

## 4.3 Air Quality

### Introduction

This section of the DEIR addresses potential impacts to a variety of air quality issues specific to the County. The regulatory setting provides a description of applicable Federal, State and local regulatory policies. The environmental setting provides a description of air quality conditions in the County. A description of the potential impacts of the proposed project includes the identification of feasible mitigation to avoid or lessen the impacts. The probable effect of proposed General Plan policies to reduce air quality impacts is considered in the impact analysis.

The closely-related topics associated with global climate change and greenhouse gas emissions are addressed in Section 4.4 “Energy and Climate Change” of this DEIR.

### Summary of NOP Comments

No specific comments related to air quality issues were received as part of the public and agency comments received during the NOP scoping period.

### Summary of Impact Conclusions

A summary of the air quality impacts described in this section are provided below in **Table 4.3-1**.

**TABLE 4.3-1  
SUMMARY OF AIR QUALITY IMPACTS**

Impact Number	Impact Topic	Impact Conclusion	Impact After Mitigation
Impact 4.3-1	Construction Emissions	Less than Significant	Less than Significant
Impact 4.3-2	Criteria Pollutants	Potentially Significant	Significant and Unavoidable
Impact 4.3-3	Consistency with Air Quality Plans	Potentially Significant	Significant and Unavoidable
Impact 4.3-4	Toxic Air Contaminants	Less than Significant	Less than Significant
Impact 4.3-5	Odors	Less than Significant	Less than Significant

### Regulatory Setting

Air quality in Plumas County is regulated by the U.S. EPA, the California Air Resources Board (ARB), and the Northern Sierra Air Quality Management District (NSAQMD). These agencies develop rules and regulations to meet the goals or directives imposed on them through legislation. Although U.S. EPA regulations may not be superseded, both state and local regulations may be more stringent. In general, air quality evaluations are based on air quality standards developed by the Federal and State government.

## **Federal Regulations**

### ***U.S. Environmental Protection Agency***

The U.S. EPA is the Federal agency responsible for setting and enforcing the Federal ambient air quality standards for atmospheric pollutants. The U.S. EPA regulates emission sources that are under the exclusive authority of the Federal government, such as aircraft, ships, and certain locomotives. The U.S. EPA also has jurisdiction over emission sources outside state waters (outer continental shelf), and establishes various emissions standards for vehicles sold in states other than California.

As part of its enforcement responsibilities, the U.S. EPA requires each state with non-attainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the Federal standards. The SIP must integrate Federal, State, and local plan components and regulations to identify specific measures to reduce pollution in non-attainment areas, using a combination of performance standards and market-based programs.

### ***Federal Clean Air Act***

The Federal Clean Air Act (CAA), as amended, establishes air quality standards for several pollutants. These standards are divided into primary standards and secondary standards. Primary standards are designed to protect public health, and secondary standards are intended to protect public welfare. The CAA requires that regional plans be prepared for non-attainment areas illustrating how the Federal air quality standards could be met.

## **State Regulations**

### ***California Air Resources Board***

The California Air Resources Board (ARB), a part of the California EPA (Cal/EPA) is responsible for the coordination and administration of both Federal and State air pollution control programs within California. In this capacity, the ARB conducts research, sets state ambient air quality standards, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. The ARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. The ARB also has primary responsibility for the development of California's SIP, for which it works closely with the Federal government and the local air districts.

### ***California Clean Air Act (CCAA)***

The CCAA of 1988 requires non-attainment areas to achieve and maintain the state ambient air quality standards by the earliest practicable date and local air districts to develop plans for attaining the state ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide standards. The CCAA also requires that by the end of 1994 and once every three years thereafter, the air districts are to assess their progress toward attaining the air quality standards. The triennial assessment is

to report the extent of air quality improvement and the amounts of emission reductions achieved from control measures for the preceding three year period.

### ***Air Toxics Hot Spots Information and Assessment Act***

The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588), California Health and Safety Code Section 44300 et seq., provides for the regulation of over 200 toxic air contaminants (TACs) and is the primary air contaminant legislation in the state. Under the Act, local air districts may request that a facility account for its TAC emissions. Local air districts then prioritize facilities on the basis of emissions, and high priority designated facilities are required to submit a health risk assessment and communicate the results to the affected public. The TAC control strategy involves reviewing new sources to ensure compliance with required emission controls and limits, maintaining an inventory of existing sources of TACs, and developing new rules and regulations to reduce TAC emissions. The purpose of AB 2588 is to identify and inventory toxic air emissions and to communicate the potential for adverse health effects to the public.

### ***Assembly Bill 1807***

AB 1807, enacted in September 1983, sets forth a procedure for the identification and control of TACs in California. The ARB is responsible for the identification and control of TACs, except pesticide use. AB 1807 defines a TAC as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. The ARB prepares identification reports on candidate substances under consideration for listing as TACs. The reports and summaries describe the use of and the extent of emissions in California resulting in public exposure, together with their potential health effects. In 1998, the ARB identified diesel particulate matter as a toxic air contaminant under the AB 1807 program. Diesel particulate matter is emitted into the air via heavy-duty diesel trucks, construction equipment, and passenger cars. In October 2000, the ARB released a report entitled Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. This plan identifies diesel particulate matter as the predominant TAC in California and proposes methods for reducing diesel emissions.

