This section examines the air quality in the Planning Area and region, includes a summary of applicable air quality regulations, and analyzes potential air quality impacts associated with the proposed General Plan Update.

4.6.1 EXISTING SETTING

AIR BASIN CHARACTERISTICS

Sacramento Valley Air Basin

The California Air Resources Board (CARB) divides the state into air basins that share similar meteorological and topographical features. The City of Chico is located in the 11-county Sacramento Valley Air Basin (SVAB), which includes all of Sacramento, Yolo, Yuba, Sutter, Colusa, Glenn, Butte, Tehama, and Shasta counties and parts of Solano and Placer counties. The SVAB climate is characterized by hot, dry summers and cool, wet winters. Chico's annual average temperature is 61 degrees Fahrenheit, with summer highs usually in the 90s and winter lows usually in the 30s. Rainfall in Chico averages about 26 inches per year, with about 55 percent of rainfall occurring in winter and 2 percent during the summer (WRCC, 2009). Prevailing winds are moderate in strength and vary from dry land flows from the north to moist ocean breezes from the south. The mountains surrounding the SVAB create a barrier to airflow which, under certain meteorological conditions, trap pollutants in the valley.

AMBIENT AIR QUALITY STANDARDS

Both the U.S. Environmental Protection Agency (USEPA) and CARB established ambient air quality standards for common air pollutants. These ambient air quality standards are levels of contaminants that represent safe levels which avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called "criteria" pollutants because the health and other effects of each pollutant are described in criteria documents. The federal and California ambient air quality standards for important pollutants are summarized in **Table 4.6-1**. The federal and state ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, federal and state standards differ in some cases. In general, California standards are more stringent. This is particularly true for nitrogen dioxide (NO_2) and coarse particulate matter (PM_{10}).

On January 6, 2010, EPA announced that they are reconsidering the ozone standards set in 2008. EPA is proposing to strengthen the 2008 ozone 8-hour standards from 0.075 ppm down to a level within the range of 0.060-0.070 ppm, and establish a seasonal "secondary" standard with the range of 7-15 ppm-hour to protect sensitive vegetation and ecosystems, including forests, parks, wildlife refuges and wilderness areas. The scheduled deadline for ARB to submit the new nonattainment recommendations to EPA will be in January 2011. EPA plans to publish the final area designations in July 2011 and the new SIP would then be due to EPA in December 2013.

TABLE 4.6-1
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone (O_3)	1-Hour 8-Hour	– 0.075 ppm	0.09 ppm 0.07 ppm
Coarse Particulate Matter (PM_{10})	24-Hour Annual Average	150 $\mu g/m^3$ –	50 $\mu g/m^3$ 20 $\mu g/m^3$
Fine Particulate Matter ($PM_{2.5}$)	24-Hour Annual Average	35 $\mu g/m^3$ 15 $\mu g/m^3$	– 12 $\mu g/m^3$
Carbon Monoxide (CO)	1-Hour 8-Hour	35 ppm 9.0 ppm	20 ppm 9.0 ppm
Nitrogen Dioxide (NO_2)	1-Hour Annual Average	– 0.053 ppm	0.18 ppm 0.03 ppm
Sulfur Dioxide (SO_2)	1-Hour 24-Hour Annual Average	– 0.14 ppm 0.03 ppm	0.25 ppm 0.04 ppm --

Notes: ppm = parts per million, $\mu g/m^3$ = micrograms per cubic meter
Source: CARB, 2009a

AMBIENT AIR QUALITY

CARB maintains several air quality monitoring sites in the SVAB, including a site in Chico on Manzanita Avenue. **Table 4.6-2** shows historical occurrences of pollutant levels exceeding state and federal ambient air quality standards for the three-year period of 2006 through 2008. The number of days that each standard was exceeded is shown. For example, the monitoring site at Manzanita Avenue measured 37 days of 2008 in which California PM_{10} emission standards were exceeded.

TABLE 4.6-2
AMBIENT AIR QUALITY MONITORING DATA FOR CHICO (MANZANITA AVENUE)

Pollutant Standards	2006	2007	2008
Ozone			
Max 1-hour concentration (ppm)	0.090	0.094	0.111
Max 8-hour concentration (ppm) (federal/state)	0.080/0.080	0.084/0.084	0.096/0.097
Number of days standard exceeded			
State 1-hour standard	0	0	2
Federal 8-hour standard	4	3	6
State 8-hour standard	19	10	14
Coarse Particulate Matter (PM_{10})			
Max 24-hour concentration ($\mu g/m^3$) (federal/state)	76.0/81.0	61.9/66.1	143.5/140.8

Pollutant Standards	2006	2007	2008
Annual average concentration ($\mu g/m^3$)	26.8	21.7	27.6
Number of days standard exceeded			
Federal 24-hour standard	0	0	0
State 24-hour standard	41.0	12.1	37.0
Fine Particulate Matter ($PM_{2.5}$)			
Max 24-hour concentration ($\mu g/m^3$) (federal/state)	67.0/76.1	53.9/83.7	107.6/190.9
Annual average concentration ($\mu g/m^3$) (federal/state)	13.1/14.6	10.6/14.3	16.4/18.1
Number of days standard exceeded			
Federal 24-hour standard	28.8	24.3	36.5

