3.5 AIR QUALITY & GREENHOUSE GASES / CLIMATE CHANGE

3.5-1 INTRODUCTION

The proposed Heavenly Mountain Resort Epic Discovery Project (Project) is located within the El Dorado County, California and Douglas County, Nevada portions of the Lake Tahoe Basin (Basin). This chapter describes the environmental setting for existing air quality and greenhouse gases (GHG); the significance criteria and thresholds appropriate to air quality and GHG impact analysis; the air pollutant emissions that would be caused directly or indirectly by the Project; the potential impacts of Project emissions on air quality and climate; whether those impacts are significant relative to applicable air quality standards and GHG emission guidance; and mitigation measures proposed, if needed, to reduce the potential air quality and climate change impacts of construction to a less-than-significant level. Finally, the chapter provides an analysis of cumulative air quality and climate change impacts.

3.5-2 ENVIRONMENTAL SETTING

This section describes the existing air quality and climate of the Basin. The characteristics of criteria air pollutants[1], air toxics[2] and GHG emissions are discussed along with the GHG global average concentrations. Relevant federal, state and local laws, ordinances, standards and regulations that potentially affect air pollutant emissions from construction and operation of the Project are presented.

The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted from those sources. Topography and climate/meteorology are also important. The meteorological conditions of wind speed, wind direction, and air temperature gradients interact with physical features of the landscape to determine the movement and dispersal of air pollutants. The geography/topography and climate/meteorology of the Basin are described in terms of how those characteristics affect air pollutant ambient air concentrations in the basin. Characteristics of the criteria pollutants and air toxics, and existing ambient concentrations measured in the Project vicinity are presented in the context of federal and state ambient air quality standards and applicable guidance. Pertinent federal and state air quality regulations and local ordinances that potentially affect construction and operation of the Project are discussed.

1 A criteria pollutant is an air pollutant for which the federal government or a state has promulgated an ambient air quality standard.
2 Air toxics include chemical substances that are listed as federal hazardous air pollutants (HAPs, http://www.epa.gov/ttn/atw/orig189.html), California toxic air contaminants (TACs, http://www.arb.ca.gov/toxics/id/taclist.htm) and substances for which the California Air Resources Board and Office of Environmental Health Hazard Assessment have established health values published in their Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values, http://www.arb.ca.gov/toxics/healthval/healthval.htm.

3.5-2.1 Geography/Topography

The distinctive topographic features of the Project area are the mountains upon which the Heavenly Mountain Resort was built and Lake Tahoe to the north. The Sierra Nevada Mountains to the west of the resort include several national forests and the Desolation Wilderness. Mountains extend to the south of the Project, while the topography east of the Project drops to lower elevations in the Carson City and Gardnerville areas of Nevada.

3.5-2.2 Climate and Meteorology

In addition to the mountainous topography that surrounds Lake Tahoe, the position of the semi-permanent Pacific high-pressure system over the eastern Pacific Ocean is an important determinant of air quality in the Basin. The Pacific High is centered between the 140° W and 150° W meridians, and oscillates seasonally in a north-south direction. During the summer, it moves northward and dominates the regional climate, producing clear skies, relatively high temperatures in the upper 70s and low 80s (degrees Fahrenheit), low humidity, and persistent temperature inversions. Precipitation is rare during summer months because the Pacific High blocks storms approaching from the north and west. Occasionally, tropical air comes into the area from the south, and the surrounding mountains then can trigger thunderstorms in the area.

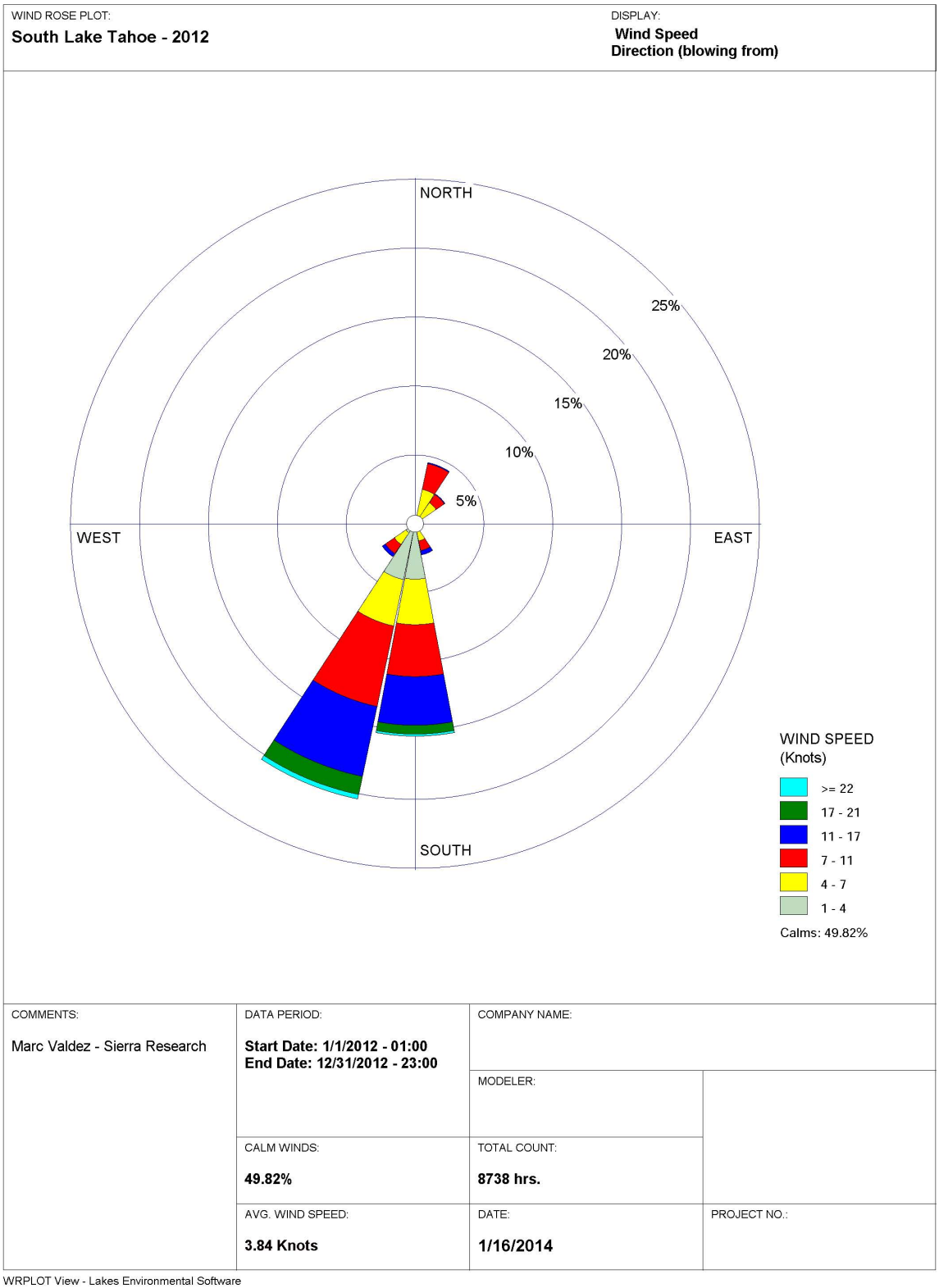
In the fall, the Pacific High weakens and shifts southwestward toward Hawaii, reducing its influence in the Basin. During the fall transition period, the storm belt and zone of westerly winds moves southward towards and into California. Fall weather is typically fair with light winds and moderate temperatures, occasionally interrupted with storms from the northwest.

Winter in the Basin includes highly variable amounts of precipitation from Pacific storms mostly in the form of snow, accompanied by freezing temperatures, winds, cloudiness, and lake and valley fog. Winter days are often cool and clear between storms. Thermal inversions are a dominant feature of winter weather within the Basin.

During winter, thermal inversions in the stable air trap pollutants near the ground, leading to high winter concentrations of air pollutants, especially in the more congested and populated areas of the basin. South Lake Tahoe can be prone to elevated levels of air pollution during thermal inversions due to emissions from both vehicle traffic and residential wood stoves and fireplaces.

Wind patterns in the general area of the Project can be seen in Figure 3.5-1, which shows the annual wind rose for meteorological data collected at the South Lake Tahoe Airport meteorological monitoring station during 2012. It can be seen that the winds are mostly from the south-southwest and south. This dominance is because the topography of the mountains surrounding the airport on its west and east sides channels the winds.

Figure 3.5-1: Wind Rose: South Lake Tahoe Airport (2012)



3.5-2.3 Atmospheric Deposition

Lake Tahoe is well known for its depth and water clarity. One concern about the lake's quality is its deteriorating clarity, which results from daylight being increasingly scattered upwards from an increasing load of sediment particles, especially those with diameters less than 16 microns, and from light absorption by phytoplankton.[3] Atmospheric deposition of nitrate aerosols and gaseous nitrogen oxides (NOx)[4] adds nitrogen to Lake Tahoe that contributes to phytoplankton growth.

3.5-2.4 Ambient Air Quality Standards

The EPA has established National Ambient Air Quality Standards (NAAQS) for ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), respirable particulate matter (with aerodynamic diameter less than or equal to a nominal 10 micrometers, PM_{10}), fine particulate matter (with aerodynamic diameter less than or equal to a nominal 2.5 micrometers, $PM_{2.5}$), and airborne lead. The NAAQS are of two types: primary and secondary. Primary standards are designed to protect human health, including the health of "sensitive" populations, such as asthmatics, children, and the elderly, with an adequate margin of safety. Secondary standards are designed to protect public welfare, including protection against decreased visibility and harm to animals, crops, vegetation, and buildings. Areas with air pollution levels above these standards can be designated by the EPA as "nonattainment areas" subject to stringent planning and pollution control requirements.

In addition, the California Air Resources Board (CARB) has established California ambient air quality standards (CAAQS) for ozone, CO, NO_2, SO_2, sulfates, PM_{10}, $PM_{2.5}$, airborne lead, hydrogen sulfide, and vinyl chloride at levels designed to protect the most sensitive members of the population, particularly children, the elderly, and people who suffer from lung or heart diseases. Those air pollutants for which ambient air quality standards have been established are termed criteria air pollutants.

Each state and national ambient air quality standard consists of two parts: an allowable concentration for a pollutant, and an averaging time over which the concentration is to be measured. Allowable concentrations are based on the results of studies of the effects of the pollutants on human health, crops, and vegetation, and in some cases, damage to paint and other materials. The averaging time is based on whether the damage caused by the pollutant can occur during exposures to a high concentration for a short time (1, 3, 8, or 24 hours), or to a relatively lower average concentration over a longer period (1 month or 1 year), or both. For some pollutants there are at least two air quality standards established to address health effects that occur over short-term or long-term periods, or both. Table 3.5-1 presents the NAAQS and CAAQS. The California standards are generally set at concentrations lower than the federal standards and in some cases have shorter averaging periods. This table also shows the TRPA 8-hour CO standard, which is more stringent than the California and national standards.

3 TRPA, *Lake Tahoe Regional Plan,* page 1-3, December 12, 2012, http://www.trpa.org/regional-plan/
4 Nitrogen oxides (NOx) is the sum of nitrogen dioxide (NO_2) and nitric oxide (NO).

Table 3.5-1

Ambient Air Quality Standards

Pollutant	Averaging Time	TRPA Threshold Standards[f]	California[a,b]	Nevada	National[c]	
					Primary[b,d]	Secondary[b,e]
Ozone (O_3)	1-hour	0.08.ppm	0.09 ppm (180 $\mu g/m^3$)	0.10 ppm (195 $\mu g/m^3$)[f]	–[e]	Same as primary standard.
	8-hour	–	0.070 ppm (137 $\mu g/m^3$) LTAB: 0.08 ppm	–	0.075 ppm (147 $\mu g/m^3$)	
Carbon Monoxide (CO)	1-hour	–	20 ppm (23 mg/m^3)[a]	35 ppm (40 $\mu g/m^3$)	35 ppm (40 mg/m^3)	Same as primary standard.
	8-hour	9 ppm	9.0 ppm (10 mg/m^3) Lake Tahoe: 6 ppm (7 mg/m^3)	6 ppm (7 mg/m^3)	9 ppm (10 mg/m^3)	
Nitrogen Dioxide (NO_2)[g]	Annual Arithmetic Mean	–	0.030 ppm (57 $\mu g/m^3$)	0.053 ppm (100 $\mu g/m^3$)	0.053 ppm (100 $\mu g/m^3$)	Same as primary standard.
	1-hour	–	0.18 ppm (339 $\mu g/m^3$)	–	100 ppb (188 $\mu g/m^3$)	–
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	–	0.030 ppm[h] (80 $\mu g/m^3$)	–	–
	24-hour	–	0.04 ppm (105 $\mu g/m^3$)	0.14 ppm[h] (365 $\mu g/m^3$)	–	–
	3-hour	–	–	0.5 ppm (1,300 $\mu g/m^3$)	–	0.5 ppm (1300 $\mu g/m^3$)
	1-hour	–	0.25 ppm (655 $\mu g/m^3$) [a]	–	75 ppb[i] (196 $\mu g/m^3$)	
Respirable Particulate Matter (PM_{10})	Annual Arithmetic Mean	–	20 $\mu g/m^3$ [a]	50 $\mu g/m^3$	–	Same as primary standard.
	24-hour	–	50 $\mu g/m^3$ [a]	150 $\mu g/m^3$	150 $\mu g/m^3$	
Fine Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	–	12 $\mu g/m^3$ [a]	–	12.0 $\mu g/m^3$ [j]	15 $\mu g/m^3$
	24-hour	–	–	–	35 $\mu g/m^3$	Same as primary standard.

Pollutant	Averaging Time	TRPA Threshold Standards[f]	California[a,b]	Nevada	National[c]	
					Primary[b,d]	Secondary[b,e]
Lead (Pb)[g]	Calendar Quarter	–	–	1.5 μg/m^3	1.5 μg/m^3	
	30-day Average	–	1.5 μg/m^3	–	–	Same as primary standard
	Rolling 3-Month Average	–	–	–	0.15 μg/m^3	Same as primary standard
Hydrogen Sulfide (H_2S)	1-hour	–	0.03 ppm (42 μg/m^3)	0.08 ppm (112 μg/m^3)	No national standard.	
Sulfates	24-hour	–	25 μg/m^3	–		
Vinyl Chloride[g]	24-hour	–	0.01 ppm (26 μg/m^3)	–		
Visibility-Reducing Particles	8-hour (10am to 6pm PST)	Regional: Extinction coefficient of 25 Mm-1 (157 km, 97 miles) 50 percent of the year, 34 Mm-1 (115 km, 71 miles) 90 percent of the year. Subregional: 50 Mm-1 (48 miles) 50 percent of the year, 125 Mm-1 (19 miles) 90 percent of the year.	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent (0.07 per kilometer for the LTAB).	No state standard.	No national standard.	

Notes: μg/m^3 = micrograms per cubic meter; km = kilometers; ppb = parts per billion; ppm = parts per million; TRPA = Tahoe Regional Planning Agency

a. California standards for ozone, CO (except for 8-hour Lake Tahoe), SO_2 (1-and 24-hour), NO_2, particulate matter (PM_{10} and $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25 degrees Celsius (°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.

c. National standards (other than ozone, particulate matter, 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 PM_{10} 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than one. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

d. National primary standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

e. National secondary standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f. Applicable in the Lake Tahoe Basin. The CO limit is discussed in Table 3-1 of TRPA, *2011 Threshold Evaluation Report,* October 2012.

g. The California Air Resources Board 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.

h. 3-year average of 98th percentile of yearly 1-hour daily maximum concentrations.

i. 3-year average of 99th percentile of yearly 1-hour daily maximum concentrations.

j. EPA. National Ambient Air Quality Standards for Particulate Matter, Final Rule, Federal Register, Volume 78, No.10, pp. 3086-3287, January 15, 2013.