### ***Senate Bill 656***

As a first step in the implementation of Senate Bill 656 (SB 656, Reducing Particulate Matter in California), the ARB approved a list of the most readily available, feasible, and cost-effective control measures that can be employed by air districts to reduce particulate matter PM10 and PM2.5 (collectively referred to as PM) in 2004. The list is based on rules, regulations, and programs existing in California as of January 1, 2004, for stationary, area-wide, and mobile sources. As a second step air districts must adopt implementation schedules for selected measures from the list. The implementation schedules will identify the appropriate subset of measures, and the dates for final adoption, implementation, and the sequencing of selected control measures. In developing the implementation schedules, each air district will prioritize measures based on the nature and severity of the PM problem in their area and cost-effectiveness. Consideration is also given to ongoing programs such as measures being adopted to meet national air quality standards

or the state ozone planning process. The consideration and adoption of air district rules in their implementation schedules, coupled with ARB's ongoing programs, will ensure continued progress in reducing public exposure to PM and attainment of the State and Federal standards.

### ***Senate Bill 700***

In September 2003, the California Legislature adopted SB 700: Agriculture and Air Quality Summary and Implementation. This bill removed a long-standing statute that exempted agricultural operations from obtaining operating permits for sources of air pollution. The bill requires agricultural sources with emissions greater than or equal to one-half the threshold for a federal major source to obtain an air district permit, and sources that meet or exceed the threshold for a federal major source to obtain a federal operating permit from U.S. EPA or a local district with a federally approved federal operating permits program.

## **Local Regulations**

### ***Northern Sierra Air Quality Management District***

Plumas County is located within the Northern Sierra Air Quality Management District (NSAQMD) jurisdiction. The NSAQMD was formed in 1986 by the merging of the Air Pollution Control Districts of Nevada, Plumas and Sierra Counties. The NSAQMD includes areas characterized by mountain ranges and valleys on the north eastern side of the Sacramento Valley and covers an area of approximately 4,549 square miles. The NSAQMD is part of the Mountain Counties Air Basin which includes Plumas, Sierra, Nevada, Amador, Calaveras, Tuolumne, Mariposa and portions of Placer and Eldorado Counties.

The NSAQMD is responsible for the preparation of plans for the attainment and maintenance of Ambient Air Quality Standards (AAQS), adoption and enforcement of rules and regulations for sources of air pollution, and issuance of permits for stationary sources of air pollution. The air district accomplishes this through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues.

- The clean air strategy of the NSAQMD includes the following:
- Developing and implementing air quality plans that identify the amount of pollution in the air and its source and ways to control pollution;
- Developing and enforcing rules and regulations that reduce air pollution and protect public health;
- Operating air monitoring equipment to measure and record air pollution levels;
- Evaluating plans for new projects that involve installing, altering or operating equipment that either causes air pollution or is used to control it, issuing permits, conducting compliance inspections and issuing violation notices; and
- Implementing transportation control measures to reduce the number of cars on the road and top promote the use of cleaner fuels and vehicles.

The NSAQMD also inspects stationary sources of air pollution, regulates agricultural burning, responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by Federal and State air quality regulations.

## Environmental Setting

### Topography and Climate

The County's topography greatly influences its climate, which results in disproportionate levels of precipitation throughout the region. More commonly known as the rain shadow effect, this condition is created by the Sierra Nevada Crest, which acts as a barrier to storm systems between the western and eastern portions of the County. Consequently, while the western side of the Sierra Nevada Mountains receives more than 90 inches of rain annually, areas east of the Sierra Crest receive only 11 inches, with the majority occurring from October to April. Throughout the year, average temperatures (measured at Portola) can range over 80 Fahrenheit (°F) during the summer months to 18°F during the winter months.

### Criteria Air Pollutants

Criteria air pollutants are a group of pollutants for which Federal or State regulatory agencies have adopted ambient air quality standards. Criteria air pollutants, listed below, are classified in each air basin, county, or in some cases, within a specific urbanized area. The classification is determined by comparing actual monitoring data with State and Federal standards. If a pollutant concentration is lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "non-attainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified."

### *Ambient Air Quality Standards*

Both the Federal and State government have established ambient air quality standards for outdoor concentrations of various pollutants in order to protect public health. The Federal and State ambient air quality standards have been set at levels whose concentrations could be generally harmful to human health and welfare and to protect the most sensitive persons from experiencing health impacts with a margin of safety. Applicable ambient air quality standards are identified later in this section.

The air pollutants for which Federal and State standards have been promulgated and which are most relevant to air quality planning and regulation in the air basins include ozone, carbon monoxide, nitrogen oxides, suspended particulate matter, sulfur dioxide, and lead. Each of these pollutants is briefly described below.

- **Ozone (O<sub>3</sub>)** is a gas that is formed when reactive organic gases (ROGs) and nitrogen oxides (NO<sub>x</sub>), both byproducts of internal combustion engine exhaust and other processes undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight,

light wind, and warm temperature conditions are favorable to the formation of this pollutant.

