## 4.2 AIR QUALITY

This section provides an analysis of the effects that the 2025 General Plan would have on local and regional air quality. It describes existing air quality conditions, the projected direct and indirect and construction-related emissions associated with implementation of the 2025 General Plan, the local and regional impacts of these emissions, and mitigation measures warranted to reduce or eliminate any identified significant impacts. The air quality analysis for this section was prepared by Illingworth and Rodkin.

### *A. Existing Setting*

This section describes the existing regulatory and physical environment with regard to air quality in Truckee.

#### 1. Regulatory Setting

Air quality in the Truckee area is subject to federal, State, and local regulations for regulated pollutants, and the guidance of associated regulatory bodies, as discussed below.

Air quality management responsibilities exist at the local, State, and federal levels of government. The Federal Clean Air Act (federal CAA) governs air quality in the United States. In addition to being subject to federal requirements, air quality in California is also governed by more stringent regulations under the California Clean Air Act (California CAA). At the federal level, the United States Environmental Protection Agency (US EPA) administers the federal CAA. The California CAA is administered by the California Air Resources Board (CARB) at the State level and by the Northern Sierra Air Quality Management Districts (NSAQMD) at the regional and local levels. [1]

Air quality management planning programs developed during the past decade have generally been in response to requirements established by the federal CAA. However, the enactment of the California CAA has produced addi-

tional changes in the structure and administration of air quality management programs in the State.

a. Federal Regulations

The US EPA is responsible for implementing the federal Clean Air Act, which passed in 1970 and was last amended in 1990 to form the basis for the national air pollution control effort. The federal CAA establishes National Ambient Air Quality Standards (NAAQS) for six "criteria" pollutants: carbon monoxide (CO), ozone ($O_3$), nitrogen dioxide ($NO_2$), particulates (since changed to inhalable particulate matter $PM_{10}$ and $PM_{2.5}$), sulfur dioxide ($SO_2$), and lead (Pb). These are considered the most prevalent air pollutants that are known to be hazardous to human health.

At the federal level, the US EPA requires states to attain and maintain compliance with the federal standards as mandated by the Clean Air Act. The EPA requires non-compliant states to prepare and submit air quality plans showing how the standards will be met. The EPA also has programs to prevent significant deterioration of air quality, and identify and regulate toxic air pollutants.

b. State Regulations

The California Clean Air Act was passed in 1988. The California Air Resources Board is responsible for ensuring the implementation of the California CAA, responding to the federal CAA, and for regulating emissions from motor vehicles and consumer products.

CARB sets air quality standards for the State at levels intended to protect public health and welfare with an adequate margin of safety. The California Ambient Air Quality Standards (CAAQS) are in many cases more stringent than the national standards. Air quality is considered in "attainment" if crite-

[1] The Placer County Air Pollution Control District administers the California and Federal CAA in Placer County.

ria pollutant levels are continuously below or equal to the standards, and exceed them no more than once a year.

The California CAA requires that air districts prepare an air quality monitoring plan if the District violates State air quality standards for ozone. No locally-prepared attainment plans are required for areas that violate the state $PM_{10}$ (coarse particulate matter) standard. The California CAA requires that the State air quality standards be met as expeditiously as practicable, but does not set precise attainment deadlines. Instead, the act establishes increasingly stringent requirements for areas that will require more time to achieve the standards.

The air quality attainment plan requirements established by the California CAA are based on the severity of air pollution problems caused by locally-generated emissions. Upwind air pollution control districts are also required to establish and implement emission control programs commensurate with the extent of pollutant transport to downwind districts.

c. Northern Sierra Air Quality Management District

The NSAQMD regulates air quality within the Town of Truckee and all of Nevada County. To protect public health, the NSAQMD has adopted plans to achieve ambient air quality standards. The NSAQMD must continuously monitor its progress in implementing attainment plans and must periodically report to the California Air Resources Board and the EPA. It must also periodically revise its attainment plans to reflect new conditions and requirements.

d. Local Regulations and Planning

The Town of Truckee has local regulations and planning in place to address air pollution. These programs are in addition to the programs and services provided by the NSAQMD. The Planning Division is responsible for the Town's air quality planning and implementing and enforcing the Town's air quality programs.

The Town's air quality efforts since incorporation have focused on particulate matter as the pollutant of greatest concern. The Town, with assistance from a citizen's advisory group, collaborated with the NSAQMD to develop the Particulate Matter Air Quality Management Plan, which was adopted in 1999. The primary goals of the plan were to assess the extent of PM pollution in Truckee; establish PM pollution attainment goals; identify short-term and long-term implementing measures and programs to reduce PM pollution; establish guidelines for monitoring the effectiveness of adopted control measures; and provide evidence and documentation to initiate cooperative efforts by regional agencies and Caltrans to address PM issues in the Truckee area.