3.5-2.5 Criteria Pollutant and Air Toxics Characteristics

This section summarizes the health effects and other key characteristics of the criteria pollutants.

Ozone (O_3)

Ozone is a severe eye, nose, and throat irritant that increases susceptibility to respiratory infections, and may cause permanent lung damage after long-term exposure. Ozone can trigger a variety of health problems even at low levels. Ozone causes damage to plants through leaf discoloration and cell damage, and degrades synthetic rubber, textiles, and other materials. Large parts of the Basin forests consist of ponderosa pine, Jeffrey pine, and quaking aspen, which are vulnerable to ozone damage.[5] Ozone is not directly emitted by sources, unlike the other criteria pollutants. Ozone is an end product of complex reactions between precursor volatile organic compounds (VOC, also called reactive organic compounds, ROC, or reactive organic gases, ROG) and oxides of nitrogen (NOx) in the presence of ultraviolet solar radiation. VOC/ROC and NOx emissions from vehicles and stationary sources, in combination with daytime wind flow patterns, mountain barriers, a persistent temperature inversion, and intense sunlight, result in high ozone concentrations. Because photochemical reaction rates depend on the intensity of ultraviolet sunlight and air temperature, ozone is primarily a summer air pollution problem.

Mobile sources, and to a lesser extent stationary combustion equipment, are the primary sources of ozone precursors VOC and NOx. Air quality improvement plans within the Basin and larger Sacramento Metropolitan Area have focused on reducing vehicle travel to reduce the formation of ozone. Because the automobile is the primary source of ozone precursors, reduced vehicle trips directly correlates to reductions in ozone emissions.

Nitrogen Dioxide (NO_2)

Nitrogen dioxide is formed primarily from reactions in the atmosphere between nitric oxide (NO) and oxygen or ozone. Nitric oxide is formed during high-temperature combustion processes, when the nitrogen and oxygen in the combustion air combine. Although NO is less harmful than NO_2, it is converted to NO_2 in the atmosphere within a matter of hours, or even minutes under certain conditions. NO_2 is one of the main ingredients involved in the formation of ground-level ozone, which can trigger serious respiratory problems. NO_2 reacts to form nitrate particles, acid aerosols and toxic compounds, which also cause respiratory problems. NO_2 contributes to the formation of acid rain, nutrient overload that deteriorates water quality, and atmospheric particles that cause visibility impairment.

5 Davis, D.D., and H.D. Gerhold. *Selection of trees for tolerance of air pollutants. In Better Trees for Metropolitan Landscapes* (F.S. Santamour, H.D. Gerhold, and S. Little, eds.), pp. 61-66, U.S. Forest Service, General Tech. Rept. NE-22, 1976 as reported in TRPA, *2011 Threshold Evaluation Report,* Chapter 3, p. 3-19, http://www.trpa.org/regional-plan/threshold-evaluation/.

Carbon Monoxide (CO)

CO is a tasteless, odorless, and colorless gas that is essentially inert to plants, but negatively affects human health. CO combines with hemoglobin to reduce the amount of oxygen transported in the bloodstream. Effects on humans include slight headaches, shortness of breath, nausea, seizures, coma, and death. CO is poisonous even to healthy people when at high concentrations in ambient air, causes stress to people with heart disease, and can affect the central nervous system. CO is a product of incomplete combustion, principally from automobiles and other mobile sources of pollution, but is also a byproduct of wildfires. CO emissions from wood-burning stoves and fireplaces can make measurable contributions to high ambient levels of CO. Industrial sources contribute less than ten percent of ambient CO levels. Peak CO levels typically occur during winter months, due to a combination of higher emission rates and stagnant weather conditions. Motor vehicles emit more CO at lower air temperatures. High CO levels develop primarily when periods of light winds combine with ground-level temperature inversions between evening and early morning. Such conditions result in reduced dispersion of vehicle emissions, which can cause CO "hotspots".

Respirable and Fine Particulate Matter

Respirable Particulate Matter (PM_{10}) and Fine Particulate Matter ($PM_{2.5}$) can damage human health and retard plant growth. Health concerns focus on those particles small enough to reach deep in the lungs when inhaled, especially $PM_{2.5}$. Airborne particles also reduce visibility and corrode materials. Primary PM_{10} and $PM_{2.5}$ are generated by combustion sources and wind-blown fugitive dust, while secondary PM_{10} and $PM_{2.5}$ are developed from the growth of organic, sulfate, and nitrate aerosols formed from atmospheric reactions between emitted hydrocarbons, sulfur oxides, and nitrogen oxides. Studies have suggested links between particulate matter and numerous health problems including lung cancer, asthma, bronchitis, acute and chronic respiratory symptoms such as shortness of breath and painful breathing, and premature deaths.

In the Basin, there are additional concerns regarding particulate matter because particles are deposited into Lake Tahoe and can contribute directly to reduced lake clarity, and indirectly through providing nutrients that promote algae growth.

Sulfur Dioxide (SO_2)

SO_2 is produced when any sulfur-containing fuel is burned. It is also emitted by metal smelters (primarily copper and lead) and chemical plants that treat or refine sulfur or sulfur-containing chemicals. Natural gas contains a negligible amount of sulfur; gasoline and ultra-low sulfur diesel fuel contain 30 parts per million (ppm by weight) and 15 ppm, respectively, while fuel oil and coal contain larger amounts. Because of the complexity of the chemical reactions that convert SO_2 to other compounds (such as sulfate particles), peak concentrations of SO_2 occur at different times of the year in different parts of California, depending on local fuel characteristics, weather, and topography. SO_2 contributes to respiratory illness, particularly in children and the elderly, and aggravates existing heart and lung diseases. SO_2 contributes to the formation of acid rain, which

damages trees, crops, and other plants; corrodes historic buildings and monuments; and acidifies soils, streams, and lakes such as Lake Tahoe. SO_2 also contributes to the formation of sulfate particles that cause visibility impairment.

Lead (Pb)

Short-term exposure to high levels of lead can cause vomiting, diarrhea, convulsions, coma, or death, but even small amounts of lead can be harmful, especially to infants, young children, and pregnant women. When lead deposits on soil and water, it can harm animals and fish. Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead was used for much of the early/mid 20th century to increase the octane rating of gasoline, enabling the design of more efficient engines, but making gasoline engines a major source of airborne lead. Ambient concentrations of lead have dropped dramatically with the phasing out of leaded fuel.

Air Toxics

Air toxics are pollutants that may cause an increase in mortality or serious illness, or that may pose a present or potential hazard to human health. Health effects of air toxics include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. Particulate matter from diesel-fueled engines or diesel particulate matter (DPM) is the most important air toxic in terms of emissions, health values,[6] and overall health impacts in California.[7] DPM is not a federal hazardous air pollutant (HAP), but is a TAC in California regulations and addressed in this analysis at the request of the TRPA.

3.5-2.6 Existing Criteria Pollutant Concentrations

Existing air quality concentrations are shown in Table 3.5-2 for the recent three-year period of 2010-2012, based on data collected from air quality monitoring stations in the region as follows:

- O_3: Incline Village, NV, Site 320312002
- PM_{10} and $PM_{2.5}$: South Lake Tahoe-Sandy Way Monitoring Station 060170011 at 3337 Sandy Way, South Lake Tahoe, CA 96150
- NO_2: 151 N Sunrise Boulevard, Roseville, Placer County, CA, Site 060610006
- CO (8- and 1-hour averages): Stateline, NV, Site 320050009
- SO_2 (1-hour average): Sacramento, Del Paso Manor, Site 060670002

Table 3.5-2 also lists the ambient air quality standards to provide context for the observed concentrations.

---

6 Health values for each TAC recognized by the ARB and the California Office of Environmental Health Hazard Assessment (OEHHA) are published in ARB, *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values, August 1, 2013,* http://www.arb.ca.gov/toxics/healthval/contable.pdf

7 DPM is estimated to account for about 70% of the health risk from TACs in California ambient air (ARB. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles,* October 2000.

Table 3.5-2

Background Air Quality Data

Pollutant	Parameter	2010	2011	2012	Ambient Air Quality Standards
Ozone (O_3) [a]	Highest 1-hr Average (ppm)	0.071	0.077	0.078	0.09 (CAAQS)
	# of days exceeding CAAQS	0	0	0	--
	# of days exceeding NAAQS	0	0	0	--
	Highest 8-hr Average (ppm)	0.067	0.068	0.071	0.070 (CAAQS), 0.075 (NAAQS)
	# of days exceeding CAAQS	0	0	0	--
	# of days exceeding NAAQS	0	0	0	--
Nitrogen Dioxide (NO_2) [b,c]	Highest 1-hr Average (ppm)	0.071	0.066	0.055	0.100 (NAAQS) 0.18 (CAAQS)
	Highest Annual Average (ppm)	0.010	0.011	0.010	0.030 (CAAQS) 0.053 (NAAQS)
Carbon Monoxide (CO)[d]	Highest 1-hr Average (ppm)	5.8	7.7	29.1	20 (CAAQS) 35 (NAAQS)
	Highest 8-hr Average (ppm)	3.2	3.3	7.1	6 (Lake Tahoe CAAQS) 9 (NAAQS)
Sulfur Dioxide (SO_2)	Highest 1-hr Average (ppm) [e]	0.003	0.0047	0.0035	0.075 (NAAQS) 0.25 (CAAQS)
	Highest 24-hr Average (ppm) [f]	0.001	0.001	0.002	0.04 (CAAQS) 0.14 (NAAQS)
	Annual Average (ppm)	0[f]	0[f]	[f,g]	0.030 (NAAQS)
PM_{10} [h,c]	Highest 24-hr Average ($\mu g/m^3$)	71.4	55.8	84.1	50 (CAAQS) 150 (NAAQS)
	# of days measured to exceed CAAQS	2	3	4	50 (CAAQS)
	Annual Average ($\mu g/m^3$)	[g]	[g]	[g]	20 (CAAQS)
$PM_{2.5}$ [h,c]	24-hr Average 98th percentile ($\mu g/m^3$)	20.3	23.0	15.8	35 (NAAQS) (3-year average of 98th percentiles)
	# of days estimated to exceed NAAQS	0.0	6.1	2.0	
	Annual Average ($\mu g/m^3$)	10.9	10.7	9.5	12 (CAAQS)
		6.6	8.5	6.5	12.0 (NAAQS)
Lead (Pb)	Quarterly Average ($\mu g/m^3$)	n/a	n/a	n/a	1.5 (NAAQS)

[a] Incline Village, NV, data supplied by TRPA, June 11, 2014 or available for Site 320312002 on EPA, *Air Data, http://www.epa.gov/airdata/*
[b] AQS Site and AIRS No. 060610006, located at 151 N Sunrise Boulevard, Roseville, Placer County, CA
[c] *iADAM: Air Quality Data Statistics,* http://www.arb.ca.gov/adam/topfour/topfour1.php
[d] Stateline, NV, data supplied by TRPA, June 11, 2014 or available for Site 320050009 on EPA, *Air Data, http://www.epa.gov/airdata/*
[e] Sacramento County, Del Paso Manor, EPA, *Air Data, http://www.epa.gov/airdata/*
[f] Sacramento, Del Paso Manor, *iADAM: Air Quality Data Statistics*, http://www.arb.ca.gov/adam/topfour/topfour1.php
[g] Insufficient data available
[h] AQS Site and AIRS No. 060170011, located at 3337 Sandy Way, South Lake Tahoe, El Dorado County, CA

Local monitoring data was used by the EPA and CARB to designate the California portion of the project area in El Dorado County as nonattainment, maintenance, attainment, or unclassified for the NAAQS and CAAQS as shown in Table 3.5-3, on the basis of the following four definitions:[8]

- Nonattainment—assigned to areas where monitored pollutant concentrations violate the standard in question at least during the most recent three years of monitoring;
- Nonattainment/Transitional—a subcategory of nonattainment signifying that the area is close to attaining the standard for that pollutant;
- Maintenance—assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past, but are no longer in violation of that standard during the most recent three years of monitoring;
- Attainment—assigned to areas where pollutant concentrations meet the standard in question over at least the most recent three years of monitoring; and
- Unclassified[9]—assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

For nonattainment areas, which do not meet the NAAQS, the CAA requires states to develop and adopt State Implementation Plans (SIPs) showing how air quality standards will be attained in the nonattainment areas. Failing to submit a SIP or secure approval can lead to denial of federal funding and permits for such improvements as highway construction and sewage treatment plants. In California, the EPA has delegated authority to prepare SIPs to the CARB, which, in turn, has delegated that authority to local air districts. The Nevada Division of Environmental Protection (NDEP) has similar delegated authority to prepare the Nevada SIP. In cases where the SIP submitted by the State fails to demonstrate attainment of the standards, the EPA is directed to prepare a federal implementation plan. The Nevada portion of the Lake Tahoe Basin (i.e., Douglas County) is in attainment for all criteria air pollutants.[10]

Table 3.5-3

Attainment Status Designations for the Lake Tahoe Air Basin

Pollutant	National Designation[1]	State Designation	Threshold Indicator Reporting Category	TRPA Designation
Ozone (O_3)	Attainment/ Unclassified	Nonattainment-Transitional	Highest 1-hour Average Concentration	At or somewhat better than target
			Highest 8-hour Average Concentration	At or somewhat better than target
			3-year Average of 4th	At or somewhat

8 CARB, Area Designations Maps/State and National, http://www.arb.ca.gov/desig/adm/adm.htm
9 EPA refers to this category as Unclassified/Attainment, while CARB separates these two categories.
10 EPA. Green Book, http://www.epa.gov/oar/oaqps/greenbk/qnstate.html.

Pollutant	National Designation[1]	State Designation	Threshold Indicator Reporting Category	TRPA Designation
			Highest Concentration	better than target
			Oxides of Nitrogen Emissions	At or somewhat better than target
Respirable Particulate Matter (PM_{10})	Unclassified	Nonattainment	Highest 24-hour Average PM_{10} Concentration	Somewhat worse than target
			Annual Average PM_{10} Concentration	Unknown
Fine Particulate Matter ($PM_{2.5}$)	Unclassified/ Attainment	Attainment	3-year Average of 98th Percentile 24-hour $PM_{2.5}$ Concentration	Considerably better than target
			Annual Average $PM_{2.5}$ Concentration	Considerably better than target
Visibility Reducing Particles	No Designation	Unclassified	Regional Visibility 50th Percentile	Considerably better than target
			Regional Visibility 90th Percentile	At or somewhat better than target
			Sub-regional Visibility 50th Percentile	Unknown
			Sub-regional Visibility 90th Percentile	Unknown
			Vehicle Miles Traveled	At or somewhat better than target
Carbon Monoxide (CO)	Unclassified/ Attainment	Attainment	1-hour Carbon Monoxide Standard	Considerably better than target
			8-hour Carbon Monoxide Standard	Considerably better than target
			Winter Traffic Volumes	Considerably better than target
Nitrogen Dioxide (NO_2)	Unclassified/ Attainment	Attainment	Nitrate Deposition	Implemented[2]
Sulfur Dioxide (SO_2)	No Designation	Attainment	No Standard	No Designation
Odor	No Designation	No Designation	Non-numerical Standard	Implemented[2]
Lead (Pb)	No Designation	Attainment	No Designation	
Hydrogen Sulfide (H_2S)	No Designation	Unclassified	No Designation	
Sulfates	No Designation	Attainment	No Designation	

Notes: CO =carbon monoxide; $N0_2$ = nitrogen dioxide; $PM_{2.5}$ = fine particulate matter; PM_{10} = respirable particulate matter; SO_2 = sulfur dioxide; TRPA = Tahoe Regional Planning Agency.