- **Carbon Monoxide (CO)** is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during the winter morning, with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, motor vehicles operating at slow speeds are the primary source of CO in the NSAQMD. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- **Nitrogen Oxides (NO<sub>x</sub>)** is the generic term for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. Many of the nitrogen oxides are colorless and odorless. However, one common pollutant, nitrogen dioxide (NO<sub>2</sub>) along with particles in the air can often be seen as a reddish-brown layer over many urban areas. Nitrogen oxides form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO<sub>x</sub> are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels. Nitrogen oxides can also be formed naturally.
- **Respirable Particulate Matter (PM<sub>10</sub>) and Fine Particulate Matter (PM<sub>2.5</sub>)** consist of extremely small, suspended particles or droplets 10 microns and 2.5 microns or smaller in diameter. Some sources of suspended particulate matter, like pollen and windstorms, occur naturally. However, in populated areas, most fine suspended particulate matter is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.
- **Sulfur Dioxide (SO<sub>2</sub>)** is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of the burning of high sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries.
- **Lead (Pb)** occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead. Since the use of leaded gasoline is no longer permitted for on-road motor vehicles, lead is not a pollutant of concern in the NSAQMD.

**Table 4.3-2** shows current national and state ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant.

**TABLE 4.3-2  
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES**

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
<b>Ozone</b>	1 hour	0.09 ppm	---	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NOx) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
	8 hours	0.070 ppm	0.075 ppm		
<b>Carbon Monoxide</b>	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm		
<b>Nitrogen Dioxide</b>	1 hour	0.18 ppm	100 ppb	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Avg.	0.030 ppm	53 ppb		
<b>Sulfur Dioxide</b>	1 hour	0.25 ppm	75 ppb	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	---	0.5 ppm		
	24 hours	0.04 ppm	0.14 ppm		
<b>Respirable Particulate Matter (PM10)</b>	24 hours	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	May irritate eyes and respiratory tract, decreases in lung capacity, can cause cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Avg.	20 µg/m <sup>3</sup>	---		
<b>Fine Particulate Matter (PM2.5)</b>	24 hours	---	35 µg/m <sup>3</sup>	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.
	Annual Avg.	12 µg/m <sup>3</sup>	15.0 µg/m <sup>3</sup>		
<b>Lead</b>	Monthly Ave.	1.5 µg/m <sup>3</sup>	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	---	1.5 µg/m <sup>3</sup>		
<b>Hydrogen Sulfide</b>	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)	Geothermal power plants, petroleum production and refining.
	24 hour	25 µg/m <sup>3</sup>	No National Standard		
<b>Visibility Reducing Particles</b>	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Breathing difficulties, aggravates asthma, reduced visibility	Produced by the reaction in the air of SO <sub>2</sub> .

ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter.

SOURCES: California Air Resources Board (ARB), 2012a. *Ambient Air Quality Standards*, available at <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>. Standards last updated June 7, 2012; and ARB, 2009. *ARB Fact Sheet: Air Pollution Sources, Effects and Control*, <http://www.arb.ca.gov/research/health/fs/fs2.htm>, page last updated December 2009.

## Other Air Quality Concerns

**Toxic Air Contaminants (TACs).** Non-criteria air pollutants or TACs are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TACs includes approximately 200 compounds, including particulate emissions from diesel-fueled engines and asbestos.

Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are chrysotile, amosite, and crocidolite. Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 to 95 percent of all asbestos contained in buildings in the United States.

Project construction sometimes requires the demolition of existing buildings where construction occurs. Buildings often include materials containing asbestos, this project involves the demolition of existing structures where asbestos has been identified. Asbestos is also found in a natural state, known as naturally occurring asbestos. Exposure and disturbance of rock and soil that naturally contain asbestos can result in the release of fibers to the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

The Department of Conservation, Division of Mines and Geology published a guide entitled, “A General Location Guide For Ultramafic Rocks In California - Areas More Likely To Contain Naturally Occurring Asbestos”, dated August 2000, for generally identifying areas that are likely to contain naturally occurring asbestos. According to the California Division of Mines and Geology, rock formations that contain naturally occurring asbestos are known to be present in 44 of California’s 58 counties, including Plumas County.

In July 2001, the ARB approved an Air Toxic Control Measure for construction, grading, quarrying and surface mining operations to minimize Naturally Occurring Asbestos (NOA) emissions. The regulation requires application of best management practices to control fugitive dust in areas known to have NOA, as well as requiring notification to the local air district prior to commencement of ground-disturbing activities.

**Odorous Emissions.** Though offensive odors from stationary sources rarely cause any physical harm, they still remain unpleasant and can lead to public distress generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency

and intensity of the source; wind speed and direction; and the sensitivity of receptors. Generally, increasing the distance between the receptor and the source will mitigate odor impacts.