The plan has led to the Town's adoption of measures to reduce the largest source of controllable PM emissions, which are open wood burning devices such as fireplaces and wood stoves. The latest measure adopted requires the removal of non-Town approved solid fuel burning devices by summer of 2007. Other recommended control strategies are focused on reducing emissions from construction activities, operations of large land use projects, open burning, road surfacing, wood burning, street sanding, and roadway sweeping. The Town intends to develop guidelines for sanding of Town-owned roadways during 2006 and 2007. Per Control Strategy #3 in the Plan, the Town also requires large projects to demonstrate that they would offset all of their projected contribution to PM pollution through on-site mitigation, or, if this is infeasible, requires payment of an impact fee.[2]

The Planning Division prepares annual particulate matter monitoring reports, with the latest being published in March 2006. The report, which is submitted to the Town Council, analyzes the air monitoring data including emissions and concentration data and compares them to ambient air quality standards. This allows the Town Council to assess adopted control strategies in achieving goals of the Truckee Particulate Matter Air Quality Management

[2] Duane Hall, Town Planner, Town of Truckee. Phone conversation with Ellen Clark, April 18, 2006.

Plan, and if necessary, take appropriate steps to ensure consistency with the plan's goals and objectives.[3]

The Town's Development Code also includes provisions for air emissions land use activities that might generate dust. These regulations, as described in Section 18.30.030, include requirements for preparation of a dust suppression plan for grading projects, restrictions on grading and earth moving activities during windy periods, application of dust control measures such as watering or hydroseeding, requirements for paving or revegetation of denuded areas. Odor-generating uses, as well as restriction on open burning of cleared vegetation are also addressed in Section 18.30.030. This section also seeks to reduce emissions from diesel-fueled construction equipment through restrictions on vehicle idling and maintaining vehicles in good condition.

**2. Air Pollutants and Ambient Air Quality Standards**

Federal and state air quality standards for important pollutants are summarized in Table 4.2-1. The table also summarizes some of the health and atmospheric effects of these pollutants and their major sources. The federal and State ambient standards were developed independently with differing purposes and methods, although both processes shared the goal of avoiding health related effects. As a result, the federal and State standards differ in some cases. In general, the State standards are more stringent, particularly for ozone and particulate matter ($PM_{2.5}$ and $PM_{10}$) pollutants.

The State of California regularly reviews scientific literature regarding the health effects of exposure to particulate matter and other pollutants. In 2003, CARB adopted new standards for particulate matter, lowering the level of the annual standard for $PM_{10}$ and establishing a new annual standard for $PM_{2.5}$ (particulate matter 2.5 micrometers in diameter and smaller). In 2005, CARB adopted an 8-hour standard for ground level ozone.

[3] Town of Truckee, 2005 Annual Report, Particulate Matter Air Quality, February 23, 2005, Page 2.

TABLE 4.2-1 **AMBIENT AIR QUALITY STANDARDS**

| Pollutant | Averaging Time | California Standard | Federal Primary Standard | Pollutant Health and Atmospheric Effects | Major Pollutant Sources |
|---|---|---|---|---|---|
| Ozone ($O_3$) | 1 hour | 0.09 ppm* | ---(1) | Irritation and possibly permanent lung damage. | Motor vehicles, including refining and gasoline delivery. |
| | 8 hours | 0.07 ppm | 0.08 ppm | | |
| Carbon Monoxide (CO) | 1 hour | 20 ppm | 35 ppm | Deprives body of oxygen in the blood. Causes headaches and worsens respiratory problems. | Primarily gasoline-powered internal combustion engines. |
| | 8 hours | 9.0 ppm | 9 ppm | | |
| Nitrogen Dioxide ($NO_2$) | Annual Arithmetic Average | --- | 0.053 ppm | Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. | Motor vehicles, petroleum-refining, power plants, aircraft, ships, and railroads. |
| | 1 hour | 0.25 ppm | --- | | |
| Sulfur Dioxide ($SO_2$) | Annual Arithmetic Average | --- | 0.03 ppm | Irritates and may permanently injure respiratory tract and lungs. Can damage plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight. | Fuel combustion, chemical plants, sulfur recovery plants, and metal processing. |
| | 1 hour | 0.25 ppm | --- | | |
| | 24 hours | 0.04 ppm | 0.14 ppm | | |
| Respirable Particulate Matter ($PM_{10}$) | 24 hours | 50 ug/$m^3$ ($PM_{10}$) | 150 ug/$m^3$ ($PM_{10}$) | May irritate eyes and respiratory tract; decrease lung capacity, cause cancer and increased mortality. Produces haze and limits visibility. | Industrial and agricultural operations, combustion, wood smoke, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays). |
| | Annual Arithmetic Mean | 20 ug/$m^3$ ($PM_{10}$) | 50 ug/$m^3$ ($PM_{10}$) | | |
| Fine Particulate Matter ($PM_{2.5}$) | 24 hour | -- | 65 ug/$m^3$ ($PM_{2.5}$) | | |
| | Annual Arithmetic Mean | 12 ug/$m^3$ ($PM_{2.5}$) | 15 ug/$m^3$ ($PM_{2.5}$) | | |
| Lead | 30 Day Average | 1.5 ug/$m^3$ | | Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction (in severe cases). | Present sources include: lead smelters, battery manufacturing and recycling facilities. Past sources include: combustion of leaded gasoline. |
| | Calendar Quarter | --- | 1.5 ug/$m^3$ | | |