Pollutant Standards	2006	2007	2008
Carbon Monoxide (CO)			
Max 8-hour concentration (ppm)	2.70	2.16	2.74
Number of days standard exceeded			
Federal 8-hour standard	0	0	0
State 8-hour standard	0	0	0
Nitrogen Dioxide (NO_2)			
Max 1-Hour concentration (ppm)	0.048	0.046	0.048
Annual Concentration (ppm)	0.009	0.010	0.009
Number of days standard exceeded			
State 1-hour standard	0	0	0
Sulfur Dioxide (SO_2) - no data			

Source: CARB, 2009a

AMBIENT AIR QUALITY ATTAINMENT STATUS

Table 4.6-3 shows the federal and state attainment status for the SVAB. The region is nonattainment for federal ozone and $PM_{2.5}$ standards, and nonattainment for state ozone and PM_{10} and $PM_{2.5}$ standards.

Areas with air quality that exceed adopted air quality standards are designated as "nonattainment" areas for the relevant air pollutants. Nonattainment areas are sometimes further classified by degree (marginal, moderate, serious, severe, and extreme for ozone, and moderate and serious for carbon monoxide and PM_{10}) or status ("nonattainment-transitional"). Areas that comply with air quality standards are designated as "attainment" areas for the relevant air pollutants. "Unclassified" areas are those with insufficient air quality monitoring data to support a designation of attainment or nonattainment, but are generally presumed to comply with the ambient air quality standard. State Implementation Plans must be prepared by States for areas designated as federal nonattainment areas to demonstrate how the area will come into attainment of the exceeded federal ambient air quality standard.

As detailed in the Regulatory Framework discussion below, both the California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (EPA) have established air pollution standards in an effort to protect human health and welfare. Geographic areas are designated attainment if these standards are met and nonattainment if they are not met. In addition, each agency has several levels of classifications based on severity of the problem. For example, the SVAB is classified moderate nonattainment area for 1-hour ozone, as summarized in **Table 4.6-3**.

TABLE 4.6-3
FEDERAL AND STATE AMBIENT AIR QUALITY ATTAINMENT STATUS
FOR SACRAMENTO VALLEY AIR BASIN

Pollutant	Federal	State
1-hour Ozone (O_3)	–	Moderate Nonattainment
8-hour Ozone (O_3)	Nonattainment	Nonattainment
Coarse Particulate Matter (PM_{10})	Unclassified	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment	Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment

Source: BCAQMD, 2009; CARB, 2010

AIR POLLUTANTS OF CONCERN AND HEALTH EFFECTS

The most problematic pollutants in the Chico area include ozone and particulate matter. The health effects and major sources of these pollutants, as well as other key pollutants, are described below. Toxic air contaminants are a separate class of pollutants and are discussed later in this section.

Ozone

Ground-level ozone (O_3), commonly referred to as smog, is greatest on warm, windless, sunny days. O_3 is not emitted directly into the air, but is formed through a complex series of chemical reactions between reactive organic gases (ROG) and nitrogen oxides (NO_X). These reactions occur over time in the presence of sunlight. O_3 formation can occur in a matter of hours under ideal conditions. The time required for O_3 formation allows the reacting compounds to spread over a large area, producing a regional pollution concern. Once formed, O_3 can remain in the atmosphere for one or two days.

O_3 is also a public health concern because it is a respiratory irritant that increases susceptibility to respiratory infections and diseases, and because it can harm lung tissue at high concentrations. In addition, O_3 can cause substantial damage to leaf tissues of crops and natural vegetation and can damage many natural and manmade materials by acting as a chemical oxidizing agent. The principal sources of the O_3 precursors (ROG and NO_X) are the combustion of fuels and the evaporation of solvents, paints, and fuels.

Particulate Matter

Particulate matter (PM) can be divided into several size fractions. Coarse particles (PM_{10}) are between 2.5 and 10 microns in diameter and arise primarily from natural processes, such as wind-blown dust or soil. Fine particles ($PM_{2.5}$) are less than 2.5 microns in diameter and are produced mostly from combustion or burning activities. Fuel burned in cars and trucks, power plants, factories, fireplaces, and wood stoves produces fine particles.

The level of $PM_{2.5}$ in the air is a public health concern because it can bypass the body's natural filtration system more easily than larger particles and can lodge deep in the lungs. The health effects vary depending on a variety of factors, including the type and size of particles. Research

has demonstrated a correlation between high PM concentrations and increased mortality rates. Elevated PM concentrations can also aggravate chronic respiratory illnesses such as bronchitis and asthma.