[1] According to the Nevada Division of Environmental Protection, Bureau of Air Quality Planning, Nevada has adopted its own air quality standards that shall not be exceeded, but does not issue its own attainment designations for these standards in the same sense that EPA issues designations for NAAQS. Nevada relies on

national area designations, as described in its air quality trend report (NDEP 2011a).

[2] "Implemented" refers to implementation of a management standard rather than monitoring the achievement of a numerical standard, Sources: ARB 2011b, TRPA 2012a, EPA 2012.

3.5-2.7 Greenhouse Gases

GHGs are a set of compounds in the atmosphere that absorb more of the outgoing long-wave radiation from the surface of the earth than incoming short-wave solar radiation. Therefore, GHGs in the atmosphere affect the global energy balance of the atmosphere-ocean-land system, and thereby affect climate. The regulated GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). Other GHGs, such as water vapor, are not regulated at all.

There is growing concern about GHG emissions and their adverse impacts on the world's climate and environment. Because climate is simply the long-term average of weather, changes in climate are measured by changes in wind patterns, storms, precipitation, temperature, and similar weather variables.

Throughout history, climate has been changing due to forces unrelated to human activity, including solar energy input variation, volcanic activity, and changing concentrations of key atmospheric constituents like methane and carbon dioxide. These climate changes resulted in ice ages and warm interglacial periods, accompanied by large differences in snow and ice cover and associated changes in ecological systems.

Large-scale combustion of fossil fuels (i.e., coal, oil, and natural gas) by humans since the 1800s has resulted in significant increases in emissions of CO_2. The resulting increase in atmospheric levels of CO_2 has been recorded in long-term records at numerous monitoring stations around the world. One particularly important station is located at Mauna Loa, Hawaii, which is relatively untouched by local anthropogenic sources of GHG and other pollutants. The background ambient CO_2 levels measured there have increased from 285 ppm in 1850[11] to the current level of 397 ppm.[12] Simultaneously, average surface temperatures have been increasing at many locations around the world. While there is still much debate on the topic, many scientists believe that the measured increasing surface temperatures are caused by the increasing atmospheric concentrations of GHGs, and that GHGs generated by human activity are contributing to global climate change.[13]

3.5-2.8 GHG Characteristics

This section summarizes characteristics of the regulated greenhouse gases.

11 Bala, G. et al, *Nitrogen Deposition: how important is it for global terrestrial carbon uptake,* Biogeosciences, Volume 10, pp. 11077-11109, 2013, http://www.biogeosciences-discuss.net/10/11077/2013/bgd-10-11077-2013.pdf.
12 National Oceanic and Atmospheric Administration (NOAA), Earth System Research Laboratory, Global Monitoring Division, *A Global Network for Measurements of Greenhouse Gases in the Atmosphere,* http://www.esrl.noaa.gov/gmd/ccgg/, accessed March 3, 2014.
13 International Panel on Climate Change (IPCC), Fifth Assessment Report (AR5), 2013

Carbon Dioxide (CO_2)

Carbon dioxide is an odorless and colorless natural constituent of the atmosphere emitted by the respiratory process in animals and by the combustion of fossil fuels, and is absorbed by plants. The lifetime of CO_2 in the atmosphere is poorly defined because some of the gas is absorbed quickly in the ocean while other CO_2 remains in the atmosphere for thousands of years.[14] CO_2 has a global warming potential of 1 (i.e., CO_2 is the reference GHG for warming potential of other GHGs).

Methane (CH_4)

Methane (CH_4) is a flammable gas and is the main component of natural gas. It has a lifetime in the atmosphere of 12 years, and its global warming potential is 25.[15]

Nitrous Oxide (N_20)

Nitrous oxide is also known as laughing gas and is colorless. It has a lifetime in the atmosphere of 114 years, and its global warming potential is 298.[16]

Hydrofluorocarbons (HFCs)

Hydrofluorocarbons are a set of chemical compounds containing carbon, chlorine, and at least one hydrogen atom. Their lifetimes in the atmosphere vary from a few weeks to thousands of years.[17] The global warming potentials for individual HFCs range from 92 (HFC-41) to 14,800 (HFC-23).[18]

Perfluorocarbons (PFCs)

Perfluorocarbons are a set of chemical compounds having stable molecular structures, which are only broken down by ultraviolet rays about 60 kilometers above Earth's surface. Because of this, they have long lifetimes, between 10,000 and 50,000 years. The global warming potentials for individual PFCs range from 7,390 (PFC-114, perfluoromethane) to 12,200 (PFC-116, perfluoroethane).[19]

---

14 EPA. *Climate Change Indicators in the United States,* http://www.epa.gov/climatechange/science/indicators/ghg/.
15 EPA. *Mandatory Greenhouse Gas Reporting,* Table A-1 to Subpart A of Part 98, Code of Federal Regulations, Title 40, http://www.ecfr.gov/cgi-bin/text-idx?SID=cf2397e650b250dea55d6754cb583afa&node=40:22.0.1.1.3.1.1.10.11&rgn=div9.
16 Ibid.
17 EPA. *Climate Change Indicators in the United States,* http://www.epa.gov/climatechange/science/indicators/ghg/.
18 EPA. *2013 Revisions to the Greenhouse Gas Reporting Rule and Final Confidentiality Determinations for New or Substantially Revised Data Elements; Final Rule,* Table 2, p. 71909, Federal Register, Volume 78, Number 230, pp. 71904-71981, November 29, 2013, Effective January 1, 2014, http://www.gpo.gov/fdsys/pkg/FR-2013-11-29/pdf/2013-27996.pdf.
19 Ibid.

Sulfur Hexafluoride (SF_6)

Sulfur hexafluoride is a chemical compound used as an insulator in electrical switches. It has a lifetime in the atmosphere of approximately 3,200 years[20], and it has a global warming potential of 22,800.[21]

3.5-2.9 GHG Concentrations

The global average concentrations of the three most prevalent greenhouse gases are as follows:

1. Carbon dioxide (CO_2): 397.21 ppmv[22] in December 2013[23]
2. Methane (CH_4): 1.803 ppmv in 2011[24]
3. Nitrous oxide (N_2O): 324.2 ppt[25] in 2011[26]

The current global, U.S., California, Nevada, and Tahoe Basin GHG emission levels are shown in Table 3.5-4, and provide reference points for comparison to the Project GHG emissions calculated in Section 3.5-4. The emissions of each GHG are multiplied by its respective global warming potential (CO_2 Equivalency Factor) to obtain emissions on the common basis of millions of metric tons per year of carbon dioxide equivalent (CO_2e).

3.5-2.10 Sensitive Receptors

A sensitive receptor is defined as a location where people, especially children, the elderly, and persons in ill health might be found, and where there is a reasonable expectation of continuous human exposure according to the averaging period for ambient air quality standards (e.g., 24-hour, 8-hour, and 1-hour). Typical sensitive receptors include residences, hospitals, clinics, elder-care facilities and schools—all of which are found in nearby South Lake Tahoe. The nearest residences are located along Sherman Way and Woods Avenue, approximately 1 mile from the nearest Project construction area, while the nearest school is Bijou Community School, located approximately 2.1 miles to the west-northwest of the Project.

---

20 Hall, Brad, *SF6 in the Atmosphere: Using Top-Down Measurements to Inform Public Policy,* June 7, 2010, http://nlquery.epa.gov/epasearch/epasearch?querytext=SF6+lifetime&typeofsearch=epa&fld=earlink1&areaname=Climate+Change&areacontacts=http%3A%2F%2Fwww.epa.gov%2Fclimatechange%2Fcontactus.html&areasearchurl=&result_template=epafiles_default.xsl&filter=sample4filt.hts

21 Ibid.

22 ppmv = parts per million by volume.

23 National Oceanic and Atmospheric Administration (NOAA), Earth System Research Laboratory, Global Monitoring Division, *Trends in Atmospheric Carbon Dioxide, Recent Global CO_2,* http://www.esrl.noaa.gov/gmd/ccgg/trends/global.html, accessed February 26, 2014.

24 ARB. *Proposed First Update to the Climate Change Scoping Plan: Building on the Framework*, p. 16, February 10, 2014, http://www.arb.ca.gov/cc/scopingplan/2013_update/draft_proposed_first_update.pdf.

25 ppt = parts per trillion (by volume).

26 ARB. *Proposed First Update to the Climate Change Scoping Plan: Building on the Framework*, p. 16, February 10, 2014, http://www.arb.ca.gov/cc/scopingplan/2013_update/draft_proposed_first_update.pdf.

Table 3.5-4

Greenhouse Gas Emissions (MMtpy CO_2e)[a]

Parameter	CO_2	CH_4	N_2O	SF_6	Total GHG
Global Warming Potential[b]	1	25	298	22,800	-
Tahoe Basin	-	-	-	-	0.30[c]
Nevada (2005)	-	-	-	-	56.3[d]
California (2011)	393	38	14.4	1.1	448[e]
U.S. (2011)[f]	5,605	693	361	9.3	6,708
Global (2005)[g]	~28,000	~8,300	~2,900	<100	~39,000

Source: See notes below.

Table Notes:

[a] Units are standardized millions of metric tons per year carbon dioxide equivalent, equal to the product of each GHG gas emission rate per year in metric tons and the CO_2 equivalency factor divided by one million.

[b] Used to Calculate GHG CO_2 Equivalent Emissions. EPA. *2013 Revisions to the Greenhouse Gas Reporting Rule and Final Confidentiality Determinations for New or Substantially Revised Data Elements; Final Rule,* Table 2, p. 71909, Federal Register, Volume 78, Number 230, pp. 71904-71981, November 29, 2013, Effective January 1, 2014.

[c] Vehicle emissions from Tahoe Metropolitan Planning Organization as reported in TRPA/, *Draft Regional Transportation Plan, Mobility 2035 Environmental Impact Report/Environmental Impact Statement*, Chapter 3.5, Table 3.5-3, page 3.5-9, April 25, 2012, http://tahoempo.org/rtp_draft/1_Regional_Transportation_Plan_EIS/3.5_GHG&CC_RTP.pdf

[d] Nevada Department of Environmental Protection, *Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2020,* p. ES-1, December 2008, http://ndep.nv.gov/baqp/technical/docs/NV_Statewide_GHG_Inventory2008.pdf

[e] California Greenhouse Gas Inventory 2000-2011, Table 1, page 10, last updated October 2, 2013, http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-11_2013-08-01.pdf.

[f] EPA. Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2011, http://www.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2011-Chapter-2-Trends.pdf

[g] EPA. Global Greenhouse Gas Emissions, http://www.epa.gov/climatechange/pdfs/print_global-ghg-emissions-2012.pdf

3.5-3 REGULATORY SETTING

The Project will comply with all applicable EPA, CARB, NDEP, and the El Dorado County Air Quality Management District (AQMD) air quality regulations. EPA and CARB regulations generally apply to mobile sources, such as on-highway vehicles and mobile construction equipment. The Rules and Regulations of the AQMD and NDEP Bureau of Air Pollution Control generally apply to specific stationary equipment and emission sources that may be used during construction or operation. The following text summarizes major EPA, CARB, NDEP, and AQMD regulations applicable to the Project.

3.5-3.1 Regulatory Authority

Federal – The United States Environmental Protection Agency (EPA) has responsibility for enforcing, on a national basis, the requirements of many of the federal environmental laws. The federal Clean Air Act (CAA), enacted in 1963 and amended thereafter, establishes the national framework for air pollution control. California and Nevada are under the jurisdiction of EPA Region 9, which has its offices in San Francisco. Region 9 is responsible for the local administration of EPA programs for California, Arizona, Nevada, Hawaii, and certain Pacific trust territories. EPA's activities relative to the California and Nevada air pollution control

programs focus principally on reviewing state submittals for both SIPs. SIPs are required by the federal Clean Air Act to demonstrate how all areas of the states will meet the national ambient air quality standards within the federally specified deadlines.[27]

The U.S. Supreme Court ruled on April 2, 2007 that carbon dioxide (CO_2) falls within the "capacious definition" of an air pollutant under the Clean Air Act, and that EPA has the authority to regulate emissions of GHGs. The ruling in that case resulted in EPA taking steps to regulate GHG emissions, and lent support for state and local agencies' efforts to reduce GHG emissions.

Mandatory Greenhouse Gas Reporting Rule – On September 22, 2009, EPA issued a final rule for mandatory reporting of GHGs from large (i.e., 25,000 metric tons [MT] or more of CO_2 per year) GHG emissions sources in the United States. An estimated 85 percent of the total U.S. GHG emissions, from approximately 10,000 facilities, are covered by this final rule.

National Program to Reduce Greenhouse Gas Emissions and Improve Fuel Economy for Cars and Trucks[28] – On September 15, 2009, EPA and the U.S. Department of Transportation's National Highway Traffic Safety Administration (NHTSA) proposed a new national program that would reduce GHG emissions and improve fuel economy for all new cars and trucks sold in the United States. EPA proposed the first-ever national GHG emissions standards under the CAA, and NHTSA proposed Corporate Average Fuel Economy (CAFE) standards under the Energy Policy and Conservation Act (EPCA). This national program allows each automobile manufacturer to build its light-duty national fleet in compliance with all requirements of both federal acts and the standards of California and other states.

Endangerment and Cause or Contribute Findings – On December 7, 2009, EPA adopted its Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA (Endangerment Finding). The Endangerment Finding is based on CAA Section 202(a), which states that the EPA should regulate and develop standards for "emission[s] of air pollution from any class or classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." The rule addresses Section 202(a) in two distinct findings. The first finding addresses whether or not the concentrations of the six key GHGs in the atmosphere threaten the public health and welfare of current and future generations. The second finding addresses whether or not the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and therefore the threat of climate change.

The Administrator found that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CAA. The evidence supporting this finding consisted of EPA's determination that human activity resulted in "high atmospheric levels" of GHG emissions, which were likely responsible for increases in average temperatures and other climatic changes. Furthermore, EPA found that the observed and projected results of climate change were a threat to the public health and welfare. Therefore, GHGs were found by EPA to endanger the public health and welfare of current and future generations. The

27 Title 42 United States Code Sections 7409 and 7411
28 76 FR 48758

Administrator also found that GHG emissions from new motor vehicles and motor vehicle engines were contributing to air pollution, which is endangering public health and welfare. EPA's final findings responded to the 2007 U.S. Supreme Court decision that GHGs fit within the CAA definition of air pollutants. The findings did not, per se, impose any emission reduction requirements, but rather allowed EPA to finalize the GHG standards proposed earlier in 2009 for new light-duty vehicles as part of the joint rulemaking with the U.S. Department of Transportation.

State of California – The California Air Resources Board (CARB) was created in 1968 by the Mulford-Carrell Air Resources Act. CARB's primary responsibilities are to develop, adopt, implement, and enforce the state's motor vehicle pollution control program; to administer and coordinate the state's air pollution research program; to adopt and update as necessary the state's ambient air quality standards; to review the operations of the local air pollution control districts; and to review and coordinate preparation of the California SIP for achievement of the federal ambient air quality standards.[29] The CARB establishes CAAQS, maintains oversight authority in air quality planning, develops programs for reducing emissions from motor vehicles, develops air emission inventories, collects air quality and meteorological data, and approves SIPs. The California Clean Air Act (CCAA) requires CARB to designate attainment and nonattainment areas with respect to the CAAQS.

The CCAA gave state and local agencies additional authority to control "indirect and area-wide sources" of air pollutant emissions. The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish Transportation Control Measures (TCMs). The CCAA does not define indirect or area-wide sources. However, Section 110 of the federal CAA defines an indirect source as "a facility, building, structure, installation, real property, road, or highway, which attracts, or may attract, mobile sources of pollution. Such a term includes parking lots, parking garages, and other facilities subject to any measure for management of parking supply." TCMs are defined in the CCAA as "any strategy to reduce trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing vehicle emissions."

