

## 4.5 AIR QUALITY

### 4.5.1 ENVIRONMENTAL SETTING

#### *AIR BASIN CLIMATOLOGY*

The proposed project is located within the North Coast Air Basin Air Basin and is within the jurisdiction of the North Coast Unified Air Quality Management District (NCUAQMD). The North Coast Air Basin encompasses Del Norte, Humboldt, and Trinity counties (together comprising the NCUAQMD), in addition to Mendocino and northern Sonoma counties (each of which comprises a separate air district within the basin). The NCUAQMD is 7,767 square miles large, which is approximately five percent of the total area of California. It is bordered on the west by the Pacific Ocean and extends from the Oregon Border south approximately 140 miles to the Mendocino County line, and varies between 30 to 100 miles in width inland (NCUAQMD, 2002).

The terrain features of Trinity County make it possible for various climates to exist within the same general area. The patterns of mountains and hills are primarily responsible for the wide variations of rainfall, temperatures, and localized winds that occur throughout the region. Although the climate of Trinity County varies considerably with elevation and the proximity to mountain peaks, in general the county's climate is characterized by warm, dry summers and cold, moderately wet winters. Low temperatures in January average 26° Fahrenheit (F), while high temperatures in August average 93°F.

The Trinity Alps to the north and west act as an effective rain shadow, reducing the moisture content of storms moving over the continent from the Pacific. Annual rainfall averages 37 inches. Most of the precipitation occurs during the winter as snow, with occasional warm rains. Summer precipitation is usually limited to occasional scattered thunderstorms. Prevailing winds in the summertime are north to northwesterly and are frequently strong. In the winter, storms from the south Pacific increase the percentage of days winds come from southerly quadrants (NCUAQMD, 2002).

Temperature inversions are a common occurrence in the project vicinity. An inversion occurs when warm air overlies cooler air under stable atmospheric conditions. This can prevent the upward dispersion of pollutants. Radiation inversions, which are the most common type of inversion in the project vicinity, occur when the air layer near the surface and extending upward as much as several hundred feet is cooled. This takes place at night on an almost daily and year-round basis, although it is more prominent from late fall through early spring when heating from the sun is weaker and hours of sunshine are fewer. In the wintertime, a radiation inversion may persist until near noon and at times is not destroyed during an entire day or for several days (NCUAQMD, 2002). The topography of the area plays a significant role in the degree of impact air pollution sources have. Since Hayfork is set in a basin, pollutants tend to settle rather than dissipate. (Trinity County Planning Dept. 1996).

### *AIR QUALITY STANDARDS*

Air pollution is regulated by two types of standards: emission standards and ambient air quality standards. Emission standards are the amounts (by weight) of air pollutants a source is allowed to release into the air, while ambient air quality standards (AAQS) are concentrations of air pollutants that should not be exceeded in the air of an area such as a city or county. Under the Federal Clean Air Act and California law (California Health and Safety Code Section 39606), the U. S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) are authorized to establish AAQS for air pollutants. Pollutants that have AAQS set for them are known as criteria pollutants.

The AAQS define clean air and are established to protect even the most sensitive individuals within a community, including the elderly, people with certain health conditions, infants, and children. An air quality standard defines the maximum amount of a pollutant that can be present in outdoor air without harm to the public's health (CARB, 2002). The federal and state standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the California standards are more stringent (e.g., for particulate matter and ozone) and California has set standards for some pollutants that area not addressed by federal standards (visibility-reducing particles, sulfates, and hydrogen sulfide).

The current federal and state AAQS are summarized in **Table 4.5-1** for each of the criteria pollutants. National standards (other than O<sub>3</sub>, PM, and standards 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, averaged over three years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. California standards for O<sub>3</sub>, CO (with Lake Tahoe exception), SO<sub>2</sub> (1- and 24-hour), PM<sub>10</sub>, and visibility reducing particles are values that are not to be exceeded. All other California standards are not to be equaled or exceeded.

Note that the Children's Environmental Health Protection Act (CEHPA) (Senate Bill 25, Escutia, 1999) mandated an evaluation of current California air quality standards to determine whether these standards adequately protect human health. As a result of this evaluation, the PM, O<sub>3</sub>, and NO<sub>2</sub> standards were identified as a top priority for review. CARB staff is currently reviewing published studies on health effects of PM and are expected to present their recommendations on possible revisions of the PM standards to the Air Resources Board in May 2002. O<sub>3</sub> and NO<sub>2</sub> will then be reviewed over the next several years.

