canyons running from southwest to northeast toward the crest of the Sierra Nevada range. East of the divide, the slope of the Sierra is steeper, but river canyons are relatively shallow.

The LTAB is located between two mountain ranges, the Carson Range on the east and the Sierra Nevada on the west. Mountain ranges surrounding the LTAB reach levels of approximately 8,000 feet above sea level (ASL), with a high of approximately 10,881 feet ASL at Freel Peak. Lake Tahoe is located in the center of the basin in a depression between the surrounding mountain ranges at a surface elevation of approximately 6,200 feet ASL. The California-Nevada state line bisects the basin, with approximately one-third of the basin located in Nevada and two-thirds in California. On the California side, the basin includes portions of El Dorado and Placer counties. On the Nevada side, portions of Carson City and Douglas and Washoe counties are within the basin's boundaries.

Meteorological Conditions and Air Pollution

Local meteorological conditions are recorded at the Truckee Ranger Station. The annual average precipitation is approximately 31.5 inches, which primarily occurs from October through April. Average temperatures range from a minimum of 19°F in January to a maximum of 77.9°F in July. The annual predominant wind direction is from the south-southwest at 12 mph (WRCC 2005).

Due to the topographical features and meteorological conditions of the region, the MCAB and the LTAB are more sensitive to negative impacts on air quality than most other areas of the state. Cold temperatures and mild winds often result in temperature inversions in which upper layers of warmer air trap colder air near the surface. Local pollutant sources within both the MCAB and the LTAB are trapped by frequent inversions, which limits the volume of air into which they can be mixed and in turn results in elevated pollutant concentrations. The most frequent episodes of high pollution occur during local basin inversions, when emissions from local sources such as motor vehicles, chimney smoke, and forest burning are trapped in the basins. Local air basin inversions in the project area are a result of the cold temperatures of Lake Tahoe, which contribute to the occurrence of subsidence and radiation inversions throughout the year. The nighttime cooling effects of the lake result in down-slope nocturnal winds, which transport local pollutants from developed areas around the lake out onto the lake and contribute to increased

pollutant deposition into the lake. This is the most common meteorological condition contributing to air quality degradation in the project area.

The second most common meteorological condition contributing to air quality degradation is transport from the Sacramento Valley and the Bay Area into the region. This meteorological condition is strongest during the warmer summer months and contributes approximately 30 percent of the ozone and airborne particulate matter pollution in the region. The lowest pollution regimes are associated with the fall and winter months and contribute approximately 10 percent of the pollution to the region. Similar to other areas, when winds are strong enough to break up basin inversion layers, pollution is generally blown outside of the region and the air quality is typically good. However, when fall and winter winds are weak, this regime is associated with persistent local inversions and associated buildup of local pollutants.

Lake Tahoe Clarity

The lake is more than one-quarter of a mile deep and known for its deep blue color and clarity. Between the mid-1960s and the mid-1990s, the water clarity decreased from 100 feet to 65 feet, a decrease averaging over 1 foot per year. Reductions in lake clarity are due to increases in nutrient loading, predominantly nitrogen and phosphorus. Nutrient loading to the lake is responsible for increased algae growth, which in turn has been a significant factor in the decline of clarity. Increases in algae growth coincided with the period of rapid growth and development in the basin. Runoff from the surrounding watershed, groundwater, and atmospheric deposition all contribute to increased nitrification of the lake.

Based on recent studies, it is estimated that atmospheric deposition accounts for about a fourth of the phosphorous and nearly half of the nitrogen contributing to the nutrification of Lake Tahoe. Air quality studies have yet to definitively ascertain the specific sources of these pollutants, but in-basin wood smoke and road dust are generally considered to be significant sources of atmospheric phosphorous.

Visibility

Concerns related to visibility are typically related to the aesthetic damage resulting from air pollution. By common definition, visibility is typically defined based on conditions that take into account multiple aspects, including recognition of contrast detail, form, and color of near and distant features. From an aesthetic perspective, visibility represents not just visual range but also the overall visual experience. Air quality can contribute to visibility reductions or “haze,” which at high levels can result in a loss of scenic value. Under a variety of conditions, loss of visibility is directly proportional to reduction in atmospheric light transmittance. Light transmittance in the atmosphere is attenuated by scattering and absorption from both gases and particles. The chemical composition and size of airborne particles are primary factors affecting visibility. Fine particles (<2.5 microns) are of particular concern and tend to dominate visibility effects. In general, the composition of ambient particulate matter consists basically of just six species: sulfates, organics, elemental carbon, ammonium nitrate, soil dust, and aerosol-bound water. Among these six species, there are significant differences in sources, atmospheric behavior, size distributions, and visibility effects (Trijonis 1990).

Visibility in the LTAB is evaluated based on region-wide and local visibility conditions. Region-wide visibility is defined as the overall prevailing visibility across the Lake Tahoe Basin and is measured at the Bliss State Park monitoring site. Subregional visibility is defined as the overall prevailing visibility across the urbanized area and was previously measured at a site located in

South Lake Tahoe. Regional data from the Bliss monitoring site has typically indicated relatively constant visual air quality in the basin throughout the year, with only a slight increase in the scattering and extinction coefficient during the summer months. In sharp contrast, large seasonal variations have been noted at the South Lake Tahoe site, with winter twice the summer value, which indicates the strong effect of local sources in the urbanized area of South Lake Tahoe.

Forest Health

The negative effects of air pollutants on vegetation have been known for many years. Within the MCAB and the LTAB, the adverse effects of ground-level ozone are of primary concern. Ground-level ozone interferes with the ability of plants to produce and store food, which makes them more susceptible to disease, insects, other pollutants, and harsh weather. Ozone damages the leaves and needles on trees and other plants. As a gaseous pollutant, ozone enters the stomata of plant leaves through the normal process of gas exchange, damaging the plant tissue.

10.1.2 AIR POLLUTANTS OF CONCERN AND HEALTH EFFECTS

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. These regulated air pollutants are known as "criteria air pollutants" and are categorized into primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxides (NO_X), sulfur dioxide (SO_2), most particulate matter (PM_{10} and $PM_{2.5}$), lead, and fugitive dust are primary air pollutants. Of these, CO, SO_2, PM_{10}, and $PM_{2.5}$ are criteria pollutants. ROG and NO_X are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary pollutants. Presented below is a description of each of the primary and secondary criteria air pollutants and their known health effects.

Other pollutants, such as carbon dioxide, a natural byproduct of animal respiration that is also produced in the combustion process, have been linked to such phenomena as climate change. While there are no adopted thresholds for their release, Assembly Bill (AB) 32 requires the state to reduce emissions to 1990 levels by 2020, which is discussed further in Section 16.0, Greenhouse Gases and Climate Change. These pollutants do not jeopardize the attainment status of the region.