Air pollution control districts and air quality management districts in California have principal responsibility for:

- Developing plans for meeting state and federal ambient air quality standards;
- Developing control measures for non-vehicular sources of air pollution necessary to achieve and maintain both state and federal air quality standards;
- Implementing permit programs for the construction, modification, and operation of stationary sources of air pollution;
- Enforcing air pollution statutes and regulations governing non-vehicular sources; and
- Developing employer-based trip reduction programs.

Executive Order S-3-05 – Executive Order S-3-05 was signed by Governor Arnold Schwarzenegger in 2005, and declared that increased temperatures from climate change could

29 California Health and Safety Code (H&SC) § 39500 et seq.

reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and cause a rise in sea levels. To combat those concerns, the Executive Order established the following total greenhouse gas emission reduction targets: GHG emissions were to be reduced to the 2000 level by 2010, continue to be reduced to the 1990 level by 2020, and to 80 percent below the 1990 level by 2050. The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The CalEPA Secretary submits annual reports to the governor and state legislature describing progress made toward reaching the emission targets, impacts of global warming on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of CalEPA created the California Climate Action Team (CCAT), made up of members from various state agencies and commissions. The CCAT has released annual reports in 2006, 2007, 2008, 2009 and 2010 describing state activities to reduce GHG emissions and adapt to climate changes.

Assembly Bill 32, the California Global Warming Solutions Act of 2006 – In September 2006, the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) was signed into law, establishing regulatory, reporting, and market mechanisms designed to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction is to be accomplished through an enforceable statewide cap on GHG emissions for which phase- in started in 2012. To effectively implement the cap, AB 32 directed CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources.

Mandatory Greenhouse Gas Reporting Rule – On December 6, 2007 California initiated its AB 32-required mandatory greenhouse gas reporting regulation. The regulation was amended to be consistent with the federal rule; the latter rule's, requirements were amended several times during the period 2010 – 2011. The state regulation requires annual GHG emission reporting by large industrial facilities, suppliers of transportation fuels, natural gas, natural gas liquids, liquefied petroleum gas, and carbon dioxide, operators of petroleum and natural gas systems, and electricity retail providers and marketers. Similar but more inclusive than the EPA rule discussed above, the CARB regulation requires mandatory reporting of GHGs from facilities with emissions greater than 10,000 MT CO_2e per calendar year.

AB 32 Climate Change Scoping Plan – In December 2008, CARB adopted its *Climate Change Scoping Plan*, and published a first update to the plan on February 10, 2014. The plan presented the main strategies California would implement to achieve a reduction of approximately 118 million metric tons (or MMT) CO_2e, or approximately 22 percent from the state's projected 2020 emission level of 545 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 47 MMT CO_2e, or almost 10 percent, from 2008 emissions). CARB's original 2020 projection was 596 MMT CO_2e, but the revised 2020 projection takes into account the economic downturn that occurred in 2008.[30]

The final Scoping Plan was approved by CARB in August 2011. It includes the Final Supplement to the Scoping Plan Functional Equivalent Document (FED), which further

30 CARB. *Status of Scoping Plan Recommended Measures*, 2011, http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf.

examined various alternatives to Scoping Plan measures. The Scoping Plan includes CARB-recommended GHG reductions for each emission sector of the state's GHG inventory. CARB estimates that the largest reductions in GHG emissions will be achieved by implementing the following measures and standards:

- Lower emissions standards for light-duty vehicles (estimated reduction of 26.1 MMT CO_2e);
- Renewable portfolio and electricity standards for electricity production (23.4 MMT CO_2e);
- Low-Carbon Fuel Standard (LCFS)[31] (15.0 MMT CO_2e); and
- Energy efficiency measures in buildings and appliances (11.9 MMT CO_2e).

CARB has not yet determined the quantitative GHG reductions it will need to obtain from local government activities. The Scoping Plan does state that land use planning and urban growth decisions will play an important role in the state's GHG reductions because local governments have primary authority to plan, zone, approve, and permit how land is developed to accommodate population growth and the changing needs of their jurisdictions. CARB further acknowledges that decisions regarding land use will have large impacts on the GHG emissions that result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. The Scoping Plan states that the ultimate GHG reduction assignment to local government operations is yet to be determined.[32] With regard to land use planning, the Scoping Plan expects that reductions of approximately 3.0 MMT CO_2e will be achieved through implementation of Senate Bill (SB) 375, which is discussed further below.[33]

Cap-and-Trade Program – In 2012 California successfully launched a Cap-and-Trade Program to reduce GHG emissions. As the annual GHG emission cap is gradually reduced over time, this program helps to reduce California GHG emissions to meet its 2020 and later reduction targets. California has linked its Cap-and-Trade Program with Québec's to increase opportunities for regulated businesses to reduce their GHG emissions.

Senate Bill 97 – SB 97 directed the California Natural Resources Agency to adopt amendments to the CEQA Guidelines, including GHG analysis requirements for environmental review under CEQA, by December 30, 2009. Under SB 97, the Governor's Office of Planning and Research (OPR) developed CEQA guidelines for the evaluation of GHG impacts, and CARB helped develop performance standards for GHG emissions from projects in various sectors (e.g. residential, commercial). The Amendments became effective on March 18, 2010.

31 The LCFS has already displaced approximately 2 billion gallons of gasoline and diesel fuel (CARB, *Climate Change Scoping Plan, First Update, Discussion Draft for Public Review and Comment,* p. ES-2, October 1, 2013, http://www.arb.ca.gov/cc/scopingplan/2013_update/discussion_draft.pdfhttp://www.arb.ca.gov/cc/scopingplan/2013_update/discussion_draft.pdf)
32 CARB. *Climate Change Scoping Plan*, December 2008, http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm.
33 CARB. *Status of Scoping Plan Recommended Measures*, 2011, http://www.arb.ca.gov/cc/scopingplan/status_of_scoping_plan_measures.pdf.

Senate Bill 375 – SB 375, signed in September 2008, aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt Sustainable Communities Strategies (SCS), as part of each MPO's Regional Transportation Plan (RTP) that prescribe land use allocation and transportation investments necessary to meet GHG emission reduction targets for the region. If the SCS cannot meet GHG reduction targets, the MPO must prepare an Alternative Planning Strategy (APS) that identifies the additional regional land uses and transportation investments needed to attain the targets.

The Lake Tahoe Basin RTP includes land use and transportation strategies that would serve as the SCS. The Lake Tahoe RTP EIR/EIS evaluates the transportation policies and projects that correspond with each Regional Plan Update alternative. With the assistance of the Regional Targets Advisory Committee (RTAC) and in consultation with the MPOs, CARB provided each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for 2020 and 2035. These reduction targets are to be updated every eight years but can be updated every four years if advances in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects will not be eligible for funding programmed after January 1, 2012. The CARB-issued targets for the California portion of the Tahoe Region are a 7-percent reduction in GHG emissions per capita by 2020, relative to 2005 per capita GHG emissions, and a 5-percent additional reduction by 2035.[34]

California Strategic Growth Council-Funded Sustainability Planning – In 2011, the California Strategic Growth Council (SGC) funded a Lake Tahoe regional collaboration to develop sustainability tools for regional and local agencies, nonprofit organizations, the business community, and local residents to use in promoting GHG reduction, among other sustainability goals. The grant and planning effort is administered by the Tahoe Metropolitan Planning Organization (TMPO) and is being carried out by the Lake

Tahoe Sustainability Collaborative, which is a public-private partnership, established to lead the development of sustainability tools and drive coordinated sustainability efforts. The sustainability tools are intended to support development of economic incentives, GHG reduction strategies, and climate change adaptation strategies.

El Dorado County – CARB and local air districts are responsible for achieving NAAQS through district-level air quality management plans that are incorporated into the SIP. Responsibilities of air districts also include overseeing stationary source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality–related sections of environmental documents required to comply with CEQA.

The CCAA further requires that local and regional air districts adopt and prepare an air quality attainment plan if the district violates CAAQS for CO, SO_2, NO_2, or O_3. These Clean Air Plans

34 CARB. *Approved Regional GHG Reduction Targets*, February 2011, http://www.arb.ca.gov/cc/sb375/final_targets.pdf.

are designed to attain the state standards and must be designed to achieve an annual 5% reduction in district-wide emissions of each nonattainment pollutant or its precursors. Unlike the federal CAA, the CCAA does not set attainment deadlines. Where an air district is unable to achieve a 5% annual reduction in district-wide emissions of each nonattainment pollutant or its precursors, the adoption of "all feasible measures" on an expeditious schedule is acceptable as an alternative strategy (Health and Safety Code Section 40914(b)(2)). No locally prepared attainment plans are required for areas that violate the state PM_{10} standards.

Air quality within El Dorado County is managed by the El Dorado County Air Quality Management District (AQMD or District). When the state's air pollution statutes were reorganized in the mid-1960s, local air pollution control districts (APCDs) were required to be established in each county of the state.[35] There are three different types of districts: county, regional, and unified. In addition, special air quality management districts (AQMDs) with more comprehensive authority over non-vehicular sources as well as transportation and other regional planning responsibilities, were established by the Legislature for several regions in California.[36]

The AQMD has jurisdiction over stationary sources in El Dorado County (including the El Dorado County portion of the LTAB), and has the authority to enforce most state and federal air quality regulations relating to the construction and operation of stationary sources. If a project includes a non-exempt stationary source, then before construction may begin on the stationary source, an Authority to Construct (ATC) would be required from the AQMD. The ATC evaluation would include an assessment of whether construction and operation of the project would comply with all applicable federal, state, and District laws, regulations, and related policies. If an ATC needs to be issued, it would contain conditions that the AQMD believes are necessary to assure that the equipment is constructed and operated in accordance with these requirements. Any necessary applications for ATCs would be filed with the District. Once the equipment has been constructed or deployed, and has demonstrated its ability to comply with the conditions of the ATC, the AQMD would issue a Permit to Operate. District inspectors would regularly review the equipment's compliance status, and would carry out onsite inspections to ensure that the facility continues to operate in compliance with the conditions of the AQMD Permit to Operate.

The Eldorado County Board of Supervisors passed Resolution No. 29-2008 on March 25, 2008 stating their goals to reduce county-level GHG emissions through appropriate changes in the following county activities:

1. Transportation, traffic and transit;
2. Development planning and construction;
3. Waste recycling;
4. Air pollution control activities;
5. Water use conservation and water quality protection; and
6. Education and awareness outreach.

35 H&SC §40000 et seq.
36 H&SC §40600 et seq.

State of Nevada – The Bureau of Air Pollution Control (BAPC) in the Nevada Division of Environmental Protection (NDEP) within the Nevada Department of Conservation and Natural Resources has responsibility for air pollution control in Douglas County, Nevada, including the Douglas County portion of the LTAB. The BAPC's primary responsibilities, along with the Bureau of Air Quality Planning, are to develop, adopt, implement, and enforce the state's stationary source pollution control program through the Air Quality Permitting Program; and to review and coordinate preparation of the Nevada SIP for achievement of the federal ambient air quality standards.

The State of Nevada created its Climate Change Advisory Committee (NCCAC) through an Executive Order signed in April 2007. The Executive Order directed the committee to propose recommendations for reducing GHG emissions in Nevada. The committee's final report included 28 recommendations related to reducing GHG emissions from the energy, transportation, waste, agriculture, and other sectors. One of the committee's priority recommendations was to develop a State Climate Action Plan (NCCAC 2008:7-9), which has yet to occur. In addition, NDEP has yet to adopt GHG reduction goals or climate change-related policies or regulation. During 2013, the NDEP published a statewide GHG emission inventory, organized by activity sector, but not by geographical location, with projections through 2030.[37]

Tahoe Regional Planning Agency – The Tahoe Regional Planning Agency (TRPA) has authority for overseeing and managing overall air quality within the Basin. The TRPA has bi-state regulatory authority over new development projects, and has established its own set of air quality standards and ordinances. Because the TRPA's authority is granted directly from Congress, the TRPA has the authority to adopt air quality and other environmental quality thresholds, and to enforce ordinances designed to achieve the thresholds.

Currently, no locally adopted climate change or GHG-related programs or plans are reflected in the Regional Plan Update. The City of South Lake Tahoe adopted a policy (NCR-6.2) in its 2011 General Plan update to develop a comprehensive strategy to reduce GHG emissions and climate impacts. TRPA, TMPO, and several other agencies, organizations, and stakeholders formed the Lake Tahoe Sustainability Collaborative, which is developing the Tahoe Regional Sustainability Plan.

In December 2012, the TMPO approved a SCS as required by California Senate Bill 375. The SCS requires MPO's to focus regional land use and transportation policies to reduce GHG emissions from cars and light trucks in order to meet the GHG targets established by CARB. In accordance with California Government Code Section 65080(b)(2)(B) the TMPO SCS anticipates reducing GHG emissions per person by 12% in 2020 and 7% in 2035.

37 NDEP, *Nevada Statewide Greenhouse Gas Emissions Inventory and Projections, 1990-2030,* 2013, *http://ndep.nv.gov/docs_13/ghg_report_2012.pdf*

3.5-3.2 Federal Rules and Regulations

Nonattainment New Source Review

Authority: Clean Air Act §171-193, 42 USC §7501 et seq.; 40 CFR Parts 51 and 52

Requirement: Requires New Source Review (NSR) facility permitting for construction or modification of specified stationary sources in nonattainment areas. NANSR applies with respect to those pollutants for which ambient concentration levels are higher than the corresponding NAAQS. The following federal requirements apply on a pollutant-by-pollutant basis, depending on facility emission rates:

- Emissions must be controlled to the Lowest Achievable Emission Rate (LAER);
- Sufficient offsetting emissions reductions must be obtained following the requirements in the regulations to continue reasonable further progress toward attainment of applicable NAAQS;
- The owner or operator of the new facility must affirm that major stationary sources owned or operated by the same entity are in compliance or on schedule for compliance with all applicable emissions limitations;
- The administrator must find that the implementation plan has been adequately implemented; and
- An analysis of alternatives must show that the benefits of the proposed source significantly outweigh any environmental and social costs.

NSR jurisdiction has been delegated to the AQMD for all pollutants and is discussed further under local regulatory setting and conformance below. The proposed project will not have stationary sources with sufficient emissions to be subject to federal New Source Review.

Administering Agency: AQMD or BAPC, with EPA Region 9 oversight.

Title V Operating Permits Program

Authority: Clean Air Act §501 (Title V), 42 USC §7661; 40 CFR Part 70

Requirements: Establishes comprehensive operating permit program for major stationary sources. The AQMD and BAPC have received delegation authority for this program. The proposed project will not be required to have a Title V federal operating permit.

Administering Agency: AQMD or BAPC, with EPA Region 9 oversight.

National Standards of Performance for New Stationary Sources

Authority: Clean Air Act §111, 42 USC §7411; 40 CFR Part 60

Requirements: Establishes national standards of performance, called new source performance standards (NSPS), for new stationary sources. These standards are enforced

at the local level with EPA oversight. Relevant new stationary source performance standards are discussed under local LORS below. The proposed project will not have stationary sources subject to New Source Performance Standards.

Administering Agency: AQMD or BAPC, with EPA Region 9 oversight.

National Emission Standards for Hazardous Air Pollutants

Authority: Clean Air Act §112, 42 USC §7412; 40 CFR Part 61

Requirements: Establishes national emission standards for hazardous air pollutants (NESHAPS). These standards are enforced at the local level with EPA oversight and are further discussed under local regulatory setting and conformance below. The proposed project will not have stationary sources subject to NESHAPS.

Administering Agency: AQMD or BAPC, with EPA Region 9 oversight.

3.5-3.3 State (California) Rules and Regulations

Nuisance Regulation

Authority: CA H&SC §41700

Requirements: Provides that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes 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, or have a natural tendency to cause injury or damage to business or property."