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless gas that is formed by the incomplete combustion of fuels. Motor vehicle emissions are the dominant source of CO in the SVAB. At high concentrations, CO reduces the oxygen-carrying capacity of the blood and can cause dizziness, headaches, unconsciousness, and even death. CO can also aggravate cardiovascular disease. Relatively low concentrations of CO can significantly affect the amount of oxygen in the bloodstream because CO binds to hemoglobin 220 to 245 times more strongly than oxygen.

CO emissions and ambient concentrations have decreased significantly in recent years. These improvements are due largely to the introduction of cleaner burning motor vehicles and motor vehicle fuels. CO is still a pollutant that must be closely monitored, however, due to its severe effect on human health.

Elevated CO concentrations are usually localized and are often the result of a combination of high traffic volumes and traffic congestion. Elevated CO levels develop primarily during winter periods of light winds or calm conditions combined with the formation of ground-level temperature inversions. Wintertime CO concentrations are higher because of reduced dispersion of vehicle emissions and because CO emission rates from motor vehicles increase as temperature decreases.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Construction devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X. Because NO_2 is formed and depleted by reactions associated with O_3, the NO_2 concentration in a particular geographic area may not be representative of the local NO_X emission sources.

Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of adverse health effects depends primarily on the concentration inhaled rather than the duration of the exposure. Exposure can result in a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation. Symptoms that are more significant may include chemical pneumonitis or pulmonary edema with breathing abnormalities, cyanosis, chest pain, and rapid heartbeat.

Sulfur Dioxide

Sulfur dioxide (SO_2) is produced by such stationary sources as coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with exposure to SO_2 pertain to the upper respiratory tract. SO_2 is a respiratory irritant, with constriction of the bronchioles occurring with inhalation of SO_2 at 5 ppm or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Similar to NO_2, the severity of adverse health effects depends primarily on the concentration inhaled rather than

the duration of the exposure. Exposure to high concentrations of SO_2 may result in edema of the lungs or glottis and respiratory paralysis.

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death. **Table 4.6-4** displays potential sources of TAC emissions for various land uses. According to CARB records, 238 facilities were located in Chico in 2007 that were potential sources of TAC emissions (CARB, 2009a).

TABLE 4.6-4
TOXIC AIR EMISSION BY LAND USE

Land Use	Toxic Air Emission
Auto Body Shop	Benzene, Toluene, Xylene
Auto Machine Shop	Asbestos
Chemical Manufacturing	Ethylene, Dichloride, Asbestos
Dry Cleaner	Perchloroethylene (phased out in 2011)
Electrical Manufacturing	Polychlorinated Biphenyls (PCBs), Cadmium, Chromium, Nickel
Funeral Home	Formaldehyde
Gasoline Station	Benzene
Hospital	Dioxin, Cadmium, Ethylene Oxide
Medical Equipment Sterilization	Ethylene Oxide
Printing Services	Ethyl Benzene, Ethylene Glycol, Xylene
Wastewater Treatment	Benzene, Carbon Tetrachloride, Ethylene Dichloride, Chloroform

Source: EDCAPCD, 2002

Diesel Exhaust

Diesel exhaust is a TAC of growing concern in California. According to the California Almanac of Emissions and Air Quality (CARB, 2009b), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being PM from diesel-fueled engines (diesel PM). In 1998, CARB identified diesel PM as a TAC. Diesel PM differs from other TACs in that it is not a single substance but rather a complex mixture of hundreds of substances.

The exhaust from diesel engines contains hundreds of different gaseous and particulate components, many of which are toxic. Many of these compounds adhere to the particles, and because diesel particles are so small, they penetrate deep into the lungs. Diesel engine particulate has been identified as a human carcinogen. Mobile sources, such as trucks, buses, automobiles, trains, ships, and farm equipment, are by far the largest source of diesel emissions. Studies show that diesel particulate matter concentrations are much higher near heavily traveled highways and intersections.

Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. No ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM exposure method. This method uses CARB's emissions inventory PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene pose the greatest existing ambient risk, for which data are available, in California. However, diesel PM poses the greatest health risk among the ten TACs mentioned. Based on receptor modeling techniques, CARB estimated its health risk to be 360 excess cancer cases per million people in the SVAB. Since 1990, the health risk from diesel PMs has been reduced by 52 percent. Overall, levels of most TACs have decreased since 1990 except for para-dichlorobenzene and formaldehyde (CARB, 2009b).