## **Air Quality Conditions**

Plumas County is in attainment or unclassified for all Federal Ambient Air Quality Standards (AAQS); however, the U.S. Environmental Protection Agency is considering designating the Portola Valley as being in non-attainment for PM<sub>2.5</sub> (dust/particulate matter 2.5 microns in diameter or smaller) based on Federal standards. Plumas County is currently designated as non-attainment for PM<sub>10</sub> based on state standards administered by the ARB. The Portola Valley portion of Plumas County is also non-attainment for the state PM<sub>2.5</sub> standards.

Recorded trends are likely to continue because the primary causes of PM<sub>10</sub> (road dust, wildfires) are not expected to decrease. These designations are based on annually collected data from three air quality monitoring stations located in the County. The primary activities contributing to these pollutant emissions include wildfires, use of woodstoves, forestry management burns, residential open burning, vehicle traffic on unpaved roads and windblown dust. The varying topography of the air basin also contributes to localized air quality issues within valley areas. For example, the Portola Valley area consistently has high levels of PM<sub>2.5</sub> primarily due to the use of woodstoves and residential and prescribed burning.

Ozone is also a concern in the County. Ozone is formed when reactive organic gases (ROG) and nitrogen oxides (NO<sub>x</sub>) react in the presence of sunlight. Industrial processes (i.e., lumber mills) account for the majority of emissions in the County.

Weather patterns can transport pollutants from neighboring air basins. For example, ozone generated in the more populated Sacramento Valley Air Basin can contribute to air pollutant concentrations in surrounding areas.

The ARB provides information relative to the State and Federal status of all recorded air quality pollutants. According to recent records, Plumas County is in State “Attainment” status for all other recorded pollutants (including carbon monoxide, nitrogen dioxide, sulfur dioxide, sulfates and lead) and in Federal “Attainment/Unclassified” status for carbon monoxide, nitrogen dioxide, and sulfur dioxide.

## **Air Quality Monitoring**

Measured ambient air pollutant concentrations determine the attainment status within an area. There are several ambient air monitoring stations in Plumas County (each measures only PM<sub>2.5</sub>) in Chester, Portola, and Quincy. **Table 4.3-3** shows ambient air quality data for maximum concentrations of the monitored pollutants (i.e., PM<sub>2.5</sub>) at each of the air monitoring stations located in Plumas County.

**TABLE 4.3-3  
AIR QUALITY DATA SUMMARY (2009-2011) FOR PLUMAS COUNTY**

Pollutant	Monitoring Data by Year		
	2009	2010	2011
<b>Particulate Matter (PM2.5) – (1<sup>st</sup> Ave, Chester Station)</b>			
Highest 24 Hour Average ( $\mu\text{g}/\text{m}^3$ ) <sup>b</sup> – State Measurement	64.7	35.6	37.2
State Annual Average (12 $\mu\text{g}/\text{m}^3$ ) <sup>b</sup>	NA	9.0	NA
<b>Particulate Matter (PM2.5) – (Nevada St, Portola Station)</b>			
Highest 24 Hour Average ( $\mu\text{g}/\text{m}^3$ ) <sup>b</sup> – National Measurement	<b>38.8</b>	<b>38.2</b>	<b>43.4</b>
Estimated Days over National Standard (35 $\mu\text{g}/\text{m}^3$ ) <sup>a,c</sup>	NA	9.2	6.1
State Annual Average (12 $\mu\text{g}/\text{m}^3$ ) <sup>b</sup>	NA	9.7	11.9
<b>Particulate Matter (PM2.5) – (North Church Street, Quincy Station)</b>			
Highest 24 Hour Average ( $\mu\text{g}/\text{m}^3$ ) <sup>b</sup> – National Measurement	<b>51.2</b>	29.5	<b>58.6</b>
Estimated Days over National Standard (35 $\mu\text{g}/\text{m}^3$ ) <sup>a,c</sup>	6.8	0	9.3
State Annual Average (12 $\mu\text{g}/\text{m}^3$ ) <sup>b</sup>	<b>13.8</b>	9.9	10.8

a. Generally, state standards and national standards are not to be exceeded more than once per year.

b.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter.

c. PM10 and PM2.5 is not measured every day of the year. Number of estimated days over the standard is based on 365 days per year.

NA = Not Available. Values in **Bold** exceed the respective air quality standard.

SOURCE: California Air Resources Board (ARB), 2012b. *Summaries of Air Quality Data, 2009-2011*; <http://www.arb.ca.gov/adam/topfour/topfour1.php>, accessed October 30, 2012.

## Sensitive Receptors

Some individuals are considered to be more sensitive than others to air pollution. Reasons for greater sensitivity can include existing health problems, duration of exposure to air pollutants, or certain peoples' increased susceptibility to pollution-related health problems due to factors such as age.

Land uses such as day care providers, primary and secondary schools, hospitals, and convalescent homes are considered to be sensitive receptors to poor air quality because the very young, the old, and the infirm are more susceptible to respiratory infections and other air quality related health problems than the general public. Residential uses are considered sensitive because people in residential areas are often at home for extended periods of time, so they can be exposed to pollutants for extended periods. Recreational areas are considered moderately sensitive to poor air quality because vigorous exercise associated with recreation places a high demand on the human respiratory function.