* Note ppm = part per million; ug/$m^3$ = micrograms per cubic meter
(1) The national 1-hour ozone standard was revoked by the U.S. EPA on June 15, 2005.
Source California Air Resources Board, May 6, 2005

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated by the federal and State government despite the absence of criteria documents. The identification, regulation and monitoring of TACs is relatively recent compared to that for criteria pollutants. Unlike criteria pollutants, TACs are regulated on the basis of risk rather than specification of safe levels of contamination.

Additional information on carbon monoxide, ozone, and particulate matter, which are the three criteria pollutants of concern in Truckee, and on Toxic Air Contaminants, is provided below.

a. Carbon Monoxide

Carbon monoxide is a non-reactive pollutant that is highly toxic, invisible, and odorless. It is formed by the incomplete combustion of fuels. The largest sources of carbon monoxide emissions are motor vehicles, wood stoves, and fireplaces. Unlike ozone, carbon monoxide is directly emitted to the atmosphere. The highest carbon monoxide concentrations occur during the nighttime and early mornings in late fall and winter. Carbon monoxide levels are strongly influenced by meteorological factors such as wind speed and atmospheric stability.

b. Ozone

Ground-level ozone is the principal component of smog. Ozone is not directly emitted into the atmosphere, but instead forms through a photochemical reaction of organic gases and nitrogen oxides known as ozone precursors. Ozone levels are highest from late spring through autumn when precursor emissions are high and meteorological conditions are warm and stagnant (very low winds). Motor vehicles create the majority of reactive organic gas (ROG) and nitrogen oxide (NOX) emissions in the Truckee region. Diesel powered construction equipment can contribute emissions to the total of smog forming compounds. Ozone precursors generated in Truckee not only affect the Town, but may also be transported downwind, forming smog several hours later.

c. Inhalable Particulates

Particulate matter is the primary pollutant of concern in Truckee. Inhalable particulate or $PM^{10}$ (particulate matter 10 microns or less in diameter) and $PM^{2.5}$ (particulate matter 2.5 microns or less in diameter) refers to a wide variety of solid or liquid particles in the atmosphere. These include smoke, dust, aerosols, and metallic oxides. Some of these particulates are considered toxic. Although particulates are found naturally in the air, most particulate matter found in the region are emitted either directly or indirectly by motor vehicles, industry, construction, agricultural activities, and wind erosion of disturbed areas. Most $PM^{2.5}$is comprised of combustion products (i.e. soot). High levels of $PM^{10}$ and $PM^{2.5}$ can lead to adverse health effects, nuisance concerns, and reduced visibility.

d. Toxic Air Contaminants

There are about 180 recognized TACs regulated by state and federal law. Sources that affect Truckee and other communities include industry, motor vehicles, trains, and commercial operations. Other urban sources include dry cleaners and gasoline stations. These contaminants tend to be localized and are found in relatively low concentrations in ambient air. While typically found in low concentrations far below acute toxicity levels, chronic exposure to TACs can result in adverse health effects. Local, state, and federal agencies regulate emissions of TACs. Because of effective control at stationary sources over the last 15 years, diesel exhaust is the predominant TAC in urban air, representing about two-thirds of the population cancer burden attributed to this class of compounds. As noted above, TACs are regulated on the basis of risk rather than specification of safe levels of contamination.

### 3. Existing Air Quality Conditions

Air quality conditions and pollutant concentrations found in Truckee are a result of pollutant emissions and meteorological conditions. Air pollutant emissions generated in Truckee affect both residents of Truckee and those downwind. Likewise, emissions generated upwind are transported into the Town and can affect the town's residents. While short-term changes in air

pollutant concentrations are mainly affected by changes in meteorology, long-term trends are primarily affected by rates of emissions.

a. Climate and Topography

Truckee is one of pronounced summer and winter seasons. Summers are generally characterized by clear skies with warm daytime temperatures and cool nights. Cold temperatures and changeable weather characterize winters. Most precipitation occurs during the months of November through April in the form of snow.