Carbon monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.

Reactive organic gases (ROG) are compounds comprising primarily atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROG include evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROG, but rather by reactions of ROG to form secondary pollutants such as ozone.

Nitrogen oxides (NO_X) serve as integral participants in the process of photochemical smog production. The two major forms of NO_X are nitric oxide (NO) and nitrogen dioxide (NO_2). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown irritating gas formed

by the combination of NO and oxygen. NO_X acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

Nitrogen dioxide (NO_2) is a byproduct of fuel combustion. The principal form of NO_2 produced by combustion is NO, but NO reacts with oxygen to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children has also been observed at concentrations below 0.3 part per million (ppm). NO_2 absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO_2 also contributes to the formation of PM_{10} (particulates having an aerodynamic diameter of 10 microns—or 0.0004 inch—or less in diameter) and ozone.

Sulfur dioxide (SO_2) belongs to the family of sulfur oxide gases (SO_x). SO_2 is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. Fuel combustion is the primary source of SO_2. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO_2 may do greater harm by injuring lung tissue. A primary source of SO_2 emissions is high sulfur content coal. Gasoline and natural gas have very low sulfur content and hence do not release significant quantities of SO_2. SO_2 is a precursor to sulfate (SO_4), which is a component of particulate matter. In addition SO_2 and NO_2 can react with other substances in the air to form acids, which fall to the earth as rain, fog, snow, or dry particles.

Particulate matter (PM) is a mixture of pollutants in liquid and solid forms. Particulate matter may be classified as primary or secondary. Primary particulates are emitted directly by emission sources, whereas secondary particulates are formed through atmospheric reaction of gases. Particulates are usually classified according to size. The particle diameter can vary from approximately 0.005 micron to 100 microns. Particulate matter less than 10 microns in diameter is referred to as PM_{10} (coarse particulates) and less than 2.5 microns is referred to as $PM_{2.5}$ (fine particulates).

Studies have found a statistical association between adverse health effects and PM_{10}. The US Environmental Protection Agency (EPA) has estimated that airborne particles cause over 15,000 premature deaths in the United States per year. Recent studies using $PM_{2.5}$ data have shown an even stronger association between health effects and particles in this size range. Evidence that smaller particles are more harmful is further supported by advanced research (World Bank 2003). Size determines how and where different particles are deposited in the respiratory tract. Ultrafine particles behave similar to gases and travel to lower regions of the lungs, whereas larger particles are deposited in the upper or middle region of the respiratory tract. Particles larger than 10 microns in diameter are deposited almost exclusively in the nose and throat. Combustion processes contribute the majority of fine particulate matter whereas non-combustion processes contribute the majority of the larger PM fraction (World Bank 2003). Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems.

Ozone (O_3), or smog, is one of a number of substances called photochemical oxidants that are formed when ROG and NO_X (both byproducts of the internal combustion engine) react with sunlight. The damaging effects of photochemical smog are generally related to the concentrations of O_3. Ozone poses a health threat, especially to those who already suffer from respiratory diseases. Additionally, O_3 has been tied to crop damage, typically in the form of stunted growth

and premature death. Ozone can also act as a corrosive, resulting in property damage such as the degradation of rubber products.

10.1.3 AMBIENT AIR QUALITY

Ambient air quality in eastern Placer County can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. Existing levels of ambient air quality and historical trends and projections in the vicinity of the project site are documented by measurements made by the Placer County Air Pollution Control District (PCAPCD), the air pollution regulatory agency in Placer County that maintains air quality monitoring stations which process ambient air quality measurements.

The Truckee Fire Station air quality monitoring station is the closest station to the project site at approximately 6.5 miles to the north. This station monitors ambient concentrations of ozone and $PM_{2.5}$. Ambient concentrations of PM_{10} were obtained from data provided by the South Lake Tahoe-Sandy Way air quality monitoring station approximately 23 miles south of the project site. Ambient emission concentrations will vary due to localized variations in emission sources and climate and should be considered "generally" representative of ambient concentrations in the project area.

Table 10-1 summarizes the published data since 2010 for each year that the monitoring data is provided.

TABLE 10-1
SUMMARY OF AMBIENT AIR QUALITY DATA

Pollutant Standards	2010	2011	2012
Ozone (Truckee Fire Station Monitoring Station)			
Max 1-hour concentration (ppm)	0.065	0.058	*
Max 8-hour concentration (ppm) (state/federal)	0.053 / 0.053	0.053 / 0.053	* / *
Number of days above state 1-hr standard	0	0	0
Number of days above state/federal 8-hour standard	0 / 0	0 / 0	* / *
Respirable Particulate Matter (PM_{10}) (South Lake Tahoe-Sandy Way Monitoring Station)			
Max 24-hour concentration (µg/m3) (state/federal)	71.4 / *	55.8 / *	84.1 / *
Number of days above state/federal standard	* / *	* / *	* / *
Fine Particulate Matter ($PM_{2.5}$) (Truckee Fire Station Monitoring Station)			
Max 24-hour concentration (µg/m3) (state/federal)	31.7 / 24.6	68.9 / 17.3	27.5 / 18.0
Number of days above federal standard	0	0	0

Source: CARB 2013a

Notes:

µg/m3 = micrograms per cubic meter; ppm = parts per million

** No data is currently available from CARB to determine the value.*

Toxic Air Contaminants (TACs)

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

To date, CARB has designated nearly 200 compounds as toxic air contaminants. Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to a relatively few compounds, one of the most important being particulate matter from diesel-fueled engines. In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) as a toxic air contaminant. Previously, the individual chemical compounds in diesel exhaust were considered as TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

Wood Smoke

Wood smoke has long been identified as a significant source of pollutants in urban and suburban areas. Wood smoke contributes to particulate matter and carbon monoxide concentrations, reduces visibility, and contains numerous toxic air contaminants. Present controls on this source include the adoption of emission standards for woodstoves and fireplace inserts. Interest in wood smoke is likely to increase with the recent adoption of a $PM_{2.5}$ (particulate matter less than 2.5 microns in diameter) national standard.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardiorespiratory diseases.

Residential areas are considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Children are considered more susceptible to health effects of air pollution due to their immature immune systems and developing organs (OEHHA 2007). As such, schools are also considered sensitive receptors, as children are present for extended durations and engage in regular outdoor activities. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise

places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation.