## Impacts and Mitigation Measures

### Methodology

While the exact timing of full build-out under the proposed project is unknown and will ultimately be market driven, this analysis is based on the amount of growth projected to occur by the year 2035 (see Chapter 3 "Project Description" of this DEIR) for modeling purposes and

emissions were estimated for this planning horizon. This analysis is based on thresholds included in the NSAQMD's *Guidelines for Assessing and Mitigating Air Quality Impacts of Land Use Projects* (NSAQMD, 2009), projected land uses, and traffic trips and associated vehicle-miles traveled (VMT) information provided by LSC Transportation Consultants.

Operational emissions were calculated by using California Emissions Estimator Model (CalEEMod) version 2011.1.1. CalEEMod is a computer program that can be used to estimate anticipated emissions associated with land development projects in California. CalEEMod has separate databases for specific counties and air districts. The Plumas County database was used for the proposed project. The model calculates criteria pollutant emissions, including CO, PM10, PM2.5 and the O<sub>3</sub> precursors ROG and NO<sub>x</sub>. Operational inputs to CalEEMod include (1) the specific year for project operations, (2) vehicle trip generation rates, (3) fireplace types and quantities, and (4) project criteria for energy use. Model default values for trip distances and trip rates were adjusted to match information provided by LSC Transportation Consultants for the baseline 2010 and planning horizon 2035 conditions. Output operational emissions data are separated into energy use, area sources, and mobile sources. The area sources are fireplaces, landscape maintenance equipment, consumer products, and architectural coatings used for routine maintenance. Consumer products (e.g., household cleaners, air fresheners, automotive products, and personal care products) emit ROG. Mobile sources are the on-road vehicles used in the County. For this analysis, the results are expressed in pounds per day and are compared with the NSAQMD mass thresholds to determine impact significance.

**Appendix D** of this DEIR provides detailed emission calculations used in this analysis.

## Significance Criteria

The significance criteria for this analysis were developed from criteria presented in Appendix G, "Environmental Checklist Form", of the CEQA Guidelines and based on the professional judgment of the County of Plumas and its consultants. The proposed project would result in a significant impact if it would:

- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Conflict with or obstruct implementation of the applicable air quality plan;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

### Impact 4.3-1: Construction Emissions

<b>LTS</b>	<b>The proposed project could expose a variety of sensitive land uses to construction-related air quality emissions.</b>
	<b>Level of Significance Before Mitigation:</b> <i>Less than Significant</i>
	<b>Required Additional Mitigating Policies and Implementation Measures:</b> <i>None</i>
	<b>Resultant Level of Significance:</b> <i>Less than Significant</i>

Implementation of the proposed project could result in increased construction activity. This would impact air quality by temporarily increasing ozone precursor and particulate matter emissions. Construction activities such as demolition, grading, deliveries, hauling, and worker trips to and from project sites would generate pollutant emissions. Construction projects may also generate exhaust emissions from primarily diesel fueled equipment. Particulate matter is the pollutant of greatest concern that is emitted from construction, particularly during site preparation and grading. Particulate matter emissions can vary daily, depending on various factors, such as the level of activity, type of construction activity taking place, type of equipment in operation, and weather conditions. Off-road construction equipment is also a large source of NOx and diesel particulate matter.

Construction-related emissions are addressed under the proposed project, with the inclusion of several policies in the “Air Quality” section of the Open Space and Conservation Element. These include Policy COS-7.9.3 “Dust Suppression Measures” (see **Table 4.3-4**) which requires project developers to implement a variety of dust suppression measures during excavation, grading, and site preparation activities consistent with the requirements of the NSAQMD (Rule 226 – Dust Control).

**TABLE 4.3-4  
MITIGATING POLICIES AND IMPLEMENTATION MEASURES**

Conservation and Open Space (COS) Elements	
Policies designed to minimize construction emissions include the following:	
COS-7.9.1 Cooperation with Other Agencies	COS-7.9.3 Dust Suppression Measures

#### Significance Determination

Implementation of the proposed project would result in the development of new urban uses within the various Planning Areas of the County, which could result in additional construction-related air quality emissions resulting in adverse impacts to air quality. As identified in the policies described above, the County will require project proponents to implement a variety of comprehensive measures to avoid and minimize adverse impacts on air quality to the maximum extent practicable, including NSAQMD Rule 226 (Dust Control).

Therefore, construction-related air quality emissions resulting from implementation of the proposed project would have a less-than-significant impact on existing and planned sensitive receptors.

This impact is considered *less than significant*. No additional mitigation measures are required.

### Significance Conclusion

Implementation of the proposed project would not result in significant construction-related air quality issues and therefore associated impacts would be *less than significant*.