Temperature ranges in Truckee experiences widely ranging temperatures through the course of a day and throughout the year. In summer, typical ranges are from about 35° to 40°F in the morning to above 80°F in the afternoons. Temperatures in winter can range from near 0°F in mornings to above 40° during the afternoon. Annually, mean temperatures (as measured at Truckee USFS Ranger Station) range from an average minimum of 15°F in January to an average maximum of 82°F in August. [4]

Truckee and the Martis Valley Region is in a mountain-type air basin. Mountainous terrain surrounding the region limits the mixing of air near the surface, and because of the high elevation, radiative cooling is considerable. Radiative cooling occurs when the ground cools faster than the air at night, causing the layer of air next to the ground in lower-lying valleys to be cooler; at high elevations where there is less moisture in the air to retain heat from the daytime, the ground cools the air faster. At nighttime, cold air sinks off of the mountains into the basin, further lowering the temperature. Thus, Truckee typically records the lowest temperature in the United States on several days during the year, mostly in late spring through summer.

The strong cooling results in pronounced surface-based temperature inversions, created when cold air is trapped below a stable mass of warm air. Of-

[4] Pacific Municipal Consultants *Old Greenwood Planned Development Draft Environmental Impact Report (SCH# 2001102077)*. February, 2002.

ten, temperatures in the mountains surrounding Truckee can be 20 to 30°F warmer during clear winter mornings. The temperature inversion prevents air from mixing vertically and usually results in relatively low surface winds speeds, thereby limiting horizontal mixing and trapping air pollutants.

These strong surface-based inversions (also called nocturnal inversion) occur during the late night and early morning hours of fall through spring. A second type of inversion occurs in the higher levels of the atmosphere, when sinking air from high-pressure systems compresses (warms) a layer of air aloft. This results in a subsidence inversion, a stable layer of warm air above relatively cooler air, which is common in California from spring through fall.

b. Current Air Quality Conditions

Pollution potential in Truckee is relatively high, primarily for $PM_{10}$ and $PM_{2.5}$. This is due to the combination of air pollutant emissions sources and to the tendency, described above, for strong surface-based temperature inversions to form, which exacerbates the air pollution problems. Elevated levels of particulate matter are of most concern to the Town and air quality officials.

In addition to $PM_{10}$, local carbon monoxide "hot spots" are important to a lesser extent. Ozone is a concern for all areas of California, including Truckee. Other criteria air pollutants such as CO, $NO_2$, $SO_2$, and lead are not considered a problem in the Truckee area, and therefore are not measured.

Air quality levels are measured in Truckee on a continuous basis at the central Truckee fire station. The station measures ozone, $PM_{10}$, and $PM_{2.5}$. Over the last five years, several different types of air samplers have been used to measure $PM_{10}$ and $PM_{2.5}$; problems with one of the $PM_{10}$ samplers have complicated the assessment of $PM_{10}$ trends over this period.

*i. Particulate Matter ($PM_{10}$ and $PM_{2.5}$)*

The NSAQMD and the Town of Truckee report air quality data.[5] The last 15 years of $PM_{10}$ data show some improvement when examining 24-hour and annual levels, specifically during the 2000 through 2003. However, $PM_{10}$ levels increased sharply in 2004 and 2005. The reasons for the increase are unclear and may partially have to do with the difference in samplers used to collect data. According to the Town's 2005 Annual Report, $PM_{10}$ data collected from late 1999 to late 2003 were not accurate, and therefore should be viewed with considerable caution. Available data do indicate that there were no measured exceedances of the NAAQS during the last five years. More recent $PM_{10}$ data indicate that the CAAQS was exceeded 48 days in 2004 and 32 days in 2005. $PM_{2.5}$ data has been sampled every three days since 1999 and the records appear accurate. There were no recorded exceedances of the $PM_{2.5}$ NAAQS.

The NSAQMD expects to see continued "poor" $PM_{10}$ air quality with some potential for a slowing or even a reversal of the current problem, with potential increases due to population growth being offset to some extent by local mitigation efforts. However, anticipated increases in prescribed burning of forest lands for fire suppression pose a serious threat to the air basin that is already overburdened with a variety of PM sources. Previous $PM_{10}$ and $PM_{2.5}$ exceedances of the ambient air quality standards appear to be generated locally by woodstoves, open burning, vehicle traffic induced dust entrainment, and windblown dust. The exception to this is the transport of smoke from wildfires and some effect of agricultural burning in the Sacramento Valley during late summer and fall days.

*ii. Ozone*

According to the NSAQMD, the last five years of data reveals no exceedances of the NAAQS and the CAAQS for ozone (1-hour or 8-hour standards). Wildfires in the area can result in elevated ozone levels since they create substantial emissions of hydrocarbons and oxides of nitrogen. These precursors,

[5] NSAQMD Annual Air Monitoring Report 2005, April 15, 2006

combined with high temperatures and extended periods of solar radiation, have the potential to form high ozone levels in areas that would not normally see such levels. The NSAQMD expects that ozone concentrations in Truckee will most likely remain as they have been for the last 9 years, with the possibility of an upward creep as continued growth in the County contributes to the emissions of local ozone precursor pollutants. There will likely be the rare exceedance of the NAAQS or CAAQS, most likely due to wildfire smoke incursions or transported pollutants from the Central Valley or Reno area.

c. Attainment Status

Nevada County currently exceeds CAAQS for ground-level ozone and $PM_{10}$. On occasion the region also exceeds the federal standard for ozone.