Administering Agency: AQMD and CARB

Toxic "Hot Spots" Act

Authority: H&SC §44300-44384; 17 CCR §93300-93347

Requirements: Requires preparation and biennial updating of inventory of facility emissions of toxic air contaminants listed by CARB, in accordance with its regulatory guidelines. Risk assessments are to be prepared by facilities required to submit emissions inventories according to local priorities. The proposed project will not be subject to the Toxic "Hot Spots" Act requirements.

Administering Agency: AQMD and CARB

GHG Mandatory Reporting Program Regulation

Authority: CA H&SC §38500 et seq; 17 CCR §95100-95133

Requirements: The "reporting and verification of greenhouse gas emissions from specified greenhouse gas emissions sources." For most industrial sectors, the reporting threshold is 25,000 metric tons of CO_2. The proposed project will not need to report GHG emissions under this regulation.

Administering Agency: CARB

Air Toxics Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

Authority: 17 CCR §2485

Requirements: Limits idling by a "vehicle's primary diesel engine for greater than 5.0 minutes at any location," excluding defined exceptions.

Administering Agency: CARB

Air Toxics Control Measure for Stationary Compression Ignition Engines

Authority: 17 CCR §93115

Requirements: Limits particulate matter emissions to 0.15 g/bhp-hr for new emergency standard engines, and aligns the other criteria pollutant emission limits with the corresponding NSPS Subpart IIII. The proposed project will not operate a stationary compression-ignition engine.

Administering Agency: AQMD and CARB

3.5-3.4 State (Nevada) Rules and Regulations

Air Quality Permit

Authority: Nevada Revised Statutes (NRS) §445B

Requirements: Defines sources subject to permitting. [Note: The Project does not include a stationary emission source in its Nevada portion.]

Administering Agency: NDEP BAPC

3.5-3.5 Local Rules, Regulations and Ordinances

El Dorado County Air Quality Management District

As discussed above, under the California CAA, the AQMD is required to develop an air quality plan for nonattainment criteria pollutants within the air district. For El Dorado County the 8-hour ozone air quality attainment plan is developed jointly by the Sacramento Metropolitan Air Quality Management District with the AQMD and other local districts because the main cause of the ozone nonattainment in El Dorado County

and other nearby counties is the transport of ozone and ozone precursors from the Sacramento metropolitan area.[38]

The AQMD specifies significance criteria and quantitative thresholds for daily emissions resulting from construction and Project operations. If emissions exceed the following thresholds, they have the potential to result in a significant air quality impact: 82 pounds per day for ROG or NOx.[39] Construction of the Project may also be subject to the following AQMD rules, which have been adopted to reduce emissions throughout El Dorado County:[40]

- **Rule 202: Visible Emissions.** Establishes a limit No. 1 Ringlemann for 3 minutes regarding the opacity of emissions except for a wet plume in which uncombined water accounts for the exceedance.

- **Rule 205: Nuisance.** Limits emissions of substances that cause a nuisance to the public.

- **Rule 215: Architectural Coatings.** Limits VOC emissions in architectural coatings. It applies to anyone who manufactures, supplies, or applies architectural coatings.

- **Rule 223: Fugitive Dust – General Requirements.** Reduces the amount of particulate matter entrained and discharged into the air by requiring actions to prevent, reduce, or minimize fugitive dust emissions. This rule also applies to construction activities.

- **Rule 223-1: Fugitive Dust – Construction, Bulk Material Handling, Blasting, Other Bulk Earthmoving Activities, and Carryout and Trackout Prevention.** Reduces the amount of particulate matter entrained and discharged into the air by construction and construction-related activities requiring actions to prevent, reduce, or minimize fugitive dust emissions.

The Project may be subject to the Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations (ATCM). According to the California Department of Conservation, the Project is not in an area known to contain naturally occurring asbestos (NOA).[41] However, if NOA is found within the Project area, an Asbestos Dust Mitigation Plan must be submitted to the district.

---

38 SMAQMD. *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2013 SIP Revisions), September 26, 2013, http://www.airquality.org/plans/federal/ozone/8hr1997/2008ROP/index.shtml*
39 EDCAQMD. *Guide to Air Quality Assessment: Determining Significance of Air Quality Impact Under the California Environmental Quality Act (CEQA), First Edition,* Chapter 4, page 17, February 2002, http://edcgov.us/Government/AirQualityManagement/Guide_to_Air_Quality_Assessment.aspx.
40 CARB. *El Dorado County AQMD List of Current Rules,* http://www.arb.ca.gov/drdb/ed/cur.htm
41 California Department of Conservation. *Areas More Likely to Contain Natural Occurrences of Asbestos in Western El Dorado County, California,* Open-File Report 2000-002, 2000, ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/ofr_2000-002_Report.pdf

Because operation of the Project would not include any stationary source of emissions requiring a permit, the AQMD rules pertaining to stationary sources are not listed here.

Tahoe Regional Planning Agency Air Quality Adopted Thresholds and Indicators

The TRPA has the following eight air quality adopted thresholds and indicators with the goal of protecting the air quality in the Lake Tahoe Basin:

- **AQ-1: Carbon Monoxide.** Do not meet or exceed the California and TRPA 8-hour 6.0-ppm CO standard for Lake Tahoe, the federal 8-hour 9.0-ppm standard, the California 1-hour 20-ppm standard, or the federal and Nevada 1-hour 35 ppm standard. The indicator for attainment of this standard is the second-highest CO concentration read at the Stateline, Nevada, station (ppm).

- **AQ-2: Ozone.** Do not exceed the TRPA adopted threshold standard of 1-hour 0.08-ppm O_3 or the California 1-hour 0.070-ppm ambient air quality standard. Attainment is based on the number of 1-hour periods, which equal or exceed the federal, Nevada, or TRPA adopted threshold at any of the permanent monitoring sites, and the number of 1-hour periods that exceed the California standard.

- **AQ-3: Particulate Matter (PM_{10}).** Do not exceed the California and federal standards for 24-hour concentrations (50 and 150 $\mu g/m^3$, respectively) and the California annual arithmetic mean concentration (20 $\mu g/m^3$) for particulate matter. Attainment is based on the number of 24-hour periods exceeding the applicable CAAQS or NAAQS at any permanent monitoring station, and the annual arithmetic mean PM_{10} concentration at any monitoring station.

- **AQ-4: Visibility.** Do not violate TRPA regional and sub-regional visibility adopted threshold standards. For regional and sub-regional visibility, reduce wood smoke concentrations 15% below the 1981 levels. Reduce suspended soil particles 30% below 1981 levels. For regional visibility, the standard is achievement of an extinction coefficient of 25 Mm^{-1} at least 50% of the time as calculated from aerosol species concentrations measured at the Bliss State Park monitoring site (equivalent to a visual range of 156 km, 97 miles); and achievement of an extinction coefficient of 34 Mm^{-1} at least 90% of the time as calculated from aerosol species concentrations measured at the Bliss State Park monitoring site (visual range of 115 km, 71 miles). Calculations will be made on 30-year running periods using the existing 1991-1993 monitoring data as the performance standards to be met or exceeded. For sub-regional visibility, the standard is to achieve an extinction coefficient of 50 Mm^{-1} at least 50% of the time as calculated from aerosol species concentrations measured at the South Lake Tahoe monitoring site (visual range of 78 km, 48 miles); and achievement of an extinction coefficient of 125 Mm^{-1} at least 90% of the time as calculated from aerosol species concentrations measured at the South Lake Tahoe monitoring site (visual range of 31 km, 19 miles). For State visibility standards, visual range is

calculated from nephelometer data collected at Bliss State Park and Lake Tahoe Boulevard for periods in which relative humidity is less than 70%.

- **AQ-5: Traffic Volume.** Reduce traffic volume on US 50 (U.S. 50) by 7% from the 1981 values. The standard uses the average traffic volume from 4:00 PM to midnight. Traffic volumes on US 50, recorded at a site immediately west of the intersection of Park Avenue in the City of South Lake Tahoe, include a count of both directions during an average day. The TRPA selected this indicator because of the timing of the highest CO concentrations, which generally occur during these times.

- **AQ-6: Wood Smoke.** Reduce annual wood smoke emissions from 15% from 1981 levels. Aerosol samples analyzed for organic and light-absorbing carbon collected in South Lake Tahoe and Bliss State Park are indirect indicators of wood smoke.

- **AQ-7: Vehicle Miles Traveled.** Reduce vehicle miles traveled (VMT) 10% below the 1981 levels. Typically, VMT is calculated directly from a traffic model. However, in 1988, TRPA adopted interim performance targets for the VMT threshold standard. VMT calculated for peak summer day using QRS (Quick Response System) transportation model or equivalent model.

- **AQ-8: Atmospheric Deposition.** Reduce dissolved inorganic nitrogen load on Lake Tahoe from atmospheric sources 20% from 1973–1981 levels using the annual average concentration of particulate NO_3B at the Lake Tahoe Boulevard air quality monitoring station.

Tahoe Regional Planning Agency Code of Ordinances[42]

In their Code of Ordinances the TRPA has established the following provisions for sources of air pollutants:

- TRPA *Code of Ordinances* Section 65.1.4 Combustion Appliances sets emission standards for gas heaters and central furnaces, and wood heaters.

- Section 65.1.6 New Stationary Source Review states that if a listed criteria pollutant emission from a new stationary source for the peak 24-hour period would potentially exceed the threshold specified in Table 3.5-5, the Project must conduct an environmental assessment that determines the environmental impacts of the emission. If an environmental assessment is required, then best available control technology (BACT) must be applied that meets or exceeds state or federal regulatory requirements. Any new stationary source, except for an emergency power generator engine or temporary source, that emits more than the peak 24-

42 TRPA. *Code of Ordinances, December 12, 2012 (Effective February 9, 2013), http://www.trpa.org/wp-content/uploads/TRPA_Code_of_Ordinances.pdf*

hour emission rate listed in Table 3.5-6 shall be considered to have a significant adverse environmental impact, and would, therefore, be prohibited.

Offsets obtained by reducing emissions from existing sources are allowed to reduce the proposed source emission to a less-than-significant level.

Table 3.5-5

TRPA New Stationary Source Review Environmental Assessment Thresholds

Pollutant	Peak 24-Hour Emission Rate, lbs
NOx	6.6
PM_{10}	4.4
VOC	17.6
SO_2	6.6
CO	22.0

Table 3.5-6

TRPA New Stationary Source Review Significance Thresholds

Pollutant	Peak 24-Hour Emission Rate, lbs
NOx	24.2
PM_{10}	22.0
VOC	125.7
SO_2	13.2
CO	220.5

A year ago, as part of the TRPA Regional Plan Mitigation, TRPA developed Best Construction Practices that identified additional measures for stationary sources during construction. Most of these are included in the TRPA Initial Environmental Checklist and Attachment Q of TRPA's Standard Conditions of Approval.

- Section 65.1.7 Modified Stationary Source Review states that if a criteria pollutant emission rate from a modified existing stationary source would exceed any limit in Table 3.5-5, an environmental assessment must be prepared that determines the environmental impacts of the emission. If a modified existing stationary source, except for an emergency power generator engine or temporary

source, emits more than the peak 24-hour emission rate listed in Table 3.5-6, then the modified source shall be considered to have a significant adverse environmental impact, and would, therefore, be prohibited. If an environmental assessment is required, then best available retrofit control technology (BARCT) must be applied that meets or exceeds state or federal regulatory requirements. Offsets obtained by reducing emissions from other existing sources are allowed to reduce the proposed modified source emission rate to a less-than-significant level.

- Section 65.1.8 Idling Restrictions limits idling in a parked auto, truck, bus or boat to 30 consecutive minutes in Plan Areas 070A, 080, 089A, 089B, 090, 091 and 092 unless the vehicle is a snow plow or emergency vehicle. Because the Project is located in Plan Areas 086 in Nevada and 087 in California, the idling restrictions would not apply to the Project.

The TRPA *Code of Ordinances* Chapter 65.2 – Traffic and Air Quality Mitigation Program establishes fees and other procedures to offset impacts from indirect sources of air pollution.

Development projects that result in a significant increase of more than 200 average daily vehicle trips (ADTs) must offset regional and air quality impacts by contributing to the TRPA Air Quality Mitigation Fund. Acceptable contributions are determined by the TRPA and are based upon the type of development.[43]

3.5-4 EVALUATION CRITERIA

3.5-4.1 Introduction

Neither EPA nor the State of Nevada have established quantitative environmental impact thresholds of significance for air quality under NEPA. To be conservative as requested by TRPA, the State of California environmental impact criteria and thresholds of significance under CEQA and the TRPA threshold standards are being applied in this analysis to both the California portion of the Project and the total Project in both states..

General significance criteria have been established by the California Office of Planning and Research to determine if the potential air quality impacts of a proposed project are significant, and would therefore require mitigation in an attempt to reduce the potential impacts to a less-than-significant level (see Table 3.5-7). Where available, these general criteria are supplemented with quantitative thresholds in terms of air quality parameters. Because of different approaches to analysis, the air quality parameters and thresholds are separated into the four following categories to address: (1) criteria pollutants relative to emission limits and ambient air quality standards; (2) TACs relative to public health impacts; (3) GHGs relative to global climate change; and (4) cumulative impacts.

43 TRPA. *2006 Threshold Evaluation Report*. May 2006, http://www.trpa.org/default.aspx?tabindex=1&tabid=174.

Table 3.5-7

Air Quality Significance Criteria

AQ–1	Would the project conflict with or obstruct implementation of an applicable air quality plan? [a,b]
AQ–2	Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation? [a]
AQ–2A	Would the project generate construction emissions in excess of applicable standards? [b]
AQ–2B	Would the project generate operational emissions or VMTs [c] in excess of applicable standards? [b]
AQ–3	Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? [a]
AQ–4	Would the project expose sensitive receptors to substantial pollution concentrations? [a,b]
AQ–5	Would the project create objectionable odors affecting a substantial number of people? [a,b]

[a] State of California, *2012 California Environmental Quality Act (CEQA) Statute and Guidelines,* Appendix G, http://ceres.ca.gov/ceqa/docs/CEQA_Handbook_2012_wo_covers.pdf.

[b] El Dorado County AQMD. *Guide to Air Quality Assessment: Determining Significance of Air Quality Impact Under the California Environmental Quality Act (CEQA), First Edition,* Chapters 4-6, February 2002, http://www.edcgov.us/Government/AirQualityManagement/Guide_to_Air_Quality_Assessment.aspx

[c] VMT = Vehicle miles traveled

3.5-4.2 Criteria Air Pollutants, Emission Limits, and Ambient Air Quality Standards

For construction activities, the AQMD established a project-level average daily pollutant emission significance threshold of 82 lbs/day for NOx or ROG emitted by any combination of equipment.[44] Heavy-duty diesel-fueled mobile pieces of equipment are the dominant sources of criteria pollutant emissions generated by construction. For operation of a proposed project, the same project-level average daily significance threshold of 82 lbs/day was set by the AQMD for NOx or ROG emissions[45] from all sources. The AQMD considers CO, PM_{10} and SO_2 emissions from a land development project to be less than significant if the NOx and ROG emissions from the project are less than the same 82 lbs/day limit.[46] Because the TRPA operational emission significance thresholds contained in Table II of Chapter 91 in the vacated portion of the TRPA Code of Ordinances only apply to new stationary sources, the AQMD significance thresholds, instead, apply to mobile source emissions in the California portion of the Project as shown in

44 El Dorado AQMD. *Guide to Air Quality Assessment: Determining Significance of Air Quality Impact Under the California Environmental Quality Act (CEQA), First Edition,* Chapter 4, Table 4.10, page 17, February 2002, http://www.edcgov.us/Government/AirQualityManagement/Guide_to_Air_Quality_Assessment.aspx
45 Ibid, Chapter 5, Table 5.1, page 2.
46 Ibid, Chapter 6, page 2.