## Impact 4.3-2: Criteria Pollutants

<b>SU</b>	<b>The proposed project could result in a cumulatively considerable net increase of criteria air pollutants that result in a violation of an air quality standard.</b>
	<b>Level of Significance Before Mitigation:</b> <i>Potentially Significant</i>
	<b>Required Additional Mitigating Policies and Implementation Measures:</b> <i>No Additional Mitigation Available</i>
	<b>Resultant Level of Significance:</b> <i>Significant and Unavoidable</i>

Operational impacts associated with implementation of the proposed project would result from mobile source (vehicles used by residents and by patrons, staff, and vendors for commercial businesses), area source (fireplaces, landscape maintenance equipment, consumer products, and architectural coatings), and energy source (natural gas combustion) emissions. The annual emissions of ROG, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> associated with development under the proposed project (analysis year 2035) and for the existing land uses (analysis year 2010) were modeled with the CalEEMod software and are depicted below in **Table 4.3-5**. As depicted below, emissions of ROG and PM<sub>10</sub> would exceed the daily thresholds established by the NSAQMD and would be potentially significant.

**TABLE 4.3-5  
2035 PLUMAS COUNTY GENERAL PLAN OPERATIONAL EMISSIONS**

Emissions Source	Unmitigated Operational Emissions (Pounds/Day) <sup>a</sup>				
	ROG	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Mobile Source Emissions</b>					
Countywide Emissions – Year 2010	1,600.9	2,669.3	14,756.5	1,014.1	98.9
Countywide Emissions – Year 2035	316.9	491.7	2,133.2	1,322.9	55.9
Incremental Increase	(1,284.0)	(2,177.6)	(12,623.3)	(308.8)	(43.0)
<b>Area Source Emissions</b>					
Incremental Increase from Development	2,782.0	49.2	4,107.9	542.2	542.2
<b>Energy Source Emissions</b>					
Incremental Increase from Development	3.8	32.2	13.7	0	0
<b>Total Incremental Increase<sup>b</sup></b>	<b>1,501.8</b>	<b>(2,096.2)</b>	<b>(8,501.7)</b>	<b>233.4</b>	<b>499.2</b>
NSAQMD Level C Significance Criteria	>136	>136	NA	>136	NA
Significant? (Yes or No)	Yes	No	NA	Yes	NA

a CalEEMod analysis is based on build out of the 2035 General Plan, as well as traffic trips and associated vehicle-miles traveled (VMT) information provided by LSC Transportation Consultants for the 2010 and 2035 analysis years. Notably, values in (parentheses) indicate a reduction in emissions for the build out versus existing scenario. Additional model assumptions and output data are provided in Appendix D.

b Bold values are in excess of the applicable standard. The NSAQMD established thresholds for ROG, NO<sub>x</sub>, and PM<sub>10</sub>, and CO and PM<sub>2.5</sub> do not have an established emissions threshold of significance.

Policies designed to reduce air quality emissions included as part of the proposed project are summarized below in **Table 4.3-6**. Specific policies direct the County to improve air quality through a regional approach with interagency cooperation (see Policy COS-7.9.1). Another policy would control emissions from wood burning fireplaces (see Policy COS 7.9-6). Other policies call for the reduction of air emissions associated with transportation by encouraging transit use (see policies CIR-4.2.2 and CIR-4.3.1 through 4.3.3), bicycle/pedestrian access (see policies CIR-4.4.1 through 4.4.3), and ridesharing activities (see Policy CIR-4.3.4). Additional policies call for a variety of strategies designed to improve air quality through land use planning and economic activities (see policies LU-1.1.1 through LU-1.1.3, LU-1.1.5, and ECON 5.9.2 through ECON 5.9.7) that helps to reduce vehicle miles travelled.

**TABLE 4.3-6  
MITIGATING POLICIES**

Conservation and Open Space (COS), Circulation (CIR), Economics (ECON), and Land Use (LU) Elements			
Policies designed to maintain good air quality in Plumas County include the following:			
COS-7.9.1	Cooperation with Other Agencies	CIR-4.3.4	Ridesharing
COS-7.9.2	Air Quality and Sensitive Receptors	CIR-4.4.1	Bicycle and Pedestrian Facility Network
COS-7.9.4	Vehicle Trip Reduction Measures	CIR-4.4.2	Bicycle and Pedestrian Facilities in New Development
COS-7.9.5	Street Design		
COS-7.9.6	Wood Burning Fireplaces	CIR-4.4.3	Inclusion of Bicycle and Pedestrian Access in New Transportation Projects
COS-7.9.7	Purchase of Low Emission/Alternative Fuel Vehicles	CIR-4.6.3	GHG Reductions
COS-7.9.8	Public Education	ECON- 5.9.6	Reduction in Single-Occupant Vehicular Travel
CIR-4.2.2	Support of Multimodal Projects	ECON- 5.9.7	Encouragement of Pedestrian and Bicycle Traffic
CIR-4.3.1	Enhancement of Transit Service		
CIR-4.3.2	Expansion of Transit Service to Urban Areas		
CIR-4.3.3	Improvement of Bus Stops		
Policies designed to reduce vehicular travel and improve air emissions by encouraging land use patterns that cluster new development near existing community areas include the following:			
LU-1.1.1	Future Development	ECON- 5.9.2	Land Use Density
LU-1.1.2	Infill Development	ECON- 5.9.3	Mixed-Use Development
LU-1.1.3	Increased Housing Density	ECON- 5.9.4	Transit-Oriented Development
LU-1.1.5	Community Plans	ECON- 5.9.5	Incentives for Use of Existing Infrastructure
LU-1.5.1	Use of Existing Infrastructure	ECON- 5.9.8	Telecommuting
LU-1.5.2	Cost Effective Land Use Pattern		