10.2 REGULATORY FRAMEWORK

Subsequent development allowed with implementation of the proposed project has the ability to release gaseous emissions of criteria pollutants and dust into the ambient air; therefore, future development activities under the proposed project entitlements fall under the ambient air quality standards promulgated on the local, state, and federal levels. The federal Clean Air Act of 1971 and Clean Air Act Amendments (1977) established the national ambient air quality standards (NAAQS), which are promulgated by the EPA. The State of California has also adopted its own California ambient air quality standards (CAAQS), which are promulgated by CARB. The proposed project would occur in the eastern Placer County portion of the LTAB, which is under the air quality regulatory jurisdiction of the PCAPCD and is subject to the rules and regulations adopted by the air district to achieve attainment with the NAAQS and CAAQS. Federal, state, regional, and local laws, regulations, plans, and guidelines are summarized below.

10.2.1 AMBIENT AIR QUALITY STANDARDS

The federal Clean Air Act of 1971 established NAAQS, with states retaining the option to adopt more stringent standards or to include other pollution species. These standards are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect those “sensitive receptors” most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both the State of California and the federal government have established health-based ambient air quality standards for six air pollutants. As shown in **Table 10-2**, these pollutants include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, PM_{10}, $PM_{2.5}$, and lead. In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

TABLE 10-2
AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards	National Standards
Ozone	8 Hour	0.070 ppm (137µg/m^3)	0.075 ppm
	1 Hour	0.09 ppm (180 µg/m^3)	–
Carbon Monoxide	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)
Nitrogen Dioxide	1 Hour	0.18 ppm (339 µg/m^3)	100 ppb
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)	53 ppb (100 µg/m^3)
Sulfur Dioxide	24 Hour	0.04 ppm (105 µg/m^3)	N/A
	3 Hour	–	N/A
	1 Hour	0.25 ppm (665 µg/m^3)	75 ppb
Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	N/A
	24 Hour	50 µg/m^3	150 µg/m^3
Particulate Matter – Fine ($PM_{2.5}$)	Annual Arithmetic Mean	12 µg/m^3	15 µg/m^3
	24 Hour	N/A	35 µg/m^3
Sulfates	24 Hour	25 µg/m^3	N/A
Lead	Calendar Quarter	N/A	1.5 µg/m^3
	30 Day Average	1.5 µg/m^3)	N/A
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	N/A
Vinyl Chloride (chloroethene)	24 Hour	0.01 ppm (26 µg/m^3)	N/A
Visibility-Reducing Particles	8 Hour (10:00 to 18:00 PST)	–	N/A

Source: CARB 2013b

Notes: mg/m^3=milligrams per cubic meter; ppm=parts per million; ppb=parts per billion; µg/m^3=micrograms per cubic meter

10.2.2 PLACER COUNTY AIR POLLUTION CONTROL DISTRICT

At the county level, air quality is managed through land use and development planning practices which are implemented by Placer County and through permitted source controls which are implemented by the Placer County Air Pollution Control District. The PCAPCD is also the agency responsible for enforcing many federal and state air quality requirements and for establishing air quality rules and regulations. 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 PCAPCD's clean air strategy 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 federal Clean Air Act, the Clean Air Act Amendments of 1990, and the California Clean Air Act (CCAA).

Air Quality Attainment Plan

The CCAA requires nonattainment areas to develop plans aimed at achieving state ambient standards. The PCAPCD, in coordination with the air quality management districts and air pollution control districts of El Dorado, Sacramento, Solano, Sutter, and Yolo counties, prepared and submitted the 1991 Air Quality Attainment Plan (AQAP) in compliance with the requirements set forth in the CCAA, which specifically addressed the nonattainment status for ozone and to a lesser extent PM_{10}. The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. As part of the assessment, the attainment plan must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. The requirement of the CCAA for a first triennial progress report and revision of the 1991 AQAP was fulfilled with the preparation and adoption of the 1994 Ozone Attainment Plan. Additional triennial reports were also prepared in 1997, 2000, and 2003 in compliance with the CCAA that act as incremental updates.

The AQAP has since become part of the SIP described above within the federal regulatory framework discussion, in accordance with the requirements of the CAAA. Federal clean air laws require areas with unhealthy levels of ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and inhalable particulate matter to develop plans describing how they will attain national ambient air quality standards. State Implementation Plans (SIP) are not single documents but rather a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls.

The most updated SIP affecting Placer County, which includes the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan as well as the 1991 Air Quality Attainment Plan and subsequent progress reports, contains the information and analyses to fulfill the federal Clean Air Act requirements for demonstrating reasonable further progress and attainment of the 1997 8-hour ozone NAAQS for the Sacramento region. In addition, this plan establishes an updated emissions inventory, provides photochemical modeling results, proposes the implementation of reasonably available control measures, and sets new motor vehicle emission budgets for transportation conformity purposes.

The SIP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards. Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas. The attainment status for eastern Placer County is included in **Table 10-3**.

TABLE 10-3
ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN EASTERN PLACER COUNTY

Pollutant	State Designation	Federal Designation
Ozone	Nonattainment	Nonattainment (MCAB) Unclassified/Attainment (LTAB)
PM_{10}	Nonattainment	Unclassified
$PM_{2.5}$	Unclassified/Attainment	Unclassified/Attainment
CO	Unclassified/Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Unclassified/Attainment
Lead	Attainment	Unclassified/Attainment

Source: CARB 2013c

As shown in **Table 10-3**, the eastern Placer County region, which encompasses the project site, is designated as a nonattainment area for ozone and PM_{10} for state standards and ozone for federal standards.

PCAPCD RULES AND REGULATIONS

All projects are subject to rules and regulations adopted by the PCAPCD in effect at the time of construction. Specific rules applicable to future construction resulting from the implementation 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 3 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 207 – Particulate Matter***. For the MCAB portions of the Placer County Air Pollution Control District, a person shall not release or discharge into the atmosphere from any source or single processing unit, exclusive of sources emitting combustion contaminants only, particulate matter emissions in excess of: 0.1 grains per cubic foot of gas at district standard conditions.

- ***Rule 205 – Nuisances.*** A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause to have a natural tendency to cause injury or damage to business or property.

- ***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 percent by volume.

- ***Rule 218 – Application of Architectural Coatings.*** No person shall: (i) manufacture, blend, or repackage for use within the District; (ii) supply, sell, or offer for use within the district; or (iii) solicit for application or apply within the district, any architectural coating with a VOC [volatile organic compound] content in excess of the identified limit. Limits are expressed as VOC regulatory content as defined in subsection 278, in grams of VOC per liter of coating thinned to the manufacturer's maximum recommendation, excluding any colorant added to the tint bases; except for Low Solid Coatings where limits are expressed as VOC actual content as defined in subsection 276.

- Rule 228 – Fugitive Dust

  - *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.

  - *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.

  - *Concentration Limit:* A person shall not cause or allow PM_{10} levels to exceed 50 micrograms per cubic meter (µg/m3) (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 PM_{10} monitoring.

  - *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 cleanup water shall be prevented from entering waterways or stormwater inlets as required to comply with water quality control requirements.