Table 3.5-8 while the emission limits in Table 3.5-6 apply to new stationary sources as taken from Chapter 65 in the TRPA Code of Ordinances.[47]

Table 3.5-8

Mobile Source Operational Emission Significance Thresholds

Pollutant	Peak 24-Hour Emission Rate, lbs
NOx or VOC	82
CO, PM_{10}, or SO_2	Less than significant if the above NOx/VOC limit is not exceeded.

In addition, project construction will be subject to Best Construction Practices as identified in the TRPA Initial Environmental Checklist and Attachment Q of TRPA's Standard Conditions of Approval.

3.5-4.3 Air Toxics and Health Impacts

Quantitative analysis of the potential air quality impacts of air toxics emissions requires a health risk assessment (HRA) if the air toxics emissions are sufficiently high. If such an HRA were needed, then the AQMD would conclude that project air toxics emissions could result in a significant impact if either of the following resulted: a) "the lifetime probability of contracting cancer is greater than one in one million (ten in one million if T-BACT is applied);" or b) if "the ground-level concentration of non-carcinogenic toxic air contaminants would result in a Hazard Index of greater than 1."[48] For relatively small air toxics emissions from a project, screening criteria can be applied to demonstrate that an HRA need not be conducted. The TRPA does not specify screening criteria related to the potential significance of air toxics emissions from construction or operation of a proposed project. The Bay Area Air Quality Management District (BAAQMD) has published guidance describing a screening approach to determine if the air toxics emitted by construction of a project would be considered to be less than significant.[49]

Under the BAAQMD guidance, construction air toxics emissions are considered to be less than significant if the construction activity is located more than 1,000 feet away from any sensitive receptor. This distance is the "offset" (or buffer) distance the BAAQMD recommends for construction of a residential project with 5,000 units on an area of 1,666.7 acres, an area

47 TRPA, *TRPA Code of Ordinances,* Chapter 65, Table 65.1.6-2, page 65-6, February 9, 2013, http://www.trpa.org/wp-content/uploads/TRPA_Code_of_Ordinances.pdf.
48 El Dorado AQMD. *Guide to Air Quality Assessment: Determining Significance of Air Quality Impact Under the California Environmental Quality Act (CEQA), First Edition,* Chapter 3, page 7, February 2002, http://www.edcgov.us/Government/AirQualityManagement/Guide_to_Air_Quality_Assessment.aspx. T-BACT = toxics Best Available Control Technology.
49 BAAQMD, *Screening Tables for Air Toxics Evaluation During Construction*, May 2010.

approximately equivalent to the 1,700-acre area of the Project.[50] In comparison, the nearest sensitive receptor to the Project, a residence, is located approximately 5,500 feet away from the Project, and construction of the Project's low-impact facility platforms and supporting towers would generate less emissions from offroad equipment than the grading, paving, and construction for 5,000 single-family residences. Operation of the Project will generate air toxic emissions from four standard gasoline-fueled pickup trucks (two Mountain Tour vehicles and two maintenance pickup trucks) and five ATVs, whose air toxic emissions are considered to be de minimis when spread over an open area of approximately 1,700 acres.

The BAAQMD guidance requires that this type of screening assessment disclose the following information about the construction:

- Types of off-site receptors and their proximity to construction activity within approximately 1,000 feet;
- Duration of construction period;
- Quantity and types of diesel-powered equipment;
- Number of hours equipment would be operated each day;
- Location(s) of equipment use, distance to nearest off-site sensitive receptors, and orientation with respect to the predominant wind direction;
- Location of equipment staging area; and
- Amount of on-site diesel-generated $PM_{2.5}$ exhaust (assuming that all on-site diesel $PM_{2.5}$ exhaust is diesel PM) if mass emission levels from construction activity are estimated.

3.5-4.4 GHG Evaluation Criteria and Significance Thresholds

At the federal level, the Council on Environmental Quality (CEQ) drafted environmental impact evaluation guidelines for federal departments and agencies to use on projects subject to National Environmental Policy Act (NEPA) review that state:

> "if a proposed action would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of CO_2-equivalent GHG emissions on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public. For long-term actions that have annual direct emissions of less than 25,000 metric tons or more of CO_2-equivalent, CEQ encourages Federal agencies to consider whether the action's long-term emissions should receive similar analysis. CEQ does not propose this as an indicator of a threshold standard of significant effects, but rather as an indicator of a minimum level of GHG emissions that may warrant some description in the appropriate NEPA analysis for agency actions involving direct emissions of GHGs."[51]

50 Ibid, Table 2, page 9.

51 Council on Environmental Quality (CEQ). *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions,* memorandum for Heads of Federal Departments and Agencies from Nancy H. Sutley, CEQ Chair, pp. 1-2, February 18, 2010,

If the Project emits less GHG than this federal threshold, then it will be assumed that NEPA does not require further analysis of the potential environmental impacts of Project GHG emissions.

A general significance criterion has been established by the California Office of Planning and Research to determine if the potential GHG emission impacts of a proposed project might be significant, and would therefore require mitigation in an attempt to reduce the potential impacts to a less-than-significant level.

The combined federal and California criteria used to evaluate the potential significance of Project GHG emissions are presented in Table 3.5-9.

Table 3.5-9

GHG Emission Criteria for Evaluating Potential Significance

GHG–1	Would the project generate more than 25,000 MT CO_2eGHG emissions? [a]
GHG–2	Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs? [b]

[a] Council on Environmental Quality (CEQ). *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions,* memorandum for Heads of Federal Departments and Agencies from Nancy H. Sutley, CEQ Chair, pp. 1-2, February 18, 2010, http://www.whitehouse.gov/sites/default/files/microsites/ceq/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf.

[b] California Governor's Office of Planning and Research (http://opr.ca.gov/s_ceqastatutes.php) citation to the Association of Environmental Professionals. *2012 California Environmental Quality Act (CEQA) Statute and Guidelines*, p. 263, 2012 (unofficial copy of Public Resources Code 21000-21177 and CCR, Title 14, Division 6, Chapter 3, Sections 15000-15387, http://leginfo.ca.gov), http://ceres.ca.gov/ceqa/docs/CEQA_Handbook_2012_wo_covers.pdf.

The State of Nevada, Douglas County, TRPA, and the EDCAQMD have not identified significance criteria or quantitative thresholds for GHG emissions generated by a proposed project, or a methodology for analyzing impacts related to GHG emissions or global climate change. In the context of the Lake Tahoe Basin the TMPO SCS anticipates reducing GHG emissions per person by 12% in 2020 and 7% in 2035, to be accomplished by focusing on regional land use and transportation policies.

http://www.whitehouse.gov/sites/default/files/microsites/ceq/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf.

3.5-4.5 Cumulative Air Quality Impacts

AQMD guidance[52] states that proposed project emissions of ROG or NOx would be considered cumulatively significant if one or more of the following conditions is met:

- The project requires a change in the existing land use designation (i.e., general plan amendment[53], rezone), and projected emissions (ROG, NOx, CO, or PM_{10}) are greater than the emissions anticipated for the site if developed under the existing land use designation;
- The project would individually exceed any significance criteria in this AQMD's Guide to Air Quality Assessment;[54]
- For impacts that are determined to be significant under this AQMD's Guide to Air Quality Assessment, the Lead Agency for the project does not require the project to implement the emission reduction measures contained in and/or derived from the Air Quality Attainment Plan[55]; or
- The project is located in a jurisdiction that does not implement the emission reduction measures contained in and/or derived from the Air Quality Attainment Plan.

AQMD guidance[56] states that proposed project emissions of CO would not be considered cumulatively significant if these emissions alone would not cause a significant impact. Only if the project and one or more other projects could jointly increase traffic density to Level of Service (LOS) E, would the AQMD ordinarily require dispersion modeling of the combined CO emissions from the set of these projects on the roadway links and at any intersections projected to reach LOS E. If needed, the dispersion modeling would determine if the resulting cumulative CO concentration would exceed state or federal CO ambient air quality standards.

AQMD guidance[57] states that a project's emissions of PM_{10}, SO_2, or NO_2 will not be considered cumulatively significant if the following conditions are met:

52 El Dorado AQMD. *Guide to Air Quality Assessment: Determining Significance of Air Quality Impact Under the California Environmental Quality Act (CEQA), First Edition,* Chapter 8, page 2, February 2002, http://www.edcgov.us/Government/AirQualityManagement/Guide_to_Air_Quality_Assessment.aspx.
53 TRPA, *Lake Tahoe Regional Plan,* December 12, 2012, http://www.trpa.org/regional-plan/; TRPA, *Mobility 2035 Regional Transportation Plan,* December 12, 2012; *http://tahoempo.org/Mobility2035/*; and El Dorado County, *County of El Dorado Adopted General Plan,* July 19, 2004, https://www.edcgov.us/Government/Planning/Adopted_General_Plan.aspx
54 El Dorado AQMD. *Guide to Air Quality Assessment: Determining Significance of Air Quality Impact Under the California Environmental Quality Act (CEQA), First Edition*, February 2002, http://www.edcgov.us/Government/AirQualityManagement/Guide_to_Air_Quality_Assessment.aspx.
55 SMAQMD. *Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2013 SIP Revisions), September 26, 2013, http://www.airquality.org/plans/federal/ozone/8hr1997/2008ROP/index.shtml*
56 El Dorado AQMD. *Guide to Air Quality Assessment: Determining Significance of Air Quality Impact Under the California Environmental Quality Act (CEQA), First Edition,* Chapter 8, Section 8.2.2, page 2, February 2002, http://www.edcgov.us/Government/AirQualityManagement/Guide_to_Air_Quality_Assessment.aspx.
57 Ibid

1. For projects that are principally industrial projects, or where the majority of the emissions of these pollutants is attributable to stationary sources of air pollution subject to District regulation:
    a. The project is not significant for "project alone" emissions of these pollutants;
    b. The project complies with all applicable rules and regulations of the District; and
    c. Project emissions of these pollutants are not projected to cause ambient concentrations that would exceed the applicable federal Prevention of Significant Deterioration (PSD) Class III increments (Class II increments in the Lake Tahoe Air Basin) as set forth in 40 CFR § 52.21(c), and as demonstrated through dispersion modeling approved by the District (e.g., the EPA SCREEN3 model). If the initial modeling results do not show compliance with the applicable PSD increments, additional mitigation may be undertaken.

2. For projects that are principally development projects, or where the majority of the emissions of these pollutants is attributable to motor vehicle sources (e.g. the Project proposed herein):
    a. The project is not significant for "project alone" emissions of these pollutants;
    b. The project complies with all applicable rules and regulations of the District; and
    c. The project is not cumulatively significant for ROG, NOx, and CO based on the criteria set forth above.

AQMD guidance[58] states that a project's air toxics emissions will not be considered cumulatively significant if the "project alone" air toxics emissions do not cause a significant impact.

Concerning atmospheric deposition of nitrogen or phosphorus into Lake Tahoe, neither the TRPA nor any other regulatory agency has set a criterion or threshold for the amount of deposition from project NOx emissions that would be considered significant.

3.5-5 ENVIRONMENTAL IMPACTS

This section presents the analysis of the Project's potential emissions and air quality impacts, beginning with an overview of the analytical approach, followed by a description of the detailed criteria pollutant, air toxics and GHG emissions. Emissions and air quality and climate change impacts related to Project construction are reviewed first, followed by the emissions and impacts of Project operation. Emissions within California and combined for the total project are shown separately because of the different regulations applicable to California within the LTAB and to the Project within the Tahoe Basin, as described in Section 3.5-2 above. (The Nevada rules and regulations do not require separate presentation of air emissions or impacts from the Project portion in Nevada). Details of the emission calculations are included in Appendix 3.5-A.

3.5-5.1 Overview of the Analytical Approach to Estimating Facility Impacts

The following sections describe the assumptions required to conduct the analysis, the emission sources that have been evaluated, the results of the impact analysis, the evaluation of project compliance with the applicable air quality regulations and GHG reduction guidelines, and the

58 Ibid, page 4.

determination of potential significance of the air quality, public health and climate change impacts.

3.5-5.2 Assumptions about Project Construction

Construction emissions would result from the use of heavy mobile equipment for site preparation/land clearing, grading, and construction of the Epic Discovery activity structures such as zip-line towers. Such construction sources emit criteria pollutants (PM_{10}, $PM_{2.5}$, CO, NO_X, and ROG), air toxics, and GHGs from combustion of diesel fuel, and fugitive dust from the motion of wheels and tracks. Emissions can vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing weather. The assumptions used in the calculation of construction emissions are shown in Table 3.5-10.

Separate subsections discuss the emissions and potential impacts of criteria pollutants, air toxics, and GHG from construction sources.

Table 3.5-10

Construction Assumptions

Assumption	Units	Value	Reference
Construction period, annual	days/year	136	1/20/14 HBA email
Number of construction days per week	days/week	6	1/20/14 HBA email
Number of construction days, annual	days/year	118	Calculated from 2015 calendar
Number of construction days for Site Preparation	days/year	13	Based on June 1 – 15
Number of construction days for Grading	days/week	13	Based on June 15 -30
Number of construction days for Structure Construction	days/year	92	Based on July 1 - October 15
Average on-site speed of water truck	mph	5	Estimated
Construction schedule, daily	hrs/day	8	3/4/14 HBA email
Number of helicopter use days for Structure Construction	days	5	1/20/14 HBA email
Number of construction workers commuting in California	number	15	1/20/14 HBA email
Number of construction workers commuting in Nevada	number	15	1/20/14 HBA email
Number of round-trips by each construction worker	trips/day	1	Assumes no travel home for lunch
California-based construction worker one-way commute distance	miles	20	Estimated local CA communities
Nevada-based construction worker one-way commute distance	miles	27	Google Earth to Carson City, Minden and Gardnerville.
Annual number of construction materials deliveries	number	75	1/20/14 HBA email
California portion of annual construction materials deliveries	%	25%	1/20/14 HBA email
Nevada portion of annual construction materials deliveries	%	75%	1/20/14 HBA email
California-based construction materials one-way delivery distance	miles	100	Google Earth to Roseville/Sacramento
Nevada-based construction materials one-way delivery distance	miles	62	Google Earth to Reno

3.5-5.3 Construction (Short-Term Daily) Criteria Pollutant Emissions and Impacts

Project peak daily construction emissions would occur during the structure construction phase due to the use of more pieces of heavy-duty construction equipment. For five days at most during structure construction in California, a helicopter would be used to facilitate the placement of towers. Emissions from the helicopter engine are included in this analysis. A water truck will be actively watering areas where soil is being disturbed during the entire construction period; the helicopter will not be physically disturbing the watered soil with its skids or wheels. Fugitive dust emissions are calculated for all other construction equipment during their use. Construction emissions in pounds per day for the California portion of the Project are summarized in Table 3.5-11. As discussed in the previous Section 3.5-3, peak daily construction emissions are subject to quantitative significance thresholds, and presented at the bottom of Table 3.5-11. As can be seen, Project daily emissions in California are less than significant. Total Project construction emissions in both states are summarized in Table 3.5-12. To be conservative, the total project

construction emissions shown in Table 3.5-12, which, including the portion in Nevada, occur within the Tahoe Basin, are compared with California evaluation criteria and significance thresholds.

3.5-5.4 Construction (Long-Term Annual) Criteria Pollutant Emissions and Impacts

Maximum Project annual construction emissions occur in 2015 (rather than 2016) because some construction equipment will be used during fewer days in the second year of construction (e.g., the fork lift is expected to be used 25 days in 2015 but only up to 15 days in 2016). The maximum annual construction emissions in tons per year for the California portion of the Project are summarized in Table 3.5-13, and for the total Project in Table 3.5-14. Because there are no annual construction emissions significance criteria or thresholds have been published, Project annual emissions are less than significant.