**TABLE 4.5-1**  
**FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone (O <sub>3</sub> )	8-Hour 1-Hour	0.08 PPM <sup>1</sup> 0.12 PPM	-- 0.09 PPM
Carbon Monoxide (CO)	8-Hour 1-Hour	9.0 PPM 35.0 PPM	9.0 PPM 20.0 PPM
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Average 1-Hour	0.053 PPM --	-- 0.25 PPM
Sulfur Dioxide (SO <sub>2</sub> )	Annual Average 24-Hour 1-Hour	0.03 PPM 0.14 PPM --	-- 0.04 PPM 0.25 PPM
Respirable Particulate Matter under 10 microns (PM <sub>10</sub> )	Annual Average 24-Hour	50 ug/m <sup>3</sup> 150 ug/m <sup>3</sup>	30 ug/m <sup>3</sup> 50 ug/m <sup>3</sup>
Fine Particulate Matter (PM <sub>2.5</sub> )	Annual Average 24-Hour	15 ug/m <sup>3</sup> 65 ug/m <sup>3</sup>	No separate state standard
Lead	30-Day Avg. Calendar Quarter.	-- 1.5 ug/m <sup>3</sup>	1.5 ug/m <sup>3</sup> --
Sulfates	24-hour	--	2.5 ug/m <sup>3</sup>
Hydrogen sulfide	1-hour	--	0.03 PPM
Visibility-reducing particles	8-hour (10am-6pm, PST)	--	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more (0.07 to 30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent.

PPM = parts per million

ug/m<sup>3</sup> = micrograms per cubic meter

<sup>1</sup> New federal 8-hour ozone and PM<sub>2.5</sub> standards were promulgated by USEPA on July 18, 1997. The federal 1-hour ozone standard continues to apply in areas that violated the standard.

Source: CARB website: [www.arb.ca.gov/research/aaqs](http://www.arb.ca.gov/research/aaqs) (updated January 25, 1999)

### *AIR QUALITY MONITORING IN THE NORTH COAST AIR BASIN*

The NCUAQMD maintains a variety of air pollution monitoring equipment at locations around the North Coast to monitor air pollution levels. PM<sub>10</sub> levels are continuously measured in Weaverville. NO<sub>2</sub>, CO,

O<sub>3</sub>, total reduced SO<sub>2</sub>, and various air toxics have also been monitored at various times and locations on the North Coast, including Hayfork.

The primary sources of air pollutants in the project vicinity include automobiles, blowing dust from dirt roads and fallow fields, wood burning stoves, open burning from backyard burns and prescribed burns and lumber mills (Trinity County Department of Transportation and Planning, 1990; Trinity County Planning Department 2002). Forest fires can also contribute to suspended particulates and other pollutants in the air.

Monitoring indicates that North Coast air is in attainment for most of the criteria pollutants listed in **Table 4.5-1**. Attainment means that the values the government set for clean healthy air are not exceeded in an area. The nonattainment classification means that the air quality for a pollutant does not meet the standard for healthy air. The only standard currently listed as nonattainment on the North Coast is the state standard for PM<sub>10</sub>, a status this region shares with most of the rest of California. The North Coast is, however, currently listed as attainment for the federal PM<sub>10</sub> standard, which is three times the level set by California.

In the winter months, the air basin occasionally exceeds the state annual average standard for PM<sub>10</sub>. The NCUAQMD conducted monitoring of air quality, particularly for PM<sub>10</sub> and carbon monoxide (CO) in Hayfork during 1984 and 1986. Monitoring for PM<sub>10</sub> was conducted during both the winter and summer season. Hayfork exceeded the federal standard for PM<sub>10</sub> fifteen times during the winter monitoring, and also exceeded the standard during the summer monitoring, although not as frequently or to the same extent as during the winter. (Trinity County Planning Dept. 1996). The elevated wintertime PM<sub>10</sub> levels are principally a measure of dust and wood smoke emission from wood stoves and the annual average PM<sub>10</sub> levels decrease during the remainder of the year as wood stove use decreases (Trinity County Department of Transportation and Planning, 1990). Slash and wildfire smoke, construction activities, and diesel-fueled trucks can also be sources of particulates. New regulations controlling open burning, the gradual elimination of older model vehicles that lack adequate smog control devices and new wood stoves designed to reduce wood stove emissions are expected to reduce PM<sub>10</sub> emissions in the basin.