In 1998, after a 10-year scientific assessment process, CARB identified particulate matter from diesel-fueled engines as a toxic air contaminant (TAC). Unlike criteria pollutants like carbon monoxide, TACs do not have ambient air quality standards. Since no safe levels of TACs can be determined, there are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. Two types of risk are usually assessed: chronic non-cancer risk and acute non-cancer risk. Diesel particulate has been identified as a carcinogenic material but is not considered to have acute non-cancer risks. The State has begun a program of identifying and reducing risks associated with particulate matter emissions from diesel-fueled vehicles. The plan consists of new regulatory standards for all new on-road, off-road, and stationary diesel-fueled engines and vehicles, new retrofit requirements for existing on-road, off-road, and stationary diesel-fueled engines and vehicles, and new diesel fuel regulations to reduce the sulfur content of diesel fuel as required by advanced diesel emission control systems. Land uses where individuals could be exposed to high levels of diesel exhaust include:

- Railroad operations
- Warehouses
- Schools with a high volume of bus traffic
- High volume highways
- High volume arterials and local roadways with a high level of diesel traffic

Wood Smoke

Wood smoke has long been identified as a significant source of pollutants in urban and suburban areas. Wood smoke contributes to particulate matter and CO concentrations, reduces visibility, and contains numerous TACs. Present controls on this source include the adoption of emission standards for wood stoves and fireplace inserts. Interest in wood smoke is likely to increase with the recent adoption of a $PM_{2.5}$ national standard.

Asbestos

Asbestos is the common name for a group of naturally-occurring fibrous silicate minerals that can separate into thin but strong and durable fibers. Naturally-occurring asbestos (NOA), which was identified as a TAC in 1986 by CARB, is located in many parts of California and is commonly associated with ultamafic rock. Chico is not located near any areas that are likely to contain ultramafic rock. For a complete discussion on asbestos and associated risks, the reader is referred to the discussion in Section 4.4, Human Health/Risk of Upset.

Pesticides

Most pesticides are designed to harm or kill pests, and because some pests have systems similar to the human system, some pesticides also can harm or kill humans (USEPA, 2009a). The hazards associated with pesticides depend on the toxicity of the pesticide and the exposure a human may receive in any situation.

The effects, or symptoms, of pesticide poisoning can be defined as either topical or systemic. Topical effects generally develop at the site of pesticide contact and are a result of either the pesticide's irritant properties or an allergic response by the victim. Dermatitis, or inflammation of the skin, is the most commonly reported topical effect associated with pesticide exposure. Symptoms of dermatitis range from reddening of the skin to rashes and/or blisters. Other symptoms include coughing, wheezing and sneezing when exposed to pesticide sprays (Penn State, 2007).

Systemic effects often occur away from the original point of contact as a result of the pesticide being absorbed into and distributed throughout the body. Systemic effects often include nausea, vomiting, fatigue, headache, and intestinal disorders. In advanced poisoning cases, the individual may experience changes in heart rate, difficulty breathing, convulsions, and coma, which could lead to death (Penn State, 2007).

Common locations for pesticide use are agricultural land uses, where they are often used to prevent insect damage to crops. Because of this, the proximity of sensitive receptors to agricultural land uses could expose people to the hazards listed above.

Odors

Typically odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same

sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

Sensitive Receptors and Pollution Sources

Sensitive receptors are facilities where sensitive receptor population groups (children, the elderly, the acutely ill, and the chronically ill) are likely to be located. These land uses include schools, retirement homes, convalescent homes, hospitals, and medical clinics.

4.6.2 REGULATORY FRAMEWORK

Air quality in the SVAB is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy making, education, and a variety of programs. The agencies primarily responsible for improving the air quality in the City of Chico are discussed below along with their individual responsibilities.

FEDERAL

U.S. Environmental Protection Agency

The USEPA is responsible for enforcing the federal Clean Air Act and the 1990 amendments to it, as well as the national ambient air quality standards (federal standards) that the USEPA establishes. These standards identify levels of air quality for six criteria pollutants, which are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The six criteria pollutants include O_3, CO, NO_2, SO_2, PM_{10}, and lead. The USEPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf) and sources that are under the exclusive authority of the federal government, such as aircraft, locomotives, and interstate trucking.

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment 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 nonattainment areas, using a combination of performance standards and market-based programs.

STATE

California Air Resources Board

CARB, a department of the California Environmental Protection Agency, oversees air quality planning and control throughout California. It is primarily responsible for ensuring implementation of the 1989 amendments to the California Clean Air Act (CCAA), responding to the federal CAAA requirements, and regulating emissions from motor vehicles and consumer products within the state. CARB has established emission standards for vehicles sold in California and for various types of equipment available commercially. It also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish ambient air quality standards for the state (state standards) and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same six criteria pollutants as the federal CAA and also include sulfate, visibility, hydrogen sulfide, and vinyl chloride. They are more stringent than the federal standards and, in the case of PM_{10} and NO_2, far more stringent.

Tanner Air Toxics Act

California regulates TACs primarily through the Tanner Air Toxics Act (Tanner Act) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate best available control technology (BACT) to minimize emissions.

Assembly Bill (AB) 2588 requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures. CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators).

Air Quality and Land Use Handbook

As part of its Community Health Program, CARB developed an Air Quality and Land Use Handbook, which serves as a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. CARB is also developing related information and technical evaluation tools for addressing cumulative air pollution impacts in a community. Any recommendations or considerations contained in the handbook are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts.