Under the federal CAA, the western part of Nevada County, which excludes Truckee, is designated as a "classified" non-attainment area for the previous 8-hour ozone standard. The remainder of the County, including Truckee, is considered in attainment (levels are below standards) or unclassified for all other pollutants regulated by the federal CAA. Unclassified means that there is not enough data available to suspect that the area is in nonattainment of the standard.

Under the California CAA, all of Nevada County is considered non-attainment for the 1-hour state ozone standard and nonattainment for the state $PM_{10}$ standard. The region is considered in attainment or unclassified for all other air pollutants. In Truckee, the ozone standard has not been exceeded recently, but other parts of the County have recorded exceedances. The relatively high ozone levels measured in the region are mostly the result of transport from urbanized upwind areas such the greater Sacramento region.

## *B. Standards of Significance*

The proposed project would have a significant impact with regard to air quality if it would:

- Conflict with or obstruct implementation of applicable air quality plans.
- 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.

## *C. Impact Discussion*

The following provides an analysis of the effects of the 2025 General Plan on local and regional air quality.

### 1. Consistency with Applicable Clean Air Planning Efforts

The 1999 Particulate Matter Air Quality Management Plan is the adopted clean air plan in Truckee. This plan identifies wood smoke from residences, reentrained dust from roadways, and construction activities as the primary sources of PM emissions. Other sources of PM are identified in the Plan, but their contribution is minor and would not be affected by the goals, policies and actions of the General Plan.

a. Wood Smoke

Under the Particulate Matter Air Quality Plan, the Town has required that all new residential construction use low PM-emitting wood burning devices and that all existing non-certified woodstoves and inserts be removed, inacti-

vated or retrofitted. As a result, PM emissions from this source are suspected to have decreased dramatically and will continues as the deadline for removing non-certified devices approaches in mid-2007. Although recent monitoring data indicate that $PM_{2.5}$ levels have decreased as a result of these efforts, $PM_{10}$ levels remain high, and an indication of an upward trend has recently developed.

New residential development that would occur with implementation of the 2025 General Plan would have a minimal effect on increases of $PM_{10}$ and $PM_{2.5}$ emissions from wood burning, since wood burning devices in new construction would be required to meet the Town's standards. 2025 General Plan Policy P13.1 would require all new development to maintain consistency with the goals, policies and control strategies of the Town's Particulate Matter Air Quality Management Plan. The impact from the proposed General Plan on wood smoke emissions would therefore be *less than significant*.

b. Re-entrained Roadway Dust

The increase in $PM_{10}$ over recent years is suspected to be the result of re-entrained roadway dust from increased vehicle travel. Roadways are sanded regularly throughout the winter, and this sand is thrown back into the air by moving vehicles, emitting a substantial source of PM into the atmosphere. Higher travel speeds tend to generate higher emissions, and I-80 is identified by the Town's plan as a major contributor to re-entrained dust emissions. Re-entrained roadway dust is comprised of coarse particulate matter, and is therefore not reflected in $PM_{2.5}$ measurements of fine particulates, which are comprised mostly of combustion exhaust.

The Town has identified the adoption of street sanding guidelines for local roads and cooperation with Caltrans to address re-entrained dust emissions from I-80, as its next major goal in implementing the strategies of the Particulate Matter Air Quality Management Plan. However, additional controls and regulations are necessary to reduce impacts from projected increased traffic growth on local streets.

Vehicle miles traveled (VMT) are anticipated to increase in the future. As noted in the Circulation Chapter, existing trip PM peak-hour trip generation are expected to increase by approximately 103 percent with buildout of land uses under the 2025 General Plan, to a total of 29,747 trips. VMT would be expected to increase in about the same proportion as total vehicle trips.

As noted in the Circulation analysis in Chapter 4.12 the 2025 General Plan would result in fewer trips (an estimated 693 fewer PM Peak Hour trips) than projected under the 1996 General Plan, which would reduce re-entrained PM emissions relative to the existing General Plan. However, the increases in vehicle trips under the 2025 General Plan would lead to increases in $PM_{10}$ emissions from re-entrained roadway dust. This increase is not expected to be directly proportional to the increase in trips or VMT, since the amount of re-entrained dust is in part a factor of the amount of sand used on roadway surfaces, which is related to the number of linear miles and/or width of roadways. Where new roadways or travel lanes would be constructed to accommodate growth in traffic, additional amounts of re-entrained road dust would be generated.

