Chapter 14: Air Quality

Introduction and Setting

Nevada County exhibits large variations in terrain and consequently exhibits large variations in climate, both of which affect air quality. The western portions of the County slope relatively gradually with deep river canyons running from southwest to northeast towards the crest of the Sierra Nevada Range. East of the divide, the slope of the Sierra is steeper, but river canyons are relatively shallow. The warmest areas within the County are found at the lower elevations along the west side of the County, while the coldest average temperatures are found at the highest elevations.

The prevailing wind direction over the County is westerly. However, the terrain of the area has a great influence on local winds, so that wide variability in wind direction can be expected. Afternoon winds are generally channeled up-canyon, while nighttime winds generally flow down-canyon. Winds are, in general, stronger in spring and summer and lower in fall and winter. Periods of calm winds and clear skies in fall and winter often result in strong, ground-based inversions forming in mountain valleys. These layers of very stable air restrict the dispersal of pollutants, trapping these pollutants near the ground, representing the worst conditions for local air pollution occurring in the County.

The overall air quality in Nevada County is very good. Of the many pollutants, only two, ozone and suspended particulate matter (PM-10), are known to be problems in the County. Nevada County is considered by the State, under the terms of the California Clean Air Act, to be "nonattainment" for ozone and PM-10, and to be either "attainment" or unclassified for other pollutants.

Ozone is the most prevalent of a class of photochemical oxidants formed in the urban atmosphere, resulting from complex chemical reactions between hydrocarbons and oxides of nitrogen in the presence of sunshine. Unlike other pollutants, ozone is not released directly into the atmosphere from any sources. The major sources of oxides of nitrogen and reactive hydrocarbons, known as ozone precursors, are combustion sources such as factories, automobiles and evaporation of solvents and fuels. For the most part the ozone affecting Nevada County is transported into the area by the prevailing summertime westerly winds. Ozone is known to be transported from the Sacramento Metropolitan area to the mountainous areas to the east and north. Local sources of ozone include the regional vehicular transportation facilities

such as Interstate 80, where high seasonal and peak traffic volumes have a significant and potential influence on ozone nonattainment, particularly in eastern Nevada County.
Suspended particulate matter consists of solid and liquid particles of dust, soot, aerosols and other matter which are small enough to remain suspended in the air for a long period of time. A portion of the suspended particulate matter in the air is due to natural sources such as wind blown dust and pollen. Man-made sources include combustion, automobiles, field burning, factories and unpaved roads. Fireplaces and wood stoves are known to be major sources of particulate matter in mountain towns during the winter months.

Until recently, air quality was not monitored in Nevada County. Beginning in 1986 the Northern Sierra Air Quality Management District started operating air quality monitoring sites in the County. At present, the District has monitoring sites in Nevada City, Grass Valley and Truckee. The Nevada City station was established to monitor ozone levels, while those in Truckee and Grass Valley are designed to monitor PM-10. The Placer County Air Pollution Control District also operates a monitoring site just south of the Nevada County border in Colfax.

Data from 1989 and 1990 shows that both the state and federal ambient air quality standards are exceeded in Nevada City. Data from Colfax, located just south of the Nevada County border, also shows violations of both the state and federal standards. PM-10 is measured in Nevada County in Grass Valley and Truckee. In general, both sites meet the federal PM-10 standards, but exceed the more stringent state standards. The violations of the PM-10 standards in Grass Valley and Truckee generally occur in winter, although violations in the summer months have been noted during forest fires or periods of open burning. This pattern suggests that the major contributor to PM-10 violations is wood smoke.

Nevada County is within the Mountain Counties Air Basin, an air basin consisting of nine counties or portions of counties stretching from Plumas County on the north to Mariposa County on the south. The Northern Sierra Air Quality Management District is the local agency for air quality planning with authority over air pollutant sources.

Further discussion of air quality in the county is contained in Section 6 of the Nevada County Master Environmental Inventory, which is part of Volume 3 of the Nevada County General Plan.