The primary goal in developing this document was to provide information that will help keep California's children and other vulnerable populations out of harm's way with respect to nearby sources of air pollution. Recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high-traffic roadways. Other

studies have shown that diesel exhaust and other cancer-causing chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California.

The handbook identifies CARB's recommendations regarding the siting of new sensitive land uses near freeways, distribution centers, rail yards, ports, refineries, chrome plating facilities, dry cleaners, and gasoline dispensing facilities. This list consists of the air pollution sources that have been evaluated from the standpoint of the proximity issue. **Table 4.6-5** summarizes CARB's recommendations.

TABLE 4.6-5
RECOMMENDATIONS ON SITING NEW SENSITIVE LAND USES NEAR AIR POLLUTANT SOURCES

Source Category	Advisory Recommendations
Freeways and High-Traffic Roads	Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day.
Distribution Centers	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week).
	Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard.
	Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or CARB on the status of pending analyses of health risks.
Refineries	Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district.
	Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50-foot separation is recommended for typical gas dispensing facilities.

Note: Recommendations are advisory, are not site-specific, and may not fully account for future reductions in emissions, including those resulting from compliance with existing/future regulatory requirements, such as reductions in diesel-exhaust emissions anticipated to occur with continued implementation of CARB's Diesel Risk Reduction Plan.

Source: CARB, 2005

Senate Bill 656

In 2003, the California Legislature enacted Senate Bill 656 to reduce public exposure to PM_{10} and $PM_{2.5}$. CARB approved a list of the most readily available, feasible, and cost-effective control measures that can be employed by air districts to reduce PM_{10} and $PM_{2.5}$ (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. In 2005, air districts adopted

implementation schedules for selected measures from the list. The implementation schedules 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 prioritized measures based on the nature and severity of the PM problem in their area and cost-effectiveness. Consideration was also given to ongoing programs such as measures being adopted to meet national air quality standards or the state ozone planning process.

LOCAL

Butte County Air Quality Management District

In Butte County, the air quality regulating authority is the Butte County Air Quality Management District (BCAQMD). BCAQMD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs, and it regulates agricultural burning. Other responsibilities include monitoring air quality, preparing clean air plans, and responding to citizen complaints concerning air quality.

All projects in Butte County and in the City of Chico are subject to applicable BCAQMD rules and regulations in effect at the time of construction. Descriptions of specific rules applicable to future construction resulting from implementation of the proposed General Plan Update may include, but are not limited to:

- Emissions must be prevented from creating a nuisance to surrounding properties as regulated under BCAQMD Rule 200 Nuisance.

- Visible emissions from stationary diesel-powered equipment are not allowed to exceed 40 percent opacity for more than three minutes in any one hour, as regulated under BCAQMD Rule 201 Visible Emissions.

- Fugitive dust emissions must be prevented from being airborne beyond the property line, as regulated under BCAQMD Rule 205 Fugitive Dust Emissions.

- Under BCAQMD Rule 300 General Prohibitions and Exemptions on Open Burning, certain materials are prohibited from open fires for the purpose of disposing petroleum waste, demolition debris, construction debris, tires or other rubber materials, materials containing tar, or for metal salvage or burning of vehicle bodies. Any open burning requires approval and issuance of a burn permit from BCAQMD and shall be performed in accordance with the BCAQMD Rule and Regulations.

- Portable equipment, other than vehicles, must be registered with either CARB's Portable Equipment Registration Program (PERP) or with BCAQMD in accordance with BCAQMD Rule 440 Portable Equipment Registration.

- Architectural coatings and solvents used at the project shall be compliant with BCAQMD Rule 230 Architectural Coatings.

- Cutback and emulsified asphalt application shall be conducted in accordance with BCAQMD Rule 231 Cutback and Emulsified Asphalt.

- All stationary equipment, other than internal combustion engines less than 50 horsepower, emitting air pollutants controlled under BCAQMD rules and regulations require an Authority to Construct (ATC) and Permit to Operate (PTO) from the District.

- BCAQMD Rule 207 Residential Wood Combustion prohibits installation of any new traditional "open hearth" type fireplaces or non-USEPA-certified Phase II appliance.

- In the event that demolition, renovation, or removal of asbestos-containing materials is involved, CARB must be contacted.

Air Quality Plans

In 1994, the air districts within the Northern Sacramento Valley Planning Area (NSVPA), a subsection of the greater Sacramento Valley Air Basin which includes BCAQMD, prepared an Air Quality Attainment Plan for O_3. This plan was updated in 1997, 2000, 2003, and again in 2006. Like the preceding plans, the 2006 plan focuses on the adoption and implementation of control measures for stationary sources, area-wide sources, indirect sources, and public information and education programs. The 2006 plan also addresses the effect that pollutant transport has on the NSVPA's ability to meet and attain the state standards. An update to the 2006 plan is anticipated to be adopted by BCAQMD in 2010 (Williams, 2010).