3.5-5.5 Construction Air Toxic Emissions and Impacts

As discussed in Section 3.5-4.3 on air toxic significance criteria and thresholds, the BAAQMD developed a screening methodology to assure that construction emissions of air toxics, primarily diesel exhaust particulate, would not cause health impacts to exceed the applicable criteria and thresholds of 10 in one million cancer risk, and non-cancer chronic or acute hazard index of 1, respectively. As discussed above, if the Project is at least 1,000 feet away from the nearest residential receptor, the BAAQMD screening methodology would indicate that there is no significant impact from construction air toxics emissions. Because the nearest sensitive receptor to the proposed project is located further than 5,500 feet from the construction equipment use area, the impacts of the Project construction air toxics emissions are less than significant, and no further analysis is required.

3.5-5.6 Construction GHG Emissions and Impacts

Project construction GHG annual emissions shown in Table 3.5-14 are far less than the 25,000 metric tons of CO_2e[59] required by the CEQ to merit further potential impact analysis on federal projects, and would not "conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs." In addition, the Project's operational GHG annual emissions are less than the 1,100 metric tons CO_2e per year[60] suggested as a non-stationary source threshold by the BAAQMD.[61] Therefore, the impact of project construction emissions of GHG would be less than significant.

Although Epic Discovery construction emissions would cause no significant impacts, during all construction activities, fugitive dust emission control techniques considered best management practice will be used, including the following:

59 Equal to 27,558 tons CO_2e.
60 Equal to 1,212 tons CO_2e per year.
61 BAAQMD. *California Environmental Quality Act Air Quality Guidelines*, Table 2-1, page 2-2, Updated May 2011. Note: Because of litigation this threshold was deleted from the May 2012 updated version of the Guidelines, but a Lead Agency has the discretion to use it in its CEQA analyses.

Table 3.5-11

Maximum Daily Construction Emissions in California (lbs/day)

	NOx	CO	ROG	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Onsite										
Mobile Equipment Engine Exhaust	23	117	5.7	1.2	1.9	1.7	3,654	0.15	0.030	3,667
Fugitive Dust from Mobile Equipment	-	-	-	-	5.7	0.58	-	-	-	-
Subtotal Onsite in California:	23	117	5.7	1.2	8	2.3	3,654	0.15	0.030	3,667
Offsite										
Worker Travel	0.26	2.3	0.27	0.0023	0.032	0.032	232.1	0.0094	0.0019	232.9
Fugitive Dust from Worker Travel Offsite	-	-	-	-	0.94	0.23	-	-	-	-
Construction Materials Deliveries	5.5	0.75	0.16	0.0074	0.15	0.11	779	0.032	0.0063	781
Fugitive Dust from Materials Delivery Trucks	-	-	-	-	11.3	0.99	-	-	-	-
Subtotal Offsite in California:	5.7	3.0	0.43	0.0098	12.4	1.4	1,011	0.041	0.0082	1,014
Total Daily Construction Emissions in California (rounded)	**29**	**120**	**6**	**1**	**20**	**4**	**4,665**	**0.19**	**0.038**	**4,681**
California Significance Thresholds:	82	(1)	82	(1)	(1)	None	None	None	None	None
CEQA Significant Impact?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

1) These emissions are explicitly considered less than significant if the NOx and VOC/ROG emissions are quantitatively determined to be less than significant (see Table 3.4-8).

Table 3.5-12

Maximum Daily Total Project Construction Emissions (lbs/day)

	NOx	CO	ROG	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Onsite										
Mobile Equipment Engine Exhaust	52	232	12.0	1.7	3.3	3.0	6,340	0.26	0.051	6,362
Fugitive Dust from Mobile Equipment	-	-	-	-	8.7	1.3	-	-	-	-
Project Subtotal Onsite:	52	232	12.0	1.7	12.0	4.3	6,340	0.26	0.051	6,362
Offsite										
Worker Travel	0.51	4.6	0.53	0.0047	0.092	0.064	464	0.019	0.0038	466
Fugitive Dust from Worker Travel Offsite	-	-	-	-	1.9	0.46	-	-	-	-
Construction Materials Deliveries	8.9	1.2	0.26	0.012	0.24	0.18	1,263	0.051	0.010	1,268
Fugitive Dust from Materials Delivery Trucks	-	-	-	-	18.3	1.6	-	-	-	-
Project Subtotal Offsite:	9.4	5.8	0.79	0.017	20.5	2.3	1,728	0.070	0.014	1,733
Project Total Daily Construction Emissions (rounded)	**61**	**238**	**13**	**2**	**33**	**7**	**8,067**	**0.33**	**0.065**	**8,095**
California Significance Thresholds:	82	(1)	82	(1)	(1)	None	None	None	None	None
CEQA Significant Impact?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

1) These emissions are explicitly considered less than significant if the NOx and VOC/ROG emissions are quantitatively determined to be less than significant (see Table 3.5-8).

Table 3.5-13

Maximum Annual Construction Emissions in California (tons/year)

	NOx	CO	ROG	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Onsite										
Mobile Equipment Engine Exhaust	0.61	5.9	0.23	0.024	0.015	0.014	53.2	0.0022	0.00043	53.3
Fugitive Dust from Mobile Equipment	-	-	-	-	0.24	0.024	-	-	-	-
Subtotal Onsite in California:	0.61	5.9	0.23	0.024	0.25	0.037	53.2	0.0022	0.00043	53.3
Offsite										
Worker Travel	0.014	0.12	0.015	0.00012	0.0024	0.0017	12.2	0.00050	0.00010	12.3
Fugitive Dust from Worker Travel Offsite	-	-	-	-	0.049	0.012	-	-	-	-
Construction Materials Deliveries	0.052	0.0071	0.0015	0.000071	0.0014	0.0011	7.4	0.00030	0.000060	7.4
Fugitive Dust from Materials Delivery Trucks	-	-	-	-	0.11	0.0094	-	-	-	-
Subtotal Offsite in California:	0.065	0.13	0.016	0.00019	0.16	0.024	19.6	0.00080	0.00016	19.7
Total Annual Construction Emissions in California (rounded)	**0.67**	**6.0**	**0.25**	**0.024**	**0.41**	**0.062**	**72.8**	**0.0030**	**0.00059**	**73.0**

Table 3.5-14

Maximum Annual Project Construction Emissions (tons/year)

	NOx	CO	ROG	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Onsite										
Mobile Equipment Engine Exhaust	1.5	11.8	0.49	0.046	0.046	0.042	137.1	0.0056	0.0011	137.6
Fugitive Dust from Mobile Equipment	-	-	-	-	0.34	0.053	-	-	-	-
Subtotal Onsite in California:	1.5	11.8	0.49	0.046	0.39	0.10	137.1	0.0056	0.0011	137.6
Offsite										
Worker Travel	0.027	0.25	0.029	0.00025	0.0048	0.0033	24.5	0.0010	0.00020	24.5
Fugitive Dust from Worker Travel Offsite	-	-	-	-	0.098	0.024	-	-	-	-
Construction Materials Deliveries	0.15	0.020	0.0044	0.00020	0.0040	0.0030	21.0	0.00085	0.00017	21.0
Fugitive Dust from Materials Delivery Trucks	-	-	-	-	0.30	0.026	-	-	-	-
Subtotal Offsite in California:	0.17	0.27	0.034	0.00045	0.41	0.057	45.4	0.0018	0.00037	45.6
Project Total Annual Construction Emissions (rounded)	**1.7**	**12.1**	**0.53**	**0.047**	**0.80**	**0.15**	**182.6**	**0.0074**	**0.0015**	**183.2**

- Exposed soil (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered at least two times per construction day.
- Any visible mud or dirt track-out onto adjacent public roads will be removed at least once per construction day.
- Vehicle speeds onsite will be limited to 15 mph.

3.5-5.7 Assumptions About Project Operation

Project operation emissions would be generated by the following activities: offsite traffic for the Epic Discovery visitors and employees to travel to Heavenly Mountain Resort; onsite travel of the vehicles carrying guests on the mountain excursion tours; and extra use of the Heavenly Mountain Resort vehicle fleet to operate and maintain the Epic Discovery facilities. To conservatively calculate maximum Project operation emissions, full build-out visitation to Epic Discovery is assumed to occur in 2016, which is the first calendar year after construction begins in 2015 (see Table 3.5-15). Vehicle emission factors will be higher in 2016 than in later years of operation after additional construction has been completed; consequently, 2016 would be the worst year for visitor emissions. Assumptions used in the calculation of project operation emissions are listed in Table 3.5-16. Any increase in vehicle trips generated by the Project will be mitigated to comply with the Chapter 65.2.6 (D) Fee Schedule in the TRPA Code of Ordinances.

Table 3.5-15

Epic Discovery Activity Implementation Schedule

	CY15	CY16	CY17	CY18
East Peak Zipline Tour		X		
Forest Flyer Coaster	X			
Sky Meadows Zip Line Tour		X		
Mountain Bike Park	X	X	X	
Bike Rental & Storage Facility	X			
Adventure Peak Canopy Tour	X			
Sky Cycle (Eco Flyer)		X		
Adventure Peak Kids Zip		X		
Sky Meadows Challenge Course & Environmental Center		X		
Mountain Tours (Vehicles)		X		
Water Activities - (East Peak)		X		
Disc Golf	X			
East Peak Environmental Center		X	~~X~~	
Top of Sky Lookout Tower		X		
Interpretive Signage Along Hiking Trails		X	X	

Source: Heavenly Mountain Resort, 2014

Table 3.5-16

Epic Discovery Project Operation Assumptions

Assumption	Units	Value	Reference
Number of Epic Discovery operation days per week	days/week	7	-
Number of Epic Discovery operation days, annual/season	days/year	90	Applicant
Number of Epic Discovery maintenance days, annual/season	days/year	120	Applicant
First Year of Operation	Year	2,016	Project schedule
Average on-site speed of Mountain Tour and Maintenance Vehicles	mph	15	Conservative end of Applicant's 15-20 mph range
Epic Discovery Operation schedule, daily	hrs/day	10	1/20/14 HBA email
Annual number of Epic Discovery visitors from California	number/yr	29,000	Fehr & Peers, email from Katy Cole on April 3, 2014 at 4:14 PM.
Annual number of Epic Discovery visitors from Nevada	number/yr	21,000	Fehr & Peers, email from Katy Cole on April 3, 2014 at 4:14 PM.
Annual number of Epic Discovery vehicles from California (visitors plus employees)	number/yr	15,210	Based on 90 day summer season (same season as in Vail EIS June 15-Sept15). Fehr & Peers, email from Katy Cole on April 15, 2014 at 12:27 PM
Annual number of Epic Discovery vehicles from Nevada (visitors plus employees)	number/yr	7,020	
Peak day number of Epic Discovery visitors from California	number/day	570	Fehr & Peers, email from Katy Cole on April 3, 2014 at 4:14 PM.
Peak day number of Epic Discovery visitors from Nevada	number/day	430	Fehr & Peers, email from Katy Cole on April 3, 2014 at 4:14 PM.
Average number of Epic Discovery visitors or employees per vehicle	number/vehicle	2.43	Fehr & Peers study of parking garage users.
Peak day number of Epic Discovery vehicles from California	number/day	137.9	Fehr & Peers, email from Katy Cole on April 3, 2014 at 4:14 PM.
Peak day number of Epic Discovery vehicles from Nevada	number/day	86.4	Fehr & Peers, email from Katy Cole on April 3, 2014 at 4:14 PM.
Peak day weighted distance California-visitor vehicles travel one-way in the LTAB	miles	8.98	Fehr & Peers worksheet.
Peak day weighted distance total visitor vehicles travel one-way in the Basin	miles	8.70	Fehr & Peers worksheet.
Average day weighted distance California-visitor vehicles travel one-way in the LTAB	miles	9.05	Fehr & Peers worksheet
Average day weighted distance total visitor vehicles travel one-way in the Basin	miles	8.73	Fehr & Peers worksheet

Assumption	Units	Value	Reference
Peak Daily Epic Discovery Visitor VMT in CA	VMT	2,476	Based on max visitors for a peak day. Fehr & Peers, email from Katy Cole on April 15, 2014 at 12:27 PM.
Peak Daily Epic Discovery Visitor VMT in NV	VMT	1,426	
Annual Epic Discovery Visitor VMT in CA	VMT	125,055	Based on the 90 day summer season (June 15-Sept 15 – same as Vail EIS). Fehr & Peers, email from Katy Cole on April 15, 2014 at 12:27 PM.
Annual Epic Discovery Visitor VMT in NV	VMT	70,965	
Annual average Daily Epic Discovery Visitor VMT in CA	VMT	1,390	
Annual Average Daily Epic Discovery Visitor VMT in NV	VMT	789	
Peak number of Epic Discovery operation employees commuting in California	number	150	Fehr & Peers, email from Katy Cole on April 15, 2014 at 12:27 PM.
Peak number of Epic Discovery operation employees commuting in Nevada	number	50	
Season average number of Epic Discovery operation employees commuting in California	number	131.3	
Season average number of Epic Discovery operation employees commuting in Nevada	number	43.8	
Number of daily round-trips by each visitor, employee	trips/day	1	Assumes no travel home for lunch
California-based employee one-way commute distance	miles	12.82	Fehr & Peers, email from Katy Cole on April 15, 2014 at 12:27 PM.
Total employee one-way commute distance	miles	12.82	
Peak Daily Epic Discovery Employee VMT in CA	VMT	2,692	Based on maximum number of Epic Discovery employees for a peak day. Fehr & Peers, email from Katy Cole on April 15, 2014 at 12:27 PM.
Peak Daily Epic Discovery Employee VMT in NV	VMT	897	
Annual Epic Discovery Employee VMT in CA portion of the Basin	VMT	211,590	Based on the 90 day summer season (June 15-Sept 15 – same as Vail EIS). Fehr & Peers, email from Katy Cole on April 15, 2014 at 12:27 PM.
Annual Epic Discovery Employee VMT in NV portion of the Basin	VMT	70,560	
Annual average Daily Epic Discovery Employee VMT in the California portion of the Basin	VMT	2,351	
Annual Average Daily Epic Discovery Employee VMT in the Nevada portion of the Basin	VMT	784	
California portion of O&M activities	%	50%	Estimate
O&M Daily use of each ATV	hours/day	0.33	Estimate
Equivalent Number of Rhinos used in the California Portion of Total Project O&M	number	3	-
Equivalent Number of ATVs used in Total Project O&M	number	5	-

3.5-5.8 Operation (Short-Term Daily) Criteria Pollutant Emissions and Impacts

Like construction, operation activities emit the criteria pollutants PM_{10}, PM2.5, CO, NOx, and ROG, air toxics, and GHG. Such emissions onsite would be generated by the gasoline-fueled trucks to be used in the Epic Discovery Project Mountain Tours and from the extra use of Heavenly Mountain Resort fleet vehicles to maintain Epic Discovery facilities. Offsite emissions would be generated by the travel of Epic Discovery guests to Heavenly Mountain Resort and commuting by Epic Discovery employees from nearby communities. Additional travel of trucks delivering materials used in the conduct of Epic Discovery activities will not be needed because the trucks already carrying materials to the resort will also carry any additional materials needed to operate and maintain Epic Discovery.

Project peak daily operation emissions in pounds per day for the California portion of the Project are summarized in Table 3.5-17, and for the total project in Table 3.5-18. As can be seen in Table 3.5-17, project daily operation emissions in California are less than significant. Total potential project emissions of NOx, as shown in Table 3.5-18, are so much lower than the significance threshold of 82 pounds per day (shown in Table 3.5-17) that potential atmospheric deposition of nitrogen into Lake Tahoe would be inconsequential.

No further analysis of the potential impact of Project operation CO emissions is needed, such as a CO "Hot Spots" analysis, because the transportation analysis in Chapter 3.7 indicates the Project will not cause the LOS at any intersection to deteriorate to LOS E or worse.