**Significance Determination**

As stated above, the County will implement a variety of policies designed to address air quality issues. Depending on the feasibility and level of implementation as applied to individual development projects consistent with the proposed project, the inclusion of additional trip reduction measures would help to further reduce vehicle-related emissions. Future project-specific compliance with NSAQMD regulations and permitting would also help to reduce air quality emissions associated with individual projects. In addition, the County will ensure that future CEQA documentation be prepared for individual projects (with project-specific data) that will (if technically possible) mitigate any potential air quality impacts to a less-than-significant level. However, even with implementation of the above mentioned policies and regulations, implementation of the proposed project would result in a *significant and unavoidable* impact. No additional feasible mitigation is currently available.

**Significance Conclusion**

Overall, policies included as part of the proposed project have been developed to avoid and minimize adverse air quality impacts to the maximum extent practicable. However, the cumulatively considerable net increase of criteria air pollutants that result in a violation of an air quality standard (emissions of ROG and PM10) would be an irreversible consequence associated with implementation of the proposed project through the 2035 Planning Horizon. No feasible mitigation is available to reduce the significance of this impact to a level of less than significant. Therefore, this remains a *significant and unavoidable* impact.

**Impact 4.3-3: Consistency with Air Quality Plans**

<b>SU</b>	<b>The proposed project could result in conflicts with applicable Air Quality Management Plans and Standards.</b>
	<b>Level of Significance Before Mitigation:</b> <i>Potentially Significant</i>
	<b>Required Additional Mitigating Policies and Implementation Measures:</b> <i>No Additional Mitigation Available</i>
	<b>Resultant Level of Significance:</b> <i>Significant and Unavoidable</i>

As more fully described above under Impact 4.3-2, implementation of the proposed project would result in new development within the various Planning Areas of the County. New development would result in increased population growth and would result in increased vehicle trips and vehicle miles travelled. The proposed project was designed specifically to achieve and promote consistency with the planning documents of other key neighboring land use agencies or other agencies that have jurisdiction over the Planning Area. Policies included as part of the proposed project that would potentially reduce this impact are identified in Table 4.3-6 (above). These policies would help to reduce emissions by requiring new development to incorporate measures to reduce operational emissions, as well as encouraging new employers to provide incentives for their employees to carpool or use transit. Other policies encourage compact and infill development, as well as additional employment and retail opportunities, to promote walking or biking to destinations consistent with the existing land use patterns of the various Planning Areas within Plumas County. Based on the fact that the NSAQMD is still developing future regulatory efforts to achieve aggressive reduction goals and the amount of growth that may occur under the proposed project, the potential that a significant impact could occur remains a possibility.

**Significance Determination**

As stated above, the County will implement a variety of policies designed to address air quality issues. Depending on the feasibility and level of implementation as applied to individual development projects consistent with the proposed project, the inclusion of additional trip reduction measures would help to further reduce vehicle-related emissions. Future project-specific compliance with NSAQMD regulations and permitting would also help to reduce air quality emissions associated with individual projects. In addition, the County will ensure that future CEQA documentation be prepared for individual projects (with project-specific data) that will (if technically possible) mitigate

any potential air quality impacts to a less-than-significant level. However, even with implementation of the above mentioned policies and regulations, implementation of the proposed project would result in a *significant and unavoidable* impact. No additional feasible mitigation is currently available.

**Significance Conclusion**

Overall, policies included as part of the proposed project have been developed to avoid and minimize adverse air quality impacts to the maximum extent practicable. However, the cumulatively considerable net increase of criteria air pollutants that result in a violation of an air quality standard (emissions of ROG and PM10) would also result in an inconsistency with applicable air quality standards and would be an irreversible consequence associated with implementation of the proposed project through the 2035 Planning Horizon. No feasible mitigation is available to reduce the significance of this impact to a level of less than significant. Therefore, this remains a *significant and unavoidable* impact.

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**Impact 4.3-4: Toxic Air Contaminants**

<b>LTS</b>	<b>The proposed project could expose sensitive receptors to substantial pollutant concentrations that could affect public health.</b>
	<b>Level of Significance Before Mitigation:</b> <i>Less than Significant</i>
	<b>Required Additional Mitigating Policies and Implementation Measures:</b> <i>None</i>
	<b>Resultant Level of Significance:</b> <i>Less than Significant</i>

Implementation of the proposed project could result in new urban development that could place sensitive land uses near local intersections or roadways associated with air pollutant emissions that exceed State or Federal ambient air quality standards. In addition to these air pollutant emissions, a variety of TAC emissions could also be released from various construction and operations (i.e., diesel equipment and vehicles) associated with land uses to be developed under the proposed project. The ARB has declared that diesel particulate matter (DPM) from diesel engine exhaust is a TAC. Additionally, the California Office of Environmental Health Hazard Assessment (OEHHA) has determined that chronic exposure to DPM can cause carcinogenic and non-carcinogenic health effects.