PM<sub>10</sub> is small suspended particulate matter, 10 microns or less in diameter, which can enter the lungs. The major components of PM<sub>10</sub> are dust particles, nitrates, and sulfates. PM<sub>10</sub> is directly emitted to the atmosphere as a by-product of fuel combustion and the wind erosion of soil and unpaved roads. Small particles are also created in the atmosphere through chemical reactions. Particles greater than 10 microns in diameter can cause irritation in the nose, throat, and bronchial tubes. Natural mechanisms remove most of these particles, but particles less than 10 microns in diameter are able to pass through the body's natural defenses and the mucous membranes of the upper respiratory tract and enter into the lungs. The particles can damage the alveoli, tiny air sacs responsible for gas exchange in the lungs. The particles may also

carry carcinogens and other toxic compounds, which adhere to the particle surfaces and can enter the lungs (CARB, 2002).

### *REGIONAL AIR QUALITY PLANNING*

#### ***Federal Program***

The federal Clean Air Act, as amended, requires the state to identify areas not meeting the federal primary standards (non-attainment areas). Trinity County is one of the few attainment areas in California with respect to the federal standards.

#### ***State Program***

The California Clean Air Act of 1988 requires an air quality attainment plan to be prepared for areas that violate air quality standards for CO, SO<sub>2</sub>, NO<sub>2</sub>, or ozone. Local attainment plans are not required for areas that violate state PM<sub>10</sub> standards. PM<sub>10</sub> attainment issues are being addressed by the CARB.

CARB has also recently promulgated regulations to control the grading and mining of asbestos containing rock materials. Some ultramafic rocks are known to contain asbestos. Bodies of this type of rock are located throughout California, including in Trinity County. This rock is commonly mined, crushed and used for road surfacing. In a separate regulation, CARB has prohibited the use of asbestos-containing rock for surfacing of unpaved roads in most cases.

#### ***NCUAQMD Program***

As part of its overall strategy to meet the state's health-based standard for PM<sub>10</sub>, the NCUAQMD adopted its *Particulate Matter (PM<sub>10</sub>) Attainment Plan* in May 1995. The Plan includes measures to reduce PM<sub>10</sub> emissions from mobile sources, as well as from wood stoves and other combustion sources. Through review of local development projects under CEQA, the NCUAQMD also ensures that air quality is protected as the North Coast develops its economic and industrial capacity. Funding for mobile source measures included within the Plan and funding for other innovative measures to reduce mobile source air pollution is provided by NCUAQMD through its Air Quality Partnership (AQP) program, and its AB 2766 Program. The NCUAQMD also participates in efforts such as the Carl Moyer Program to reduce heavy duty diesel emissions, and the Great Stove Changeout, to reduce air pollution from woodstoves. The NCUAQMD has recently promulgated regulations limiting or prohibiting open burning of household refuse. On-going air pollution monitoring is used to track progress in PM<sub>10</sub> attainment (NCUAQMD, 2002).

## 4.5.2 PLANNING DOCUMENT GOALS, OBJECTIVES, AND POLICIES

### *TRINITY COUNTY GENERAL PLAN SAFETY ELEMENT*

The Trinity County General Plan Draft Safety Element contains the following applicable goal related to air quality:

- S.6 Air Quality Goal: Continue to maintain a high standard of air quality in Trinity County.

### *SHASTA-TRINITY NATIONAL FOREST LAND AND RESOURCE MANAGEMENT PLAN*

The proposed action area is included in Management Area 17, Hayfork Creek, and Management Area 19, Indian Valley/Rattlesnake of the Shasta-Trinity National Forests Land and Management Plan (LMP; USDA, 1995). The *Shasta-Trinity National Forest Land and Resource Management Plan (LMP)* policies regarding air resources that relate to the proposed project are as follows (USDI, 1995):

Applicable Forest Goals related to air resources include the following:

- Maintain air quality to meet or exceed applicable standards and regulations.

Applicable Forest Standards and Guidelines include the following:

- Protect air quality while achieving land and resource management goals and objectives. Base line levels will be established and available technology will be used to predict and monitor changes. Activities such as burning, which are under the Forests' control, will be coordinated with affected landowners and control agencies.
- Establish and maintain close coordination with federal, state, and local officials in the research and application of new air quality standards particularly in relation to smoke and dust management.

There is no supplemental LMP management direction for air resources within Management Area 17 or Management Area 19.