– *Minimum Dust Control Requirements:* The following dust mitigation measures are to be initiated at the start and maintained throughout the duration of any 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 off-site.

  - 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.

– *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.

10.2.3 TOXIC AIR CONTAMINANT REGULATIONS

In 1983, the California Legislature enacted a program to identify the health effects of toxic air contaminants (TACs) and to reduce exposure to these contaminants to protect the public health. The Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant pursuant to subsection (b) of Section 112 of the federal Clean Air Act (42 United States Code Section 7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency, acting through CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through AB 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as toxic air contaminants. Once a toxic air contaminant is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. CARB has, to date, established formal control measures for 11 TACs, all of which are identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High-priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

Since the last update to the TAC list in December 1999, CARB has designated 244 compounds as toxic air contaminants (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

10.2.4 TAHOE REGIONAL PLANNING AGENCY

While the project is not located within the LTAB, it is adjacent to it. The Tahoe Regional Planning Agency (TRPA) has established air quality thresholds for stationary sources in its Code of Ordinances Chapter 65.1 (Air Quality Control).

10.2.5 PLACER COUNTY GENERAL PLAN

The Placer County General Plan Policy Document was adopted by the Placer County Board of Supervisors in 1994. **Table 10-4** lists the General Plan policies that relate to air quality and the proposed project and provides an analysis of the project's consistency with these policies. While this Draft EIR analyzes the project's consistency with the Placer County General Plan pursuant to State CEQA Guidelines Section 15125(d), the determination of the project's consistency with this General Plan rests with the Placer County Board of Supervisors. Any environmental impacts

associated with any inconsistency with General Plan policies are addressed under the impact discussions of this EIR.

TABLE 10-4
PROJECT CONSISTENCY WITH PLACER COUNTY GENERAL PLAN AIR QUALITY POLICIES

Policies	Consistency Determination	Analysis
Policy 6.F.7: The County shall encourage development to be located and designed to minimize direct and indirect air pollutants.	Consistent with Mitigation	Mitigation measures identified below would reduce temporary construction-related air quality impacts.
Policy 6.F.9: In reviewing project applications, the County shall consider alternatives or amendments that reduce emissions of air pollutants.	Consistent with Mitigation	An air quality analysis has been conducted as part of this EIR, which provides mitigation measures that reduce potential impacts. Project alternatives are discussed in the EIR.
Policy 6.F.10: The County may require new development projects to submit an air quality analysis for review and approval. Based on this analysis, the County shall require appropriate mitigation measures consistent with the Placer County APCD's 1991 Air Quality Attainment Plan (or updated edition).	Consistent with Mitigation	Mitigation measures identified below would reduce temporary construction-related air quality impacts.

10.2.6 MARTIS VALLEY COMMUNITY PLAN

Table 10-5 lists the Martis Valley Community Plan policies that relate to air quality and the proposed project and provides an analysis of the project's consistency with these policies. While this Draft EIR analyzes the project's consistency with the Martis Valley Community Plan pursuant to State CEQA Guidelines Section 15125(d), the determination of the project's consistency with the Community Plan rests with the Placer County Board of Supervisors. Any environmental impacts associated with inconsistency with Community Plan policies are addressed under the impact discussions of this DEIR.

TABLE 10-5
PROJECT CONSISTENCY WITH MARTIS VALLEY COMMUNITY PLAN AIR QUALITY POLICIES

Policies	Consistency Determination	Analysis
Policy 9.H.8: The County may require new development projects to submit an air quality analysis for review and approval. Based on this analysis, the County shall require appropriate mitigation measures consistent with the Placer County APCD's 1991 Air Quality Attainment Plan (or updated edition).	Consistent with Mitigation	Mitigation measures identified below would reduce temporary construction-related air quality impacts.
Policy 9.H.5: The County shall encourage innovative measures, which include offsite mitigation strategies, to reduce air quality impacts. Innovative measures can be identified during a pre-application consultation process and during County staff/applicant negotiation over CEQA mitigation.	Consistent	The Northstar HMP includes habitat and water quality control measures (in addition to the mitigation measures identified below) would provide additional measures to reduce air quality impacts of the project.
Policy 9.H.7: The County shall work with the Placer	Consistent with	Mitigation measures identified below would reduce

Policies	Consistency Determination	Analysis
County Air Pollution Control District (APCD) to reduce particulate emissions from construction, grading, excavation, and demolition to the maximum extent feasible. The County should include PM_{10} control measures as conditions of approval of subdivision maps, site plans, and grading permits. The County should inform developers of the requirements of the District's PM10 mitigation requirements when they apply for a grading permit.	Mitigation	temporary construction-related air quality impacts.
Policy 9.H.9: The County shall require new development to be planned to result in smooth flowing traffic conditions for major roadways for the vast majority of time. This includes traffic signals and traffic signal coordination, parallel roadways, and intra- and inter-neighborhood connections where reductions in overall emissions can be achieved.	Consistent	As identified in Section 3.0 (Project Description), Northstar implements its Northstar Traffic and Parking Management Plan (see **Appendix 3.2**) that provides for efficient movement of traffic during peak ski days.

10.3 IMPACTS

10.3.1 STANDARDS OF SIGNIFICANCE

The Air Quality section of Appendix G of the CEQA Guidelines contains a list of effects that may be deemed potentially significant. These are:

1) Conflict with or obstruct implementation of the applicable air quality plan.

2) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

3) Result in a cumulatively considerable net increase of any criteria pollutant for which the project is nonattainment under applicable federal or state ambient air quality standards.

4) Expose sensitive receptors to substantial pollutant concentrations.

5) Create objectionable odors affecting a substantial number of people.

The significance criteria established by the applicable air pollution control district (PCAPCD) may be relied upon to make the above determinations. According to the PCAPCD, an air quality impact is considered significant if the proposed project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The PCAPCD has established thresholds of significance for air quality for construction and operational activities of land use development projects such as that proposed, as shown in **Table 10-4**.

TABLE 10-4
PCAPCD REGIONAL SIGNIFICANCE THRESHOLDS

Air Pollutant	Construction Activities	Operations
Reactive Organic Gases (ROG)	82 pounds/day	82 pounds/day
Nitrogen Oxides (NO_x)	82 pounds/day	82 pounds/day
Coarse Particulates (PM_{10})	82 pounds/day	82 pounds/day

Source: PCAPCD 2012

10.3.2 METHODOLOGY

Air quality impacts were assessed in accordance with methodologies recommended by CARB and the Placer County Air Pollution Control District. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod). CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects.