Development under the proposed project could place residential and other sensitive receptors in proximity to sources of TACs (such as high volume roadways, industrial uses, etc.). The ARB adopted the *Air Quality and Land Use Handbook* (ARB, 2005) to provide guidance to planning agencies and air districts for considering potential impacts to sensitive land uses proposed in proximity to TAC emission sources. The goal of the guidance document is to protect sensitive receptors, such as children, seniors, and acutely ill and chronically ill persons, from exposure to TACs emissions by encouraging adequate separation between new sensitive land uses (residential, educational, healthcare) proposed adjacent to TAC sources in order to minimize

land use incompatibility. The recommendations provided are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts.

Stationary sources of TAC emissions are subject to NSAQMD Regulation IX (Toxic Air Contaminants) which includes rules to address toxic emissions from several specific common sources (including those associated with asbestos containing serpentine soils). Additionally, the proposed project includes a number of policies designed to address exposure to TAC emissions including Policy PHS-6.2.6 “Naturally Occurring Asbestos” and Policy COS-7.9.2 “Air Quality and Sensitive Receptors”. Additionally, Conservation and Open Space Implementation Measure #17 requires the County to ensure that future development proposals that introduce sources of toxic air pollutants prepare a health risk assessment and establish appropriate land use buffers around those uses generating pollutants.

Subsequent CEQA documentation prepared for individual projects would have project-specific data and will be required to address, and to the extent feasible, mitigate any significant or potentially significant air quality impacts to a less-than-significant level. Examples of mitigation that may be proposed include intersection/roadway capacity improvements or additional land use siting and required setbacks or moving truck loading docks farther from sensitive receptors. However, it should be noted, the ability to mitigate these potential impacts is contingent on a variety of factors including the severity of the air quality impact, existing land use conditions and the technical feasibility of being able to implement any proposed mitigation measures (e.g., relocations, road widening, etc.).

#### **Significance Determination**

Development resulting from implementation of the proposed project could result in adverse impacts results from exposure to TACs. However, the County will implement a variety of policies designed to address air quality and land use compatibility issues, including the appropriate siting of new sensitive land uses (e.g., residences and schools) an adequate distance from sources of TACs (e.g., industrial uses, loading docks, freeways), as well as the appropriate siting of new potential sources of TACs an adequate distance from existing sensitive land uses. In addition, the County will ensure that future CEQA documentation be prepared for individual projects (with project-specific data) that will (if technically possible) mitigate any potential air quality impacts to a less-than-significant level.

This impact is considered *less than significant*. No additional mitigation measures are required.

#### **Significance Conclusion**

Implementation of the proposed project would not result in significant TAC effects and therefore associated impacts would be *less than significant*.

### Impact 4.3-5: Odors

<b>LTS</b>	The proposed project could result in the emission of objectionable odors.
	Level of Significance Before Mitigation: <i>Less than Significant</i>
	Required Additional Mitigating Policies and Implementation Measures: <i>None</i>
	Resultant Level of Significance: <i>Less than Significant</i>

Construction activity will require the operation of equipment which may generate exhaust from either gasoline or diesel fuel. Construction of new buildings will also require the application of architectural coatings and the paving of roads which would generate odors from materials such as paints and asphalt. However, these odors are of a temporary or short-term nature and quickly disperse into the surrounding atmosphere.

Future residential and commercial development would also involve minor, odor-generating activities, such as backyard barbeque smoke, garden equipment exhaust, and the application of exterior paint for home improvement activities. These types of odors are typical of most residential communities and are not considered significant generators of odor impacts. Notably, the NSAQMD has not identified any existing sources of substantial odor, or sources that consistently cause odor complaints, in Plumas County.

Policies included as part of the General Plan Update that would minimize this impact are summarized below in **Table 4.3-7**. Specifically, LU-1.2.2 requires that compatible uses be located adjacent to one another.

**TABLE 4.3-7  
MITIGATING POLICIES**

Land Use (LU), Economics (ECON), and Conservation and Open Space (COS) Elements			
Policies designed to promote compatible land use development and patterns that minimize impacts to surrounding land uses include the following:			
LU-1.2.2	Land Use Compatibility	COS-7.9.2	Air Quality and Sensitive Receptors
ECON-5.1.4	Discouragement of Non-Compatible Land Uses	COS-7.9.6	Wood Burning Fireplaces

#### Significance Determination

Development resulting from implementation of the proposed project could result in adverse odor impacts from stationary sources. As identified in the policies described above, the County will continue to discourage the siting of sensitive land uses near incompatible land uses that could generate odors. In addition, the County will ensure that future CEQA documentation be prepared for individual projects (with project-specific data) that will (if technically possible) mitigate any potential odor impacts to a less-than-significant level. Therefore, these odor impacts from implementation of the proposed project would have a less-than-significant impact on existing and planned sensitive land uses.

This impact is considered *less than significant*. No additional mitigation measures are required.

#### Significance Conclusion

Implementation of the proposed project would not result in significant odor effects and therefore associated impacts would be *less than significant*.