## 4.5.3 SIGNIFICANCE CRITERIA

Appendix G of the CEQA *Guidelines*, the CEQA Environmental Checklist, poses the following questions to be considered in determining whether the project would cause significant air quality impacts:

Would the project:

- Conflict with or obstruct implementation of the applicable air quality plan?
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
- Result in a cumulatively considerable net increase of any criteria 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)?
- Expose sensitive receptors to substantial pollutant concentrations?
- Create objectionable odors affecting a substantial number of people?

#### **4.5.4. IMPACTS AND MITIGATION MEASURES**

##### *PERMANANT IMPACTS AND MITIGATION MEASURES*

#### **Air Quality Impact – 1: The proposed project would generate operation-related air quality impacts.**

Significant changes in air quality impacts are not expected to result during operation of the proposed project. The project is repair and rehabilitation of an existing road. The project is not expected to result in increases in traffic along Hyampom Road. The road will be paved after construction, which will minimize dust emissions. Asbestos-containing material will not be used for road surfacing. Therefore, there will be no permanent change in the existing air quality conditions attributable to the proposed project.

**Significance: Less Than Significant Impact**

**Mitigation Measures: None Required**

##### *TEMPORARY IMPACTS AND MITIGATION MEASURES*

#### **Air Quality Impact – 2: Project construction activities associated with the proposed project would generate short-term air emissions.**

Construction of the proposed project will result in a temporary increase in PM<sub>10</sub> during grading and other earth-moving activities. Temporary increases in other air pollutants (e.g., ozone and carbon monoxide) could also result during construction, due to construction workers commuting to and from the site and the operation of heavy machinery.

A Geotechnical review of the project site was conducted by Taber Consultants (Taber Consultants 1999). The Taber review determined that the site is underlain by variably weathered granitic rock. The geotechnical review did not reveal the presence of any

ultramafic rock formations that may potentially contain asbestos. Therefore, project grading does not have the potential to result in airborne asbestos or asbestos-containing materials.

As discussed in the project description, The Nine Mile Bridge will be painted according to Caltrans and County Standard Specifications for cleaning and painting structural steel. In addition, the removal of the lead-based paint on the bridge will be completed according to Caltrans and County Standard Specifications for the removal of existing paint. The contractor will implement a debris containment and collection program for the removal of the existing paint. This program will include the construction of a containment system around the bridge (i.e., the bridge will be fully encapsulated during sandblasting and painting), monitoring the soil and air around the work area to verify the effectiveness of the containment system, and disposal of debris in conformance with all applicable federal, state, and local hazardous waste laws (e.g., Health and Safety Code, Division 20, Chapter 6.5; Title 22, California Code of Regulations, Division 4.5; and Title 8, California Code of Regulations).

The proposed containment system will mitigate the air quality impacts of the bridge sanding and painting operation to less than significant. Additional measures are required to ensure emissions of other air contaminants are less than significant.

**Significance: Potentially Significant, but mitigated**

#### **Mitigation Measures**

**Air Quality Mitigation-1: At any time when visible dust is emitted by project operations, all excavated areas, access roads, stockpiles and other areas that are not paved, rocked or covered shall be watered by the construction contractor at least daily. Water shall be applied in a fine spray that does not result in runoff from the watered surfaces.**

**Air Quality Mitigation –2: The construction contractor shall be required to maintain construction vehicles in good running condition.**

**Significance After Mitigation: Less Than Significant**

**Air Quality Impact –3: Construction of the proposed project could generate air quality impacts to sensitive receptors.**

Sensitive receptors (e.g., residences) are not located within the vicinity of the project; therefore the project will not expose sensitive receptors to substantial pollutant concentrations.

**Significance: Less Than Significant.**

**Mitigation Measures: None Required**

*CUMULATIVE IMPACTS AND MITIGATION MEASURES*

**Air Quality Impact – 4: Construction of the proposed project, combined with other construction projects in the vicinity, could add to the cumulative effects on air quality.**

While several road projects are proposed for the vicinity and each would contribute construction-related emissions to the air basin, significant cumulative air quality impacts (e.g., violations of air quality standards) are not likely to result since the various projects would not be constructed simultaneously. In addition, the standard dust control measures and maintenance of construction vehicles required for this project are expected to be implemented for the other projects proposed for the vicinity, which would lessen the potential for significant cumulative air quality impacts.

**Significance: Less Than Significant**

**Mitigation Measure: None Required**