As stated in Section 3.0, Project Description, construction phasing of the proposed improvements is unknown at this time; however, construction is anticipated to occur in 5.5-month segments starting on May 1 of each year and ending on October 15 over a buildout period of 20 years. For the purposes of this air quality analysis, a construction timeline of 4.5 months per year for 10 consecutive years is assumed in order to provide a conservative analysis to factor variations in late year snow conditions that constrain the construction period. The specific equipment used to construct the proposed features of the project was obtained from **Table 3-4** in Section 3.0, Project Description. As shown in **Table 3-4**, lift construction will include the operation of a helicopter. Helicopter emissions modeling for lift construction-related helicopter flights is based on the assumption of 4 hours of use per constructed lift as anticipated by the applicant. The anticipated area of disturbance from tree removal activities was obtained from **Table 3-5** in Section 3.0, and the anticipated area of disturbance from all other construction activities was obtained from **Table 3-6** in Section 3.0.

While the proposed project would result in a substantial increase of electricity consumption, emissions from this activity are addressed in terms of their contribution of greenhouse gases (see Section 16.0). Therefore, project-generated increases in emissions would be predominantly associated with motor vehicle use. The increase of traffic over existing conditions as a result of the project was obtained from LSC Transportation Consultants, Inc. (2013) (see **Appendix 9.0**).

10.3.3 IMPACTS AND MITIGATION MEASURES

IMPACT 10.1: Conflict With or Obstruct Implementation the Air Quality Attainment Plan

As previously stated, the PCAPCD is responsible for developing and implementing the air quality plan for attainment and maintenance of the ambient air quality standards in the region. As part of this effort, the PCAPCD has also developed input to the SIP, which is required under the federal Clean Air Act for areas that are out of attainment for air quality standards. The SIP includes the PCAPCD's plans and control measures for attaining the ozone national ambient air quality standards.

The SIP plans and control measures are based on information derived from projected growth in Placer County in order to project future emissions and then determine strategies and regulatory controls for the reduction of emissions. Growth projections are based on the general plans developed by Placer County and the incorporated cities in the county. As such, projects that propose development consistent with the growth anticipated by the respective general plan of the jurisdiction in which the proposed development is located would be consistent with the SIP. In the event that a project would propose a development that is less dense than that associated with the general plan, the project would likewise be consistent with the SIP. If a project, however, proposes a development that is denser than that assumed in the general plan, the project may be in conflict with the SIP and could therefore result in a significant impact on air quality.

The proposed project is an expansion of an existing recreational use. The proposed project is consistent with the land use designation and development density presented in the County's General Plan, and since the proposed project does not include residential development, it will not be adding any new population to Placer County. The SIP contains air pollutant reduction strategies based, in part, on regional population projections originating with the Placer County General Plan. Since the proposed project is consistent with the Placer County General Plan and would not directly result in population growth, **no impact** would occur.

IMPACT 10.2: Increases in Short-Term Construction Emissions

Construction associated with the proposed project would generate short-term emissions of criteria air pollutants. The criteria pollutants of primary concern within the project area include ozone-precursor pollutants (i.e., ROG and NO_x) and PM_{10}. Construction-generated emissions are short term and of temporary duration, lasting only as long as construction activities occur, but have the potential to represent a significant air quality impact.

The construction of the proposed project would result in the temporary generation of emissions resulting from tree removal, grading and excavation, trenching, motor vehicle exhaust associated with construction equipment and worker trips, and the movement of construction equipment, especially on unpaved surfaces. Emissions of airborne particulate matter are largely dependent on the amount of ground disturbance associated with site preparation activities as well as weather conditions and the appropriate application of water.

Detailed construction schedules are not currently known; however, construction is anticipated to occur in 5.5-month segments starting on May 1 of each year and ending on October 15 over a projected 20 years for buildout (for the purposes of this air quality analysis, a construction timeline of 4.5 months per year for 10 consecutive years is assumed in order to provide a conservative analysis to factor variations in late year snow conditions that constrain the construction period). Depending on how development proceeds, construction-generated emissions associated with development occurring within the project area could potentially exceed PCAPCD thresholds of significance. Construction-generated emissions associated with each of the anticipated project components as shown in **Table 3-6** in Section 3.0, Project Description, were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. Construction equipment used in the model was based on **Table 3-4** in Section 3.0. Predicted maximum daily construction-generated emissions for the proposed Northstar Mountain Master Plan are summarized in **Table 10-5**.

TABLE 10-5
SUMMARY OF UNCONTROLLED CONSTRUCTION-GENERATED EMISSIONS

Project Components	Maximum Emissions (lbs/day)			
	ROG	NOx	PM_{10}	$PM_{2.5}$
Project-Level Components				
Year 1				
Tree Removal (30.7 acres disturbed)	8.41	82.93	22.81	14.26
Grading for C Lift (2.7 acres disturbed)	8.97	102.75	12.38	7.74
Snowmaking Line Trench for C Lift and Challenger Run (28 acres distrubed)	0.98	10.19	0.55	0.46
C Lift Construction[1]	8.86	62.46	3.97	3.97
Revegetation	3.92	28.48	2.15	1.92
Year 2				
Tree Removal (19.1 acres disturbed)	8.11	80.96	22.65	14.11
Grading for J Lift (3.7 acres distrubed)	20.70	146.97	15.24	9.06
Snowmaking Line Trench for J Lift (14 acres disturbed)	0.95	9.80	0.54	0.45
J Lift Construction[1]	8.61	61.05	3.85	3.58
Revegetation	3.69	27.33	2.05	1.82
Year 3				
Tree Removal (16.1 acres distrubed)	7.75	76.54	22.36	13.83
Grading for V Lift (2.1 acres disturbed)	7.37	82.98	10.75	6.89
Snowmaking Line Trench for V Lift (14 acres disturbed)	0.89	8.92	0.49	0.41
V Lift Construction[1]	8.31	59.08	3.67	3.42
Revegetation	3.43	25.95	1.91	1.69
Year 4				
Tree Removal (4 acres disturbed)	7.18	71.75	21.98	13.51
Grading for W & Z Lifts (4 acres disturbed)	7.73	86.49	10.16	6.87
Lifts W & Z Lift Construction[1]	7.86	56.52	3.41	3.20
Revegetation	2.99	23.78	1.68	1.42
Year 5				
Tree Removal (74.3 acres disturbed)	6.38	63.18	25.37	13.42
Grading for Ski Trails[2] (16.7 acres disturbed)	8.12	79.11	10.35	6.54
Snowmaking Line Trench for New Ski Trails (4.6 acres disturbed)	7.65	6.35	0.34	0.29
Revegetation	2.63	21.22	1.44	1.28
Year 6				
Tree Removal (74.3 acres disturbed)	5.19	58.20	25.03	13.10
Grading for Ski Trails[2] (16.7 acres disturbed)	7.51	71.38	10.00	6.23
Snowmaking Line Trench for New Ski Trails (4.6 acres disturbed)	0.58	5.50	0.28	0.25