In 2007, BCAQMD staff ceased work on an 8-hour O_3 SIP when the USEPA announced that a new SIP was not required to meet federal nonattainment area planning requirements. The status changed as a result of litigation against the USEPA by other entities and because BCAQMD met the 8-hour standard based on the most current air quality data. Subsequently, the USEPA established a new 8-hour O_3 standard in March 2008. CARB recommended that Butte County be designated nonattainment for the new standard in March 2009. The USEPA is expected to make the final area designations by the end of 2010. BCAQMD expects the 8-hour O_3 SIP will be due by 2013 (BCAQMD, 2009).

In December 2009, the USEPA designated the Chico area and much of Butte County as nonattainment for the new $PM_{2.5}$ standard. BCAQMD staff expects the $PM_{2.5}$ SIP to be completed by 2012 (BCAQMD, 2009).

4.6.3 IMPACTS AND MITIGATION MEASURES

STANDARDS OF SIGNIFICANCE

Per Appendix G of the California Environmental Quality Act (CEQA) Guidelines and BCAQMD recommendations, air quality impacts are considered significant if implementation of the proposed project would:

1) Conflict with or obstruct implementation of an applicable air quality plan.

2) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

3) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

4) Expose sensitive receptors to substantial pollutant concentrations.

5) Create objectionable odors affecting a substantial number of people.

As stated in Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. According to BCAQMD, an air quality impact is considered significant if the proposed project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations (25 pounds per day of ROG, 25 pounds per day of NO_X, or 80 pounds per day of PM_{10}).

For the evaluation of general plans, BCAQMD recommends that the air quality impacts of the proposed general plan would be considered significant if:

- The plan is inconsistent with the adopted air quality attainment plan (AQAP) and State Implementation Plan population and vehicle use projections.
- The plan does not implement AQAP and SIP transportation control measures.
- The plan does not provide buffer zones around sources of odors and TACs.

METHODOLOGY

Air quality impacts were assessed in accordance with methodologies recommended by CARB and BCAQMD. Where quantification was required, emissions were modeled using the URBEMIS 2007 (v9.2.4) computer program. This program estimates pollutants from area and mobile emission sources associated with development projects, based on the specific types of land uses proposed for development. Use of this model for the proposed General Plan Update, where specific land uses have not yet been identified, may not fully account for site-specific conditions, but the model has been used to provide a reasonable estimation of emissions based on typical land use development conditions under the proposed General Plan Update. It is important to note that the URBEMIS analysis uses the Feather River Air Quality Management District EMFAC database because a database specific to Butte County is not available. This approach is considered appropriate by BCAQMD staff (Williams, 2010).

The following proposed General Plan Update policies and actions address air quality-related impacts:

Policy SUS-3.4 *(Sustainable Fleet) – Support sustainable modes of transportation for City vehicles.*

Policy SUS-5.3 *(Facilities for Emerging Technologies) – Support the construction of facilities for emerging transportation technologies such as alternative fueling stations.*

Policy LU-1.2 *(Growth Boundaries/Limits) – Maintain long-term boundaries between urban and agricultural uses in the west and between urban uses and the foothills in the east, and limit expansion north and south to produce a compact urban form.*

Action LU-1.2.1 *(Greenline) – Retain the Greenline.*

Policy LU-2.4 *(Land Use Compatibility) – Promote land use compatibility through use restrictions, development standards, and special design considerations.*

Policy LU-2.6 *(Agricultural Buffers) – Require buffering for new urban uses along the City's Sphere of Influence adjacent to commercial crop production. Landscaping, trails, gardens, solar arrays, and open space uses are permitted within the buffer. Design criteria for buffers are as follows:*

- *A minimum 100-foot-wide physical separation, which may include roadways and creeks, between the agricultural use and any habitable structure.*
- *Incorporate vegetation, as may be needed to provide a visual, noise, and air quality buffer.*

Policy LU-1.3 *(Growth Plan) – Maintain balanced growth by encouraging infill development where City services are in place, and allowing expansion into Special Planning Areas.*

Policy LU-2.3 *(Sustainable Land Use Pattern) – Ensure sustainable land use patterns in both developed areas of the City and new growth areas.*

Action LU-2.3.3 *(Encourage Mixed-Use) – Allow horizontal and/or vertical mixed-uses in the following land use designations:*

- *Residential Mixed Use*
- *Neighborhood Commercial*
- *Commercial Mixed Use*
- *Regional Commercial*
- *Office Mixed Use*
- *Industrial Office Mixed Use*

Action LU-2.3.4 *(Require Mixed-Use) – Require horizontal or vertical mixed-use in the following land use designations:*

- *Special Mixed Use*
- *Mixed Use Neighborhood Core*
- *Special Planning Areas (with the exception of the Bell-*Muir SPA)

Policy LU-2.6 *(Agricultural Buffers) – Require buffering for new urban uses along the City's Sphere of Influence adjacent to commercial crop production. Landscaping, trails, gardens, solar arrays, and*

open space uses are permitted within the buffer. Design criteria for buffers are as follows:

- *A minimum 100-foot-wide physical separation, which may include roadways and creeks, between the agricultural use and any habitable structure.*
- *Incorporate vegetation, as may be needed to provide a visual, noise, and air quality buffer.*

Policy LU-3.1 *(Complete Neighborhoods) – Direct growth into complete neighborhoods with a land use mix and distribution to reduce auto trips and support walking, biking, and transit use.*

Policy LU-3.2 *(Neighborhood Serving Centers) – Promote the development of strategically located neighborhood serving centers with commercial, employment or entertainment uses; provide housing opportunities; are within walking distance of surrounding residents; and are served by transit. Neighborhood center designations are Neighborhood Commercial (NC) and Mixed Use Neighborhood Core (MUNC).*

Policy LU-3.4 *(Neighborhood Enhancement) – Strengthen the character of existing residential neighborhoods and districts.*

Policy LU-4.1 *(Promote Infill and Redevelopment) – Facilitate infill development through active leadership, education and the provision of infrastructure and services.*

Action LU-4.1.1 *(Education about the Benefits of Infill) – Provide community education regarding the benefits of infill over sprawl through the neighborhood planning process and in the analysis, recommendations, and findings for infill development projects and capital expenditures that support infill and development.*

Policy LU-4.2 *(Infill Compatibility) – Support infill development, redevelopment, and rehabilitation projects, which are compatible with surrounding properties and neighborhoods.*

Action LU-4.2.3 *(Mix of Dwelling Types) – Allow a mix of dwelling types within all residential land use designations consistent with density requirements and applicable design criteria.*

Policy LU-5.1 *(Opportunity Sites) – Facilitate increased density and intensity of development and revitalization in the following Opportunity Sites:*

- *Central City Opportunity Sites – Downtown, South Campus, and East 8th and 9th Street Corridors.*
- *Corridor Opportunity Sites – North Esplanade, Mangrove Avenue, Park Avenue, Nord Avenue, and East Avenue.*

- *Regional Center Opportunity Sites – North Valley Plaza, East 20th Street, and Skyway.*

- *Other Opportunity Sites – The Wedge, Vanella Orchard, Pomona Avenue, and Eaton Road.*

Action LU-5.1.1 *(Incentives for Opportunity Site Development) – Utilize City incentives identified in Action LU-2.3.1 to promote infill development, redevelopment, rehabilitation, and mixed-use projects in the designated Opportunity Sites.*

Action LU-5.1.2 *(Midpoint Density and Intensity for Infill) – Require that infill located within designated Opportunity Sites be developed at or above the midpoint of the allowable density range or floor area ratio equivalent unless one or more of the following findings are made:*

- *The proposed project does not include residential development because the land use designation does not require (but rather allows) residential development.*

- *Site considerations such as parcel size, configuration, environmental resources, or other features make achieving the density midpoint infeasible or undesirable.*

- *Infrastructure constraints make achieving the density midpoint impractical.*

Action LU-5.1.4 *(Streetscape Enhancement) – As part of future roadway improvement projects in the Corridor Opportunity Sites, incorporate streetscape enhancements such as bulb-outs, benches, wide and separated sidewalks, and street trees to improve the pedestrian environment and serve as a catalyst for revitalization.*

Action LU-6.2.3 *(Diamond Match SPA Planning) – Plan the Diamond Match SPA with a mix of low, medium and high residential densities, a neighborhood core or commercial mixed-use center, office and light industrial uses, and parks and open space. Subsequent planning will:*

- *Address circulation with a focus on extending and improving existing streets into the site that will distribute traffic on multiple streets, and improving connectivity to the south in order to reduce traffic impacts on the existing residential neighborhood.*

- *Incorporate adaptive reuse of existing buildings, where feasible.*

Action LU-6.2.4 *(Doe Mill/Honey Run SPA Planning) – Plan the Doe Mill/Honey Run SPA with a broad range of housing types and densities integrated with significant open space and recreational areas,*

supporting commercial services, and public facilities. Subsequent planning will:

- *Address circulation with primary connections to the site via Skyway and E. 20th Street.*
- *Incorporate significant accessible open space on the eastern portion of the SPA, a community park, as well as neighborhood and pocket parks.*
- *Maintain open space by clustering development and providing open space buffers on the northern, eastern, and southern edges of the SPA.*
- *Include visual simulations to ensure that development is not visually intrusive as viewed from lower elevations.*
- *Incorporate special lighting standards to reduce impacts on the nighttime sky.*

Action LU-6.2.5 *(North Chico SPA Planning) – Plan the North Chico SPA with a combination of residential densities and supporting commercial mixed-use along with industrial and office uses. Subsequent planning will:*

- *Address the Hicks Lane/Eaton Road/SR 99 intersection and include an arterial roadway originating at Hicks Lane, extending to State Route 99.*
- *Address Chico Municipal Airport overflight zone compatibility.*
- *Avoid FEMA-designated flood zones, or incorporate strategies that allow development to occur in flood zones.*