The 2025 General Plan includes numerous policies aimed at reducing either vehicle trips or VMT, which would reduce PM emissions from both vehicle exhaust and re-entrained dust. Conservation and Open Space Element Policy 14.3, and Land Use Element Policies P5.1, P5.2, and P5.3 would reduce vehicle trips or travel lengths, and therefore, re-entrained dust, by encouraging mixed land use patterns. Circulation Element Goal CIR-9 and related policies P9.1, P9.2 and P9.3 would also reduce vehicle trips through implementation of Transportation Control Measures (TCMs), promotion of mixed use and infill development, and encouraging use of public and private transit services. Conservation and Open Space Element Policy 14.4 would require review of development projects to determine the need for pedestrian/bicycle paths that connect to adjacent development and services, reducing automobile trips, and Policy P5.4 would encourage the incorporation of pedestrian and bicycle access in designs of new commercial sites. Policy P14.7 would promote the use of transit services within Truckee and between the Town and ski resorts or

other destinations in the area, which would reduce vehicle trips in the region. Land Use Element Policy P5.5 would support telecommuting and home-based offices that may lead to a decrease in vehicle use (both in number of trips and trip lengths). Circulation Element Policy P4.2 would require that transportation systems planned in new growth areas include opportunities for alternative means of transportation. Policies P10.1 through P10.12 under Goal CIR-10 would provide a safe, comprehensive, and integrated system of facilities for pedestrians and bicyclist, which would reduce the reliance on motor vehicles. Policies P11.1 through P11.6 under Goal CIR-11 would enhance existing bus and rail transit systems in Truckee, which would reduce vehicle trips both within and outside of the Town.

Policies under Goal COS-13 in the Conservation and Open Space Element directly address sources of particulate matter emissions in Truckee. Conservation and Open Space Element Policy P13.1 would require new development to be consistent with the Town's Particulate Matter Air Quality Management Plan. As noted above, this Plan includes a variety of control strategies for PM emissions, including a requirement for large projects that they contribute "no net increase" in PM emissions, either through on- site mitigation or through payment of a mitigation fee[6]. This requirement, which is currently applied on a project-by-project basis, and is a required finding of approval for such projects, would continue to be enforced by the Town under the 2025 General Plan.

Policy P13.2 would require that new developments pave new and existing roadways that serve the project and that pavement of existing roadways off-site would be done in a manner that offsets the emissions of the new development to a feasible extent.

The 2025 General Plan's policies include required compliance with the control strategies outlined in the Town's Particulate Matter Air Quality Man-

[6] Town of Truckee, *Particulate Matter Air Quality Management Plan*, Chapter 3. 1999.

agement Plan, which include requirements for project-specific mitigation of PM emissions among other programs. 2025 General Plan policies also identify a broad range of strategies to reduce vehicle trips, which would further diminish potential $PM_{10}$ emissions. Therefore, the impacts associated with the projected increase in PM emissions from new development in Truckee under the 2025 General Plan would be reduced to a *less-than-significant* level.

**2. Criteria Pollutant Increase**

a. Construction Activity $PM_{10}$ and Diesel Emissions

New development that would occur under the 2025 General Plan would involve construction activities that could contribute to emissions of air pollutants. Construction activities, including grading of projects sites, paving of new roadways and parking areas, and general construction generate air pollutant emissions. The most substantial air pollutant would be dust, of which $PM_{10}$ is a component. Wind erosion and disturbance to exposed areas would also be sources of dust emissions. When uncontrolled, construction emissions lead to significant health and nuisance impacts. Exhaust from construction vehicles would also contribute emissions, including diesel particulate matter ($PM_{2.5)}$ and NOx, an ozone precursor.

Construction on sites of 1 acre or larger are subject to NSAQMD Regulation II, Rule 226: Dust Control. Policy P13.3 of the Conservation and Open Space Element would require that all construction projects involving grading implement dust control measures. These measures, which are consistent with the NSAQMD guidelines, are defined in Chapter 18.30.030 of the Truckee Development Code.

As with all construction projects, exhaust from the machinery and equipment used includes substantial amounts of NOx and diesel particulate matter (also PM). The majority of these emissions occur during the relatively short grading period when heavy-duty construction equipment is used. Significance

thresholds are recommended by the NSAQMD for land use projects[7]. The NSAQMD guidance recommends a list of construction mitigation measures that should be applied to individual projects, depending on their impact.

As noted above, the Town's Development Code includes a series of requirements for all new construction that would require grading. The requirements, which are consistent with NSAQMD guidelines for mitigation of construction-related emissions, address dust generation from construction activities, as well as exhaust emissions from construction vehicles and equipment. In addition, it is expected that future PM components from exhaust emissions will decrease as State and federal mandated regulations for environmental performance of vehicle engines take effect.