Project Components	Maximum Emissions (lbs/day)			
	ROG	NOx	PM_{10}	$PM_{2.5}$
Revegetation	2.33	19.18	1.25	1.11
Year 7				
Tree Removal (74.3 acres disturbed)	5.54	53.09	20.83	12.40
Grading for Ski Trails[2] (16.7 acres disturbed)	7.10	64.18	11.83	6.20
Snowmaking Line Trench for New Ski Trails (4.6 acres disturbed)	0.58	4.98	0.30	0.23
Revegetation	2.17	17.51	1.16	0.98
Year 8				
Grading for Skier Bridges[3] (2 acres distrubed)	4.40	43.56	8.30	5.15
Skier Bridges Construction	1.63	12.88	0.83	0.68
Road Spur to Top of J Lift (0.3 acres distrubed)	4.80	48.12	8.25	5.27
Year 9				
Grading for Summit Deck & Grille Expansion, Backside Warming Hut, & Cross Country Ski Trail (1.5 acres disturbed)	2.49	20.14	5.96	3.38
Construction of Summit Deck & Grille Expansion and Backside Warming Hut	2.18	13.64	0.98	0.14
Paving for Summit Deck & Grille Expansion and Backside Warming Hut	0.87	6.72	0.50	0.35
Painting of Summit Deck & Grille Expansion, Backside Warming Hut	69.81	1.41	0.14	0.09
Year 10				
Tree Removal (6 acres disturbed)	2.80	22.78	7.02	3.99
Grading for Six Road Spurs (1.35 acres disturbed)	2.33	18.03	5.58	3.26
Program-Level Components				
Tree Removal for Q Pod (80 acres disturbed)	4.47	31.96	19.57	11.22
Grading for Q Pod (2.9 acres disturbed)	4.03	31.92	13.38	5.19
Q Pod Construction[1]	5.93	39.75	2.07	1.92
Revegetation for Q Pod	1.48	11.73	0.65	0.50
Tree Removal for Castle Peak Parking Lot Transport Gondola (10 acres disturbed)	3.87	32.20	19.58	11.23
Grading for Castle Peak Parking Lot Transport Gondola (4.2 acres disturbed)	4.06	32.15	8.28	4.67
Castle Peak Parking Lot Transport Gondola Construction[1]	5.93	39.75	2.07	1.92
Revegetation for Castle Peak Parking Lot Transport Gondola	1.45	11.50	0.64	0.49
Tree Removal for Ski Trails (12.5 acres disturbed)	3.76	31.96	19.57	11.22
Grading for Ski Trails (13.1 acres disturbed)	4.05	32.15	8.96	4.75
Revegetation for Ski Trails	1.47	11.73	0.65	0.50
Tree Removal for Skier Service Sites (3 acres disturbed)	3.86	32.20	19.58	11.23
Grading for Skier Service Sites (3 acres disturbed)	4.02	31.92	7.72	4.61

Project Components	Maximum Emissions (lbs/day)			
	ROG	NOx	PM_{10}	$PM_{2.5}$
Revegetation for Skier Service Sites	1.44	11.43	0.64	0.49
Tree Removal for Cross Country Center and Backside Camp (3 acres disturbed)	3.83	31.96	19.57	11.22
Revegetation for Cross Country Center and Backside Camp	1.44	11.50	0.64	0.49
PCAPCD Thresholds	82	82	82	None
Individual Project Components Exceed PCAPCDD Thresholds?	No	Yes	No	NA

Source: CalEEMod Model v. 2013.2 (see Appendix 10.0)

Note: Ground disturbance acreages noted above include in some cases disturbance occurring twice (grading and clearing and later grading/trenching of snowmaking lines).

1. Accounts for the use of one rotocraft turbine engine-powered helicopter for 4 hours per day, including one takeoff and one landing, consuming 61 gallons of aviation fuel per hour and emitting 24.74 pounds of NOx, 4.02 pounds of ROG, 1.28 pounds of PM_{10}, and 1.28 pounds of $PM_{2.5}$ (see Appendix 10.0 for calculations).

2. Accounts for the import of 7,636 cubic yards of fill with heavy-duty hauling trucks.

3. Accounts for the export of 1,104 cubic yards of cut with heavy-duty hauling trucks.

Based on the modeling conducted, estimated short-term daily emissions of NO_x associated with the individual project components would exceed the PCAPCD-recommended significance threshold of 82 pounds per day (lbs/day) for NOx as well as result in emissions entering the Lake Tahoe Basin. Moreover, since actual phasing of future development allowed under the proposed project is not known at this time, actual daily emissions would vary from day to day and would be dependent on the specific activities conducted. Therefore, it is possible that several project components would be under construction simultaneously and would generate cumulative construction emissions that could surpass all thresholds, not just for NOx, and impact air quality. As such, construction-generated emissions of ROG and PM_{10} could also potentially exceed the recommended significance thresholds and NOx emissions could exceed thresholds beyond the extent projected in **Table 10-5**. As a result, this impact is considered **significant** and is subject to mitigation in order to reduce these increases.

In terms of addressing PM_{10} emissions, the proposed project would be required to adhere to PCAPCD Rule 228 described in detail above. Aspects of Rule 228 include the prohibition of visible emissions beyond construction site boundary lines and multiple dust mitigation measures to be initiated at the start and maintained throughout the duration of any construction or grading activity, including any construction or grading for road construction or maintenance. These measures include the following:

- 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.

The following mitigation, sourced from the PCAPCD's CEQA Air Quality Handbook (2012) is required to address potentially significant increases in the ozone-precursor pollutants, ROG and NO_x, as well as particulate matter emissions.

MITIGATION MEASURE 10-2a Mitigate for On-Site Dust Control

In addition to the required adherence to PCAPCD Rule 228, the project applicant shall submit a Construction Emission/Dust Control Plan to the PCAPCD prior to the approval of grading or improvement plans. If the district does not respond within twenty (20) days of the plan being accepted as complete, the plan shall be considered approved. The applicant shall provide written evidence, provided by the district, to the Placer County Planning Services Division that the plan has been submitted to the PCAPCD. It is the responsibility of the applicant to deliver the approved plan to the Placer County Planning Services Division. The applicant shall not break ground prior to receiving district approval of the Construction Emission/Dust Control Plan and delivering that approval to the local jurisdiction issuing the permit.

MITIGATION MEASURE 10-2b Mitigate for Ozone Precursor Emission Control

As an attachment included on the Grading Plan or Improvement Plans, the prime contractor shall submit to the PCAPCD a comprehensive inventory (e.g., make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower of greater) that will be used in aggregate of 40 or more hours for the construction project. If any new equipment is added after submission of the inventory, the prime contractor shall contact the district prior to the new equipment being utilized. At least three business days prior to the use of subject heavy-duty off-road equipment, the project representative shall provide the district with the anticipated construction timeline, including start date, name, and phone number of the property owner, project manager, and on-site foreman.