Goals, Objectives, and Policies

The overall air quality in Nevada County is very good. However, there are several areas in the County that do not meet State and Federal ambient air quality standards. Consideration of a variety of site-specific measures can provide means to protect the County's air quality resources.

Additional goals, policies and objectives generally related to air quality are located in Chapter 1: Land Use; Chapter 4: Circulation; and Chapter 12: Soils.

Goal 14.1
Attain, maintain and ensure high air quality.

Objective 14.1
Establish land use patterns that minimize impacts on air quality.

Directive Policy

Policy 14.1 Cooperate with the Air Quality Management District (currently the NSAQMD), during review of development proposals. As part of the site plan review process, require applicants of all subdivisions, multi-family, commercial and industrial development projects to address cumulative and long-term air quality impacts, and request the District enforce appropriate land use regulations to reduce air pollution.

Also See: Chapter 4: Circulation
Policy RD-4.3.4

Objective 14.2
Implement standards that minimize impacts on and/or restore air quality.

Action Policy

Policy 14.2 Include the following as part of the Comprehensive Site Development Standards:

a. Encourage maximized solar access, where feasible, and consistent with the maintenance of scenic values, in new subdivision designs to optimize energy efficiency;
b. Require all installations of solid fuel-burning devices comply with the current Federal EPA emission standards;
c. Require installation of masonry and zero-clearance fireplaces in new construction to comply with the current EPA Phase particulate emission limits;

Also See: Chapter 1: Land Use
Policy 1.17

Directive Policies

Policy 14.3 Where it is determined necessary to reduce short-term and long-term cumulative impact, the County shall require all new

discretionary projects to offset any pollutant increases. Wherever possible, such offsets shall benefit lower-income housing.

Policy 14.4 Encourage and cooperate with the Northern Sierra Air Quality Management District, or any successor agency, to:

a. Work with the County, local public utility districts, other public agencies and the private sector to encourage the development and implementation of educational and incentive programs to encourage energy conservation, house weatherization, solar energy use in new and existing buildings, and provide air quality monitoring and advisory programs (e.g. daily standard air pollution index data);
b. Develop a community biomass program in cooperation with the Nevada County Department of Sanitation and existing homeowner associations, and provide incentives for composting, mulching, grinding, cogeneration, feedstocks, and chipping in-lieu of outdoor burning;
c. Adopt control measures to reduce pollutant emissions from open burning;
d. Develop a program to regulate and control fugitive dust emissions from construction projects; and
e. Identify and establish visibility standards for air quality in the County.

Policy 14.5 Encourage and cooperate with the Northern Sierra Air Quality Management District, or any successor agency, to develop and implement a long term monitoring program to quantify air quality in the County. The County shall work with the District to identify areas for monitoring and to develop an implementation program to begin on-site monitoring upon project application where a proposal will result in an increase of more than 25 tons per year of non-attainment pollutants (or precursors). The County will also cooperate with the District in developing a monitoring program for carbon monoxide emissions at key intersections as a basis for consideration of short- to long-term air quality in the preparation of the County Road Improvement Program.

Policy 14.6 For new construction, the County shall prohibit the installation of non-EPA certified and non-EPA exempt solid fuel burning devices.

Policy 14.7 The County shall cooperate with all appropriate agencies and other regional transportation agencies that include surrounding counties to develop programs designed to maximize the participation of

employers in employer-operated van pool and/or ride sharing for employees, and mass transit service for both employees and customers.

Policy 14.7A The County shall, as part of its development review process, ensure that proposed discretionary developments address the requirements of NSAQMD Rule 226.

Policy 14.7B The County shall, as part of its Road Improvement Program, consider the benefits to air quality from the paving of unpaved roads.

Also see: Chapter 4: Circulation
Policy LU-4.1.4; Policy MV-4.2.1; Program RD-4.3.2

Objective 14.3
Identify regional impacts and coordinate with other agencies to achieve attainment.

Directive Policy

Policy 14.8 Consider adoption of Joint Powers Agreements or similar legal mechanisms with other counties located within Nevada County's regional sphere to comprehensively address regional air quality impacts as a result of development in each County.