With implementation of the 2025 General Plan's Goals and Policies, along with existing Development Code regulations concerning construction-related dust and exhaust, impacts from construction-related emissions would be *less than significant*.

b. Carbon Monoxide Concentrations

Carbon monoxide (CO) is the pollutant of primary concern for localized air quality impacts from traffic. Violations of an ambient CO air quality standard (either 1-hour or 8-hour) would be considered a significant adverse impact. Elevated CO concentrations are usually associated with roadways that are congested with heavy traffic volumes. A CO "hotspot" is an area that could exceed air quality standards from vehicle emissions under congested traffic conditions. Air pollutant monitoring data are not collected in Truckee, but other data from the region (i.e., from Lake Tahoe) indicate low background levels.

The CALINE-4 line-source dispersion model, along with emission factors produced by the EMFAC2002 model, were used to predict carbon monoxide

[7] Letter from the North Sierra Air Quality Management District (Gretchen Bennitt, APCO) transmitting comments on the NOP for the Truckee 2025 General Plan Update DEIR, dated April 13, 2004.

concentrations at the most congested intersections in Truckee for existing and future conditions. In accordance with NSAQMD guidelines, these include signalized intersections with high traffic volumes that operate at a level of service (LOS) of D or worse. The model uses worst-case meteorological conditions (i.e., temperature of 20°F, wind speed of 1 mile per hour, G stability - very stable and a worst wind angle search) to predict one-hour levels. These were adjusted to 8-hour levels and added to background concentrations. Predicted concentrations are compared to the State ambient air quality standards.

Carbon monoxide concentrations were predicted for existing conditions, as well as for future conditions under the existing 1996 General Plan and the 2025 General Plan. As shown in Table 4.2-2, carbon monoxide concentrations are projected to be below CAAQS of 9.0 parts per million in all scenarios. As shown in the Table, future concentrations are actually anticipated to decrease substantially, despite projected increases in traffic levels. This is due to the substantial reductions in tailpipe emissions that are anticipated with replacement and modernization of the vehicle fleet with newer and less polluting vehicles. As a result, sensitive receptors would not be significantly impacted by carbon monoxide concentrations, and the impact on local air quality resulting from the project would be *less than significant*.

TABLE 4.2-2 **PROJECTED 8-HOUR CARBON MONOXIDE LEVELS**

| | Carbon Monoxide Concentration | | |
|---|---|---|---|
| Intersection | Existing (2004) | 1996 General Plan (2025) | 2025 General Plan (2025) |
| SR 89/Donner Pass Road | 7.7 ppm | 2.2 ppm | 2.2 ppm |
| SR 267/ Brockway Road | 5.2 ppm | 2.7 ppm | 2.6 ppm |

Note: California ambient air quality standard for 8-hour carbon monoxide levels is 9.0 ppm. Modeled levels are added to a background concentration of 1.5 ppm.
Source: Illingworth & Rodkin. April 2006.

### 3. Air Quality Standard Violations

As stated above, Nevada County currently exceeds CAAQS for ground level ozone and $PM_{10}$. $PM_{10}$ is discussed in detail above; this section discussed potential ozone impacts.

Growth under the 2025 General Plan could increase emissions of ozone precursor pollutants. Currently, ozone levels are at or just below the CAAQS. However, the entire County is designated nonattainment by CARB. As noted above, VMT is expected to increase with build out of the 2025 General Plan's land uses. In tandem with increases in VMT, there would be a potential increase in ozone precursor emissions, since motor vehicles are the largest source of ROG and NOx in Truckee. Emission rates from vehicles are anticipated to decrease at a greater rate than the increase in VMT that would be expected under the 2025 General Plan due to integration of cleaner vehicles into the overall vehicle fleet in the future. However, large projects could temporarily increase emissions at greater rates if they do not include some level of mitigation, which would be a potentially significant impact.

As noted above, the 2025 General Plan includes many policies addressing reduction of VMT, and mitigation of other pollutants. In addition, Policy

P14.9 under Goal COS-14 requires that projects with the potential to generate substantial quantities of ozone precursors be required to analyze those emissions in accordance with NSAQMD guidelines and to apply mitigations as appropriate to minimize those emissions. Therefore, the potential impact to regional air quality would be *less than significant*.

**4. Exposure of Sensitive Receptors to Toxic Air Contaminants**

The 2025 General Plan could increase exposure of sensitive receptors to toxic air contaminants (TACs). Diesel trucks traveling on I-80 and diesel train engines operating on the UPRR rail line through Truckee are both major sources of TACs.

As noted above, vehicles of I-80 and the trains on the Union Pacific railroad line are mobile sources of TACs associated with diesel particulate matter emissions. There are no major stationary sources of air pollution or toxic air contaminants in Truckee.

Large trucks are the primary source of diesel PM from freeways. According to recent Caltrans traffic counts[8], an average of about 5,500 trucks a day pass through Truckee on I-80 on a daily basis, and over 75 percent of these are considered heavy-duty trucks, which mostly use diesel fuel. The CARB recommends a setback of 500 feet between new residences and major freeways to avoid significant chronic exposure to traffic exhaust, primarily diesel PM. [9] Under the 2025 General Plan, new residential development could occur in proximity to I-80; residences located within 500 feet of I-80 could be exposed to a significant health risk from long-term diesel PM emissions. California air districts consider a significant health risk to be the risk of contracting cancer that is equal or greater than ten in one million chances. The CARB recommendations are meant to be conservative, and therefore, site-specific analysis

[8] Caltrans. 2004 Annual Average Daily Truck Traffic on the California State highway System. August 2005.