Additionally, the applicant shall provide, prior to approval of grading or improvement plans, whichever occurs first, a written calculation to the district for approval 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 of 20 percent

of NOx and 45 percent of diesel particulate matter (diesel PM) reduction as compared to CARB statewide fleet average emissions. 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.

MITIGATION MEASURE 10-2c Mitigate for Diesel Power Generators

As an attachment included on the grading plan or Improvement Plans, the contractor shall utilize existing power sources (e.g., power poles) or clean fuel (e.g., gasoline, biodiesel, natural gas) generators rather than temporary diesel power generators.

MITIGATION MEASURE 10-2d Mitigate for Emissions from Idling

As an attachment included on the grading plan or Improvement Plans, the construction contractor shall minimize idling time to a maximum of 5 minutes for all diesel-powered equipment. Additionally, signs shall be posted in the designated queuing areas of the construction site to remind off-road equipment operators that idling is limited to a maximum of 5 minutes.

SIGNIFICANCE AFTER MITIGATION

In accordance with PCAPCD Rule 228 and mitigation measures 10-2a through 10-2d, construction activities proposed under the project would be required to prepare a Construction Emission/Dust Control Plan, demonstrate that the heavy-duty (>50 horsepower) off-road vehicles to be used in the construction project will achieve a project-wide fleet average of 20 percent of NOx and 45 percent of diesel PM reduction as compared to CARB statewide fleet average emissions, and use grid power and/or "clean" fuel rather than temporary diesel power generators, thus reducing diesel fuel consumption. The Construction Emission/Dust Control Plan is required to identify construction schedules and project phases to be implemented, which would ensure that multiple project phases or construction activities would not occur simultaneously, thus reducing the amount of pollutants emitted in a single day.

However, these actions might not fully offset air pollutant emissions resulting from construction activities or even guarantee that PCAPCD construction-related thresholds are not surpassed by construction allowed under the proposed project. For instance, the NOx emissions projected to result from grading for the J lift in Year 2 of construction are 146.97 lbs/day (see **Table 10-5**). A 20 percent reduction of NOx as required by mitigation measure **10-2a** would reduce projected emissions to 117.58 lbs/day, which is still in excess of the NOx significance threshold. Moreover, as previously stated, detailed construction schedules are not known at the time of preparation of this analysis. Therefore, it is possible that several project components listed in **Table 10-5** would be under construction simultaneously and would generate cumulative construction emissions that could surpass all thresholds and impact air quality. Construction of the project could result in construction emissions in excess of PCAPCD significance threshold levels, established by the district to determine the significance for short-term, construction-related emissions from a project. Thus, this impact is considered **significant and unavoidable**.

IMPACT 10.3: Contribute Substantially to an Existing Air Quality Violation

Implementation of the project would result in long-term operational emissions of criteria air pollutants and ozone precursors (i.e., ROG and NOx). While the proposed project would result in a substantial increase of electricity consumption, emissions from this activity are addressed in terms of their contribution of greenhouse gases (see Section 16.0). Therefore, project-generated

increases in emissions would be predominantly associated with motor vehicle use. The increase of traffic over existing conditions as a result of the project was obtained from LSC Transportation Consultants, Inc. (2013) (see **Appendix 9.0**).

Long-term operational emissions attributable to the proposed project are summarized in **Table 10-6**. At completion of all proposed project- and program-level components, the project would result in a maximum net increase of approximately 2.89 pounds per day (lbs/day) of ROG, 2.18 lbs/day of NOx, 1.92 lbs/day of PM_{10}, and 0.53 lbs/day of $PM_{2.5}$. Utilization of fire pits at campgrounds would also generate emissions, but these emissions would not a regular part of the project's operation and thus would be minimal.

TABLE 10-6
TOTAL LONG-TERM UNMITIGATED EMISSIONS

Emissions Source	Pollutant (pounds/day)			
	ROG	NO_x	PM_{10}	$PM_{2.5}$
Project-Level Components				
Summer Emissions (generated from an increase of 54 trips)				
Total Operational Emissions	0.27	0.20	0.19	0.05
PCAPCD Threshold (lbs/day)	82	82	82	None
Threshold Exceeded Before Mitigation?	No	No	No	N/A
Winter Emissions (generated from an increase of 386 trips)				
Total Operational Emissions	2.13	1.60	1.41	0.39
PCAPCD Threshold (lbs/day)	82	82	82	None
Threshold Exceeded Before Mitigation?	No	No	No	N/A
Project- and Program-Level Components				
Summer Emissions (generated from an increase of 208 trips)				
Total Operational Emissions	1.06	0.77	0.76	0.21
PCAPCD Threshold (lbs/day)	82	82	82	None
Threshold Exceeded Before Mitigation?	No	No	No	N/A
Winter Emissions (generated from an increase of 524 trips)				
Total Operational Emissions	2.89	2.18	1.92	0.53
PCAPCD Threshold (lbs/day)	82	82	82	None
Threshold Exceeded Before Mitigation?	No	No	No	N/A

Source: CalEEMod Model v. 2013.2 (see Appendix 10.0)

Long-term emissions associated with the proposed project would be less than the PCAPCD thresholds for NO_x, ROG, and PM_{10}. These emissions would also below Tahoe Regional Planning Agency air quality thresholds for stationary sources provided in TRPA Code of Ordinances Chapter 65.1 (Air Quality Control). This impact would be **less than significant**.

IMPACT 10.4: Expose Sensitive Receptors to Substantial Carbon Monoxide Pollutant Concentrations

The primary mobile-source criteria pollutant of local concern is carbon monoxide (CO). Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Transport of this criteria pollutant is extremely limited; CO disperses rapidly with distance from the source under normal meteorological conditions. Under certain meteorological conditions, however, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or "hotspots," are typically associated with roadway and/or intersections that are projected to operate at unacceptable levels of service during the peak commute hours.[1] Modeling is therefore typically conducted for roadways and intersections that are projected to operate at unacceptable levels of service during peak commute hours.

For the purpose of this CO hotspots analysis, the traffic impact analysis prepared for the project was reviewed in order to identify any project-affected roadway or intersection declines in level of service (LOS) to an unacceptable level. For instance, if the defined LOS at a project-affected roadway or intersection declines from LOS A, B, C, or D to LOS E or F, or substantially worsens an already existing unacceptable peak-hour LOS on one or more streets or at one or more intersections in the project vicinity ("substantially worsen" includes situations where delay would increase by 10 seconds or more when project-generated traffic is included), the project would pose a potentially significant impact in terms of CO hotspots, and specific CO modeling would be required for an accurate significance determination. (The capacity of a transportation system is referred to as the level of service and is generally defined as a ratio of traffic volume to roadway capacity. While it is customary to refer to an LOS using an alphabetic reference A–F, the inevitable comparison to school grades is not accurate. From a purely transportation standpoint, a roadway with an LOS of D is a roadway used to its design capacity.) In other words, the proposed project would result in a less than significant impact to air quality for local CO if:

- Traffic generated by the proposed project would not result in deterioration of intersection level of service to LOS E or F; or
- The project would not contribute additional traffic to an intersection that already operates at LOS of E or F.