3.5-5.9 Operation (Long-Term Annual) Criteria Pollutant Emissions and Impacts

As discussed for short-term daily operation emissions above, vehicle emission factors for 2016 have been used to conservatively calculate maximum potential operation emissions because a number of the Epic Discovery activities will be constructed in 2015. The maximum annual operation emissions in tons per year for the California portion of the Project are summarized in Table 3.5-19, and for the total project in Table 3.5-20. Because there are no annual operation emissions significance criteria or thresholds, project annual emissions are less than significant.

Table 3.5-17

Maximum Daily Operation Emissions in California (lbs/day)

	NOx	CO	ROG	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Onsite										
Mountain Tour Vehicle Engine Exhaust	0.026	0.30	0.021	0.00061	0.00031	0.00028	75.1	0.0030	0.00061	75.3
General O&M Vehicle Engine Exhaust	0.43	2.8	0.10	0.00036	0.0016	0.0014	24.7	0.0010	0.00020	24.8
Fugitive Dust from Mobile Equipment	-	-	-	-	1.6	0.16	-	-	-	-
Operation Emissions Subtotal Onsite in California:	0.46	3.1	0.12	0.00096	1.6	0.16	99.8	0.0040	0.00081	100.1
Offsite										
Epic Discovery Visitor Travel in CA LTAB	0.97	12.7	2.0	0.023	0.26	0.11	2,249	0.091	0.0182	2,257
Fugitive Dust from Visitor Travel Offsite	-	-	-	-	11.6	2.9	-	-	-	-
Epic Discovery Employee Travel in CA LTAB	0.95	12.6	1.7	0.024	0.28	0.12	2,395	0.097	0.019	2,403
Fugitive Dust from Employee Travel Offsite	-	-	-	-	12.6	3.1	-	-	-	-
Operation Emissions Subtotal Offsite in California:	1.9	25.2	3.8	0.047	24.8	6.2	4,641	0.19	0.038	4,657
Total Daily Operation Emissions in California (rounded)	**2**	**28**	**4**	**0.05**	**26**	**6**	**4,741**	**0.19**	**0.038**	**4,757**
California Significance Thresholds:	82	(1)	82	(1)	(1)	None	None	None	None	None
CEQA Significant Impact?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

1) These emissions are explicitly considered less than significant if the NOx and VOC/ROG emissions are quantitatively determined to be less than significant (see Table 3.5-8).

Table 3.5-18

Maximum Daily Total Project Operation Emissions (lbs/day)

	NOx	CO	ROG	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Onsite										
Mountain Tour Vehicle Engine Exhaust	0.036	0.42	0.028	0.00084	0.00042	0.00039	104.2	0.0042	0.00085	104.5
General O&M Vehicle Engine Exhaust	0.72	9.2	0.34	0.0013	0.0052	0.0048	91.1	0.0037	0.00074	91.4
Fugitive Dust from Mobile Equipment	-	-	-	-	2.5	0.25	-	-	-	-
Project Operation Emissions Subtotal Onsite:	0.76	9.6	0.37	0.0021	2.5	0.26	195.2	0.0079	0.0016	195.9
Offsite										
Epic Discovery Visitor Travel in LTAB	1.54	20.2	3.2	0.036	0.41	0.18	3,545	0.14	0.0288	3,557
Fugitive Dust from Visitor Travel Offsite	-	-	-	-	18.3	4.5	-	-	-	-
Epic Discovery Employee Travel within LTAB	1.26	16.7	2.33	0.0322	0.378	0.163	3193	0.130	0.0259	3204
Fugitive Dust from Employee Travel Offsite	-	-	-	-	16.8	4.13	-	-	-	-
Electric Energy Use	-	-	-	-	-	-	743	0.016	0.0035	745
Project Operation Emissions Subtotal Offsite:	2.8	37	5.6	0.068	35.9	9.0	7,483	0.29	0.058	7,508
Total Daily Operation Emissions (rounded)	**3.6**	**47**	**5.9**	**0.070**	**38.4**	**9.2**	**7,679**	**0.30**	**0.060**	**7,704**

Table 3.5-19

Maximum Annual Operation Emissions in California (tons/year)

	NOx	CO	ROG	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Onsite										
Mountain Tour Vehicle Engine Exhaust	0.00078	0.0090	0.00062	0.000018	0.0000092	0.0000085	2.26	0.000092	0.000018	2.27
General O&M Vehicle Engine Exhaust	0.019	0.25	0.009	0.000032	0.00014	0.00013	2.22	0.00009	0.000018	2.23
Fugitive Dust from Mobile Equipment	-	-	-	-	0.057	0.0057	-	-	-	-
Project Operation Emissions Subtotal Onsite in California:	0.020	0.26	0.010	0.000050	0.057	0.0058	4.48	0.00018	0.000036	4.50
Offsite										
Epic Discovery Visitor Travel in CA LTAB	0.024	0.34	0.051	0.00057	0.0066	0.0029	56.7	0.0023	0.00046	56.9
Fugitive Dust from Visitor Travel Offsite	-	-	-	-	0.29	0.072	-	-	-	-
Epic Discovery Employee Travel within CA LTAB	0.037	0.52	0.069	0.00095	0.011	0.0048	94.1	0.00382	0.00076	94.4
Fugitive Dust from Employee Travel Offsite	-	-	-	-	0.50	0.12	-	-	-	-
Electric Energy Use	-	-	-	-	-	-	44.6	0.0010	0.00021	44.7
Project Operation Emissions Subtotal Offsite in California:	0.061	0.86	0.119	0.00152	0.81	0.201	195.4	0.0071	0.00143	196.0
Total Annual Operation Emissions in California (rounded)	**0.082**	**1.1**	**0.13**	**0.0016**	**0.86**	**0.21**	**199.9**	**0.0073**	**0.0015**	**200.5**

Table 3.5-20

Maximum Annual Total Project Operation Emissions (tons/year)

	NOx	CO	ROG	SOx	PM_{10}	$PM_{2.5}$	CO_2	CH_4	N_2O	CO_2e
Onsite										
Mountain Tour Vehicle Engine Exhaust	0.0012	0.014	0.00098	0.000029	0.000015	0.000013	3.57	0.00014	0.000029	3.58
General O&M Vehicle Engine Exhaust	0.033	0.41	0.015	0.000057	0.00024	0.00022	4.10	0.00017	0.000033	4.11
Fugitive Dust from Mobile Equipment	-	-	-	-	0.10	0.010	-	-	-	-
Project Operation Subtotal Onsite:	0.034	0.43	0.016	0.000086	0.10	0.010	7.67	0.00031	0.000062	7.69
Offsite										
Epic Discovery Visitor Travel in LTAB	0.052	0.73	0.136	0.00096	0.0107	0.0048	94.9	0.0039	0.00077	95.3
Fugitive Dust from Visitor Travel in LTAB	-	-	-	-	0.46	0.113	-	-	-	-
Epic Discovery Employee Travel in LTAB	0.050	0.69	0.092	0.0013	0.015	0.0064	125.5	0.0051	0.0010	125.9
Fugitive Dust from Employee Travel Offsite	-	-	-	-	0.66	0.16	-	-	-	-
Electric Energy Use	-	-	-	-	-	-	44.6	0.0010	0.00021	44.7
Project Operation Subtotal Offsite:	0.10	1.4	0.23	0.0022	1.15	0.29	265.0	0.010	0.0020	265.9
Project Total Annual Operation Emissions (rounded)	**0.14**	**1.8**	**0.24**	**0.0023**	**1.2**	**0.30**	**272.7**	**0.010**	**0.0021**	**273.6**

3.5-5.10 Operation Air Toxics Emissions and Impacts

Section 3.5-3.3 on air toxics significance criteria and thresholds discussed the BAAQMD screening methodology to assure that construction emissions of air toxics, primarily diesel exhaust particulate, would not cause health impacts to exceed the criteria and thresholds of 10 in one million cancer risk and non-cancer chronic or the acute hazard index of 1. Section 3.5-4.5 on construction air toxics emissions discussed the application of the methodology to construction, and the resulting finding that construction air toxics emissions would not cause a significant impact. Because the distance of from the Epic Discovery operational activities to the nearest sensitive receptor is the same as the distance from construction activities (i.e., at least 5,500 feet), and the air toxics emissions from operational activities are far less than the air toxics emissions from construction,[62] the potential impacts of the Project's operational air toxics emissions are less than significant, and no further analysis is required.

3.5-5.11 Operation GHG Emissions and Impacts

As discussed in Section 3.5-3.4 on GHG significance criteria and thresholds, the Project's operational GHG annual emissions shown in Table 3.5-20 are far less than the 25,000 metric tons of CO_2e[63] required by the CEQ to merit further potential impact analysis on federal projects, and would not "conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs." In addition, the Project's operational GHG annual emissions are less than the 1,100 metric tons CO_2e per year[64] suggested as a non-stationary source threshold by the BAAQMD. Therefore, the impact of Project operational emissions of GHG would be less than significant.

3.5-5.12 Odorous Emissions and Impacts

The generation and severity of odors depends on the nature, frequency, and intensity of the source; wind direction; and location of receptors. Odors rarely cause physical harm, but can cause discomfort, leading to complaints with regulatory agencies. Typical facilities known to produce odors include landfills, wastewater treatment plants, rendering plants, cattle feedlots, and certain other agricultural activities.

Operation of the Project will entail the use of gasoline-fueled pickup trucks and ATVs for Mountain Tours and maintenance of project facilities, and travel of visitors and employees to Heavenly Mountain Resort.[65] The Mountain Tour and O&M pickups, O&M ATVs, and vehicles transporting visitors and employees to the Project will not emit odorous compounds. Odors associated with the exhaust emissions from the diesel-fueled engines used in construction equipment would be temporary and localized, and they would cease once construction activities have been completed. The more than 5,000-foot distance between the Project and the nearest

62 See the $PM_{2.5}$ emission rate of 0.0023 tons per year from gasoline-fueled vehicles in Table 3.5-20 [i.e., almost no DPM, the dominant TAC of concern] and the $PM_{2.5}$ emission rate of 0.045 tons per year from diesel-fueled construction equipment in Table 3.5-14.
63 Equal to 27,558 tons CO_2e.
64 Equal to 1,212 tons CO_2e per year.
65 Current resort activities such as refuse disposal will be able to handle the additional small increment generated by the Project.

residences would assure that construction of the Project would not result in odor complaints. Any potential odor impact is considered less than significant.

3.5-5.13 Cumulative Emissions and Impacts

This section discusses why Project emissions will not be cumulatively significant in the context of the cumulative air quality significance criteria and thresholds presented in Section 3.5-4.5 or based on AQMD guidance.[66]

The Project will not require a change in the existing land use designation, and the proposed NOx and ROG emissions will not be greater than the emissions increase expected for normal development of a ski resort such as Heavenly Mountain. Project emissions will not exceed any significance criteria thresholds in the District's Guide to Air Quality Assessment.

Project emissions of CO will not be cumulatively significant because these emissions will not cause a significant impact. In addition, the proposed amount of traffic, in addition to existing traffic, would not jointly increase traffic density to LOS E or worse.

Project emissions of PM_{10}, SO_2, or NO_2 will not be cumulatively significant because, as a development project where these pollutant emissions are mostly attributable to motor vehicle sources, the Project is not significant for "project alone" emissions of these pollutants; the Project complies with all applicable rules and regulations of the District; and the Project will not be cumulatively significant for ROG, NOx, and CO emissions as discussed above.

The Project's air toxics emissions will not be cumulatively significant because the "project alone" air toxics emissions will not cause a significant impact. [67]

Project operational emissions of GHG will not be cumulatively significant because these emissions are less than either the 1,100 metric tons CO_2e per year suggested as a non-stationary source threshold by the BAAQMD, or the 25,000 metric tons of CO_2e required by the CEQ to merit further potential impact analysis on federal projects, and would not "conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs."

66 El Dorado AQMD. *Guide to Air Quality Assessment: Determining Significance of Air Quality Impact Under the California Environmental Quality Act (CEQA), First Edition,* Chapter 8, February 2002, http://www.edcgov.us/Government/AirQualityManagement/Guide_to_Air_Quality_Assessment.aspx.
67 Ibid, page 4 states "a project will be considered to be a de minimis contributor to the cumulative risk, and will be considered as not significant".

3.5-5.14 Impact Evaluation Criteria Summary

The following impact headings summarize the analysis provided in Section 3.5-5 subsections above.

IMPACT: AQ-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?

The proposed Project will not change existing land uses, densities, the roadway network, population, or cause a substantial increase in Basin employment, and will not generate sufficient construction or operation emissions to exceed applicable significance thresholds (see Table 3.5-17). The proposed Project will therefore not conflict with or obstruct applicable air quality plans. There will be no significant impact and no further analysis is required.

CEQA

Analysis: *Less Than Significant: All Alternatives*

TRPA

Analysis: *Less than Significant: All Alternatives*

NEPA

Analysis: *No Adverse Effects: All Alternatives*

IMPACT: AQ-2: Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

As discussed in Section 3.5-3, a project that does not exceed the screening limit for criteria pollutant emissions is presumed to not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Therefore, there will be no significant impact and no further analysis is required.

CEQA

Analysis: *Less Than Significant: All Alternatives*

TRPA

Analysis: *Less than Significant: All Alternatives*

NEPA

Analysis: *No Adverse Effects: All Alternatives*

IMPACT: **AQ-3: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?**

As shown in Section 3.5-5, the proposed Project will not generate sufficient construction or operation emissions to exceed quantitative thresholds for ozone precursors NOx or ROG/VOC. The proposed Project will therefore not generate a cumulatively considerable net increase of any criteria pollutant nor cumulative impact. No further analysis is required.

CEQA

Analysis: *Less Than Significant: All Alternatives*

TRPA

Analysis: *Less than Significant: All Alternatives*

NEPA

Analysis: *No Adverse Effects: All Alternatives*

IMPACT: **AQ-4: Would the project expose sensitive receptors to substantial pollution concentrations?**

As discussed in Sections 3.5-5.5 and 3.5-5.10, construction and operation of the proposed Project are located sufficiently far from sensitive receptors to preclude exposure of the receptors to significant concentrations of air toxics. The proposed Project will therefore not cause a significant impact, and no further analysis is required.

CEQA

Analysis: *Less Than Significant: All Alternatives*

TRPA

Analysis: *Less than Significant: All Alternatives*

NEPA

Analysis: *No Adverse Effects: All Alternatives*

IMPACT: AQ-5: Will the Project Generate Objectionable Odors?

As discussed in Section 3.5-5.12, odors associated with diesel-fueled construction equipment would be temporary in nature, and would be located too far from the nearest residences to cause a significant impact.

CEQA

Analysis: *Less Than Significant: All Alternatives*

TRPA

Analysis: *Less than Significant: All Alternatives*

NEPA

Analysis: *No Adverse Effects: All Alternatives*

IMPACT: GHG-1: Would the project generate more than 25,000 MT CO_2e GHG emissions?

As discussed in Sections 3.5-5.6 and 3.5-5.11, GHG emissions from construction equipment or operations vehicles would be much less than this quantitative threshold. The proposed Project will therefore not cause a significant impact, and no further analysis is required.

CEQA

Analysis: *Less Than Significant: All Alternatives*

TRPA

Analysis: *Less than Significant: All Alternatives*

NEPA

Analysis: *No Adverse Effects: All Alternatives*

IMPACT: GHG-2: Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

The GHG emissions from construction and operation of the Project would not conflict with the GHG-related plans, policies or regulations discussed in regulatory Section 3.5-3. The proposed Project will not cause a significant impact, and no further analysis is required.

CEQA

Analysis: *Less Than Significant: All Alternatives*

TRPA

Analysis: *Less than Significant: All Alternatives*

NEPA

Analysis: *No Adverse Effects: All Alternatives*