[9] California Air Resources Board. Air Quality and land Use Handbook: a Community Health Perspective. April 2005.

may find lower (insignificant) risk at locations closer than 500 feet to the freeway.

Diesel trains are the other major mobile source of diesel PM in Truckee, associated with rail traffic on the UPRR rail line through the town. Compared to freeway truck traffic, the intermittent and relatively infrequent passage of trains through Truckee generates considerably less diesel emissions. Major service or maintenance activities at rail yards can also be a problematic source of emissions. However, the Truckee Railyard only lightly used by UPRR and would not meet the definition of a major facility. While CARB does not make recommendations for buffers between railroad lines and residences, it does recommend that new residences be sited more at least 1,000 feet away from major service or maintenance rail yards. The railyard activities in downtown Truckee are not major, and therefore, much smaller buffers would likely suffice.

Although implementation of the 2025 General Plan could result in an increased exposure of sensitive receptors to pollutants from rail-related diesel emissions, the 2025 General Plan includes a policy specifically to address this concern. Policy P14.8 under Goal COS-14 would require development proposals that would site sensitive uses, such as residences, within 500 feet of I-80 or the railroad to prepare a health risk assessment for exposure to TACs, and to provide appropriate project mitigations when such exposure was found to be problematic. With this policy in place, the potential impact from TAC exposure would be *less than significant*.

**5. Exposure of Sensitive Receptors to Odors**

The 2025 General Plan could expose additional people to objectionable odors by allowing new residential development to occur in proximity to sources of odors, which in Truckee include the Tahoe-Truckee Sanitation Agency (TTSA) wastewater treatment facilities in southeast Truckee

TTSA operates a wastewater treatment facility near Joerger Drive in the eastern part of Truckee. A few rural residences already exist between a quarter

and half mile of the facility, and the 2025 General Plan's land use designations would allow for new residences to be built at about the same distance, at which odors from the facility may be detectable. TTSA does have a system for receiving and responding to odor complaints, so that actions can be taken to address episodic odor events.

In addition, the 2025 General Plan provides for the avoidance of odor-related land use conflicts through Policy P14.1 and P14.2 of the Conservation and Open Space Element, which call for minimization of problematic odor sources, and prohibit siting of sensitive uses in the vicinity of odor-generating uses. The proposed General Plan does not identify any specific new land uses that are anticipated to be a substantial source of odors that could affect the public. Although the 2025 General Plan notes that TTSA may expand its existing wastewater treatment facility in the future to serve anticipated population growth within its service district, Land Use Element Policy 4.2 would require coordination of this expansion with the Town to minimize environmental impacts of the expansion, including generation of odors. With these policies, the impact of odors from new residential development under the 2025 General Plan would be *less than significant*

### *D. Cumulative Impact Discussion*

Development in Truckee under the 2025 General Plan along with growth in the region outside of Truckee would lead to increases in PM and ozone precursor emissions. The 2025 General Plan includes goals, policies, and actions to reduce this impact. Implementation of the Town s Particulate Matter Air Quality Management Plan control strategies would further reduce PM emissions. Application of the NSAQMD's CEQA guidelines for indirect sources would also result in mitigation that would reduce these impacts. However, emissions of PM from existing and cumulative future development are likely to continue to cause exceedances of the State $PM_{10}$ standard.

The region experiences ozone levels that are at or just below the State 1-hour standard. As discussed previously, the majority of sources that lead to elevated ozone levels are likely due to transport from other regions. However, increased local emissions could cause current levels to go higher and exceed the State standards. Ozone levels in excess of the State standards would be considered unhealthy. There are substantial efforts at the federal, State, and regional level that will reduce emissions of ozone precursor pollutants. The proposed 2025 General Plan includes numerous policies that would reduce vehicle travel and thus emissions of ozone precursor pollutants. Large development projects would have to be assessed to address their potential impacts to regional ozone levels.

Implementation of the 2025 General Plan would lead to development generating increased emissions that affect both $PM_{10}$ and ozone levels. Impacts related directly to implementation of the 2025 General Plan would be less than significant. However, a portion of the impact is from development and traffic generated outside of the Town. Since there are no feasible or reasonable measures to mitigate this impact, the cumulative impacts on air quality associated with both $PM_{10}$ and Ozone would be *significant and unavoidable*.

### *E. Impacts and Mitigation Measures*

Since there would be *less-than-significant* project-specific impacts from implementation of the 2025 General Plan, no mitigation measures are necessary.