Based on the traffic analysis prepared for this project, the proposed project would increase the number of vehicles at the Northstar Drive/Castle Peak parking lot to the extent that the existing LOS F classification at this facility would be worsened by more than 10 seconds of delay under both the short-term (2016) and long-term (2032) traffic scenarios. Since project-related traffic increases are projected to contribute additional traffic to an intersection that already operates at LOS F, CO hotspot modeling was conducted based on PM peak-hour traffic volumes for winter operating conditions. To ensure a conservative analysis, predicted 1-hour and 8-hour CO concentrations were calculated assuming background CO concentrations of 1.3 and 2.0 parts per million (ppm), respectively, based on the most recent available data obtained from the nearest monitoring station that monitors CO (1-hour and 8-hour background concentrations based on 2012 measurements at the North Highlands-Blackfoot Way CO monitoring site). A persistence factor of 0.7 was used to convert predicted hourly concentrations to 8-hour concentrations. The predicted 1-hour and 8-hour CO concentrations for future cumulative conditions are summarized in **Table 10-7**.

[1] Level of service (LOS) is a measure used by traffic engineers to determine the effectiveness of transportation infrastructure. LOS is most commonly used to analyze intersections by categorizing traffic flow with corresponding safe driving conditions. LOS A is considered the most efficient level of service and LOS F the least efficient.

TABLE 10-7
PREDICTED LOCAL MOBILE SOURCE CARBON MONOXIDE CONCENTRATIONS
FUTURE CONDITIONS

Traffic Facility	Predicted CO Concentration (ppm)	
	1-hour	8-hour
Intersections		
Northstar Drive/Castle Peak Parking Lot *(Short-Term, 2016 Traffic Scenario)*[1]	3.1	3.2
Northstar Drive/Castle Peak Parking Lot *(Long-Term, 2032 Traffic Scenario. Includes Program-Level Components)*[2]	3.1	3.2
California Ambient Air Quality Standards (CAAQS)	20	9
Predicted Concentrations Exceed CAAQS?	No	No

Source: Results based on emissions modeling conducted using the Caline4 computer program (see Appendix 10.0). The average Placer County fleet emission factors of 10.2 grams/mile of CO under the short-term (2016) traffic scenario and 5.3 grams/mile of CO under the long-term (2032) traffic scenario obtained from EMFAC2011 at http://www.arb.ca.gov/msei/modeling.htm.

Note: Predicted CO concentrations are the sums of a background component, which includes the cumulative effects of CO sources in the project area vicinity and the proposed project's contribution. In the absence of peak-hour traffic trip data, average daily traffic trips were used, providing a conservative analysis.

1. Predicted CO concentrations account for a short-term (2016) traffic scenario of 1,997 daily traffic trips and a fleet emissions factor of 10.2 grams/mile of CO.

2. Predicted CO concentrations account for a long-term (2032) traffic scenario of 2,344 daily traffic trips and a fleet emissions factor of 5.3 grams/mile of CO.

As noted in **Table 10-7**, predicted maximum 1-hour and 8-hour CO concentrations at the intersection projected to be worsened by more than 10 seconds of delay under both the short-term (2016) and long-term (2032) traffic scenarios would not exceed even the most stringent corresponding California ambient air quality standards (CAAQS) of 20 and 9 ppm, respectively. Therefore, the proposed project would not contribute to localized concentrations of mobile-source CO that would exceed applicable ambient air quality standards. As a result, this impact would be considered **less than significant**.

IMPACT 10.5: Expose Sensitive Receptors to Toxic Air Contaminants

Sensitive land uses are generally defined as locations where people reside or where the presence of air emissions could adversely affect the use of the land. Typical sensitive receptors include residents, schoolchildren, hospital patients, and the elderly. There are no residential communities, schools, or medical facilities in the project vicinity.

Short-Term Construction Sources

Potential sources of toxic air contaminants (TACs) associated with construction-related activities are primarily associated with the airborne entrainment of asbestos due to the disturbance of naturally-occurring asbestos-containing soils, as well as emissions of diesel PM associated with the use of diesel-powered construction equipment. The proposed project is not located within an area designated by the State of California as likely to contain naturally-occurring asbestos (DOC 2000). As a result, construction-related activities would not be anticipated to result in increased exposure of sensitive land uses to asbestos. Construction of the proposed land uses would, however, result in construction-generated diesel-exhaust emissions. CARB identified particulate exhaust emissions from diesel-fueled engines (diesel PM) as a toxic air contaminant in 1998.

Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. For sensitive land uses, the calculation of cancer risk associated with exposure to TACs is typically based on a 70-year period of exposure. The use of diesel-powered construction equipment would be temporary and episodic and would occur over a relatively large area. In addition, mitigation measures incorporated for the control of emissions from on-site construction equipment would substantially reduce emissions of DPM (see mitigation measures 10-2b through 10-2d). For these reasons, diesel PM generated by project construction, in and of itself, would not be expected to create conditions where contracting cancer is likely.

Long-Term Operational Sources

The PCAPCD has addressed the compatibility of sensitive land uses to the siting of major sources of TAC emissions such as rail yards, distribution centers, freeways, and refineries. The proposed project does not introduce permanent sensitive receptors and is thus not a sensitive land use. Furthermore, the project does not meet the definition of a major source of TACs. While long-term operations of the project would include the use of emergency backup generators, these generators would be operated only for a limited amount of time for maintenance and testing purposes during the ski season and emergency situations. In any case, such stationary sources would be subject to PCAPCD permitting and best available control technology (BACT) requirements and thus would not be considered to have significant air quality impacts. Thus, the project would not be subject to the PCAPCD siting criteria, and long-term operational emissions would not expose existing or planned sensitive land uses to stationary or mobile-source TACs.

For the reasons identified above, the proposed project would not expose existing or planned sensitive land uses to TACs and therefore would result in a **less than significant** impact.

IMPACT 10.6: Create Objectionable Odors

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

The proposed project is not expected to produce odor issues, as the proposed project does not include any uses commonly considered to be potential sources. Furthermore, the PCAPCD has a Nuisance Rule (Rule 205) that governs the discharge from any source of emission which causes a nuisance or annoyance to any considerable number of persons or to the public. As a result, this impact is considered **less than significant**.