Action LU-6.2.6 *(South Entler SPA Planning) – Plan the South Entler SPA with regional and community commercial uses integrated with office and industrial uses; a mix of residential densities, and open space. Subsequent planning will:*

- *Address circulation with a focus on the intersection at Southgate Avenue and State Route 99 and providing multiple access points to the site.*
- *Ensure that the SPA serves as a visually attractive "landmark" gateway at the south end of the City with freeway visibility.*
- *Preserve and/or provide trees along the southern border of the SPA to provide a buffer to adjacent agricultural uses and open space.*

Policy CIRC-1.8 *(Regional Transportation Planning) – Continue to participate in Butte County Association of Government's (BCAG) regional*

transportation planning efforts to coordinate priorities with other jurisdictions, and continue to consult with Caltrans on transportation planning, operations, and funding to develop the City's circulation infrastructure.

Action CIRC-1.8.2 (Sustainable Communities Strategy) – Participate in BCAG's effort to prepare the regional Sustainable Communities Strategy.

Policy CIRC-2.1 (Complete Streets) – Develop an integrated, multimodal circulation system that accommodates transit, bicycles, pedestrians, and vehicles; provides opportunities to reduce air pollution and greenhouse gas emissions; and reinforces the role of the street as a public space that unites the City.

Action CIRC-2.1.1 (Complete Street Standards) – With consideration of street classification and function, design new streets to accommodate all modes of travel, including transit, bicycles, pedestrians, vehicles, and, where appropriate, parking.

Action CIRC-2.1.2 (Retrofitting Existing Streets) – Retrofit and upgrade existing streets, as funding allows, to include complete street amenities where appropriate, prioritizing improvements in locations that will improve the overall connectivity of the City's network of bicycle and pedestrian facilities or result in increased safety.

Action CIRC-2.1.3 (Multimodal Connections) – Provide connections between and within existing and new neighborhoods for bicycles, pedestrians, and automobiles.

Policy CIRC-2.2 (Circulation Connectivity and Efficiency) – Provide for greater street connectivity and efficiency for all transportation modes.

Action CIRC-2.2.1 (Connectivity in Project Review) – New development shall include the following internal circulation features:

- *A grid- or modified grid-based street system. Cul-de-sacs are discouraged, but may be approved in situations where difficult site planning issues, such as odd lot size, topography, or physical constraints exist or where their use results in a more efficient use of land; however in all cases the overall grid pattern of streets should be maintained;*
- *Traffic-calming measures, where appropriate;*
- *Roundabouts as an alternative intersection control, where appropriate;*
- *Bicycle and pedestrian connections to adjacent streets, trails, public spaces, and bicycle paths; and*
- *Short block lengths consistent with City design standards.*

Policy CIRC-3.1 (Bikeway Master Plan) – Implement and update the Chico Urban Area Bicycle Plan (CUABP) consistent with the goals and policies of the General Plan.

Action CIRC-3.1.1 (Add Bicycle Facilities) – Incorporate bicycle facilities identified in the CUABP into public road construction projects and private development projects.

Action CIRC-3.1.2 (Bicycle Crossings) – Identify and pursue funding to construct crossings at creeks, railroads, and roadways consistent with the CUABP to improve bicycle and pedestrian connectivity.

Action CIRC-3.1.3 (Regional Bicycle Trail Coordination) – Consult with Butte County, Butte County Association of Governments, and other agencies regarding implementation of a regional bikeway system.

Action CIRC-3.1.4 (Bikeway Map) – Promote bicycle use by providing an updated map of Chico's bikeways to bike stores, CSU Chico, and other key meeting places for bicyclists.

Policy CIRC-3.2 (CSU Chico Bicycle Access) – Continue to support CSU Chico planning efforts to reintroduce opportunities for safe bicycle access into, around and through the main campus area.

Policy CIRC-3.3 (New Development and Bikeway Connections) – Ensure that new residential and non-residential development projects provide connections to the nearest bikeways.

Action CIRC-3.3.1 (Bikeway Requirements) – Require pedestrian and bicycle access to the Citywide bikeway system every 500 feet, where feasible, as part of project approval and as identified in the Chico Urban Area Bicycle Plan.

Policy CIRC-3.4 (Bicycle Safety) – Improve safety conditions, efficiency, and comfort for bicyclists through traffic engineering, maintenance and law enforcement.

Action CIRC-3.4.1 (Construction and Maintenance) – Continue to ensure that all new and improved streets have bicycle-safe drainage grates and are free of hazards such as uneven pavement and gravel. Maintain a program for the sweeping and repair of bikeways.

Action CIRC-3.4.2 (Signing, Markings, and Lighting) – Continue to provide signage and markings to warn vehicular traffic of the existence of merging or crossing bicycle traffic where bikeways make transitions into or across roadways. Delineate and sign bikeways in accordance with Caltrans' standards and install, where feasible, lighting for safety and comfort.

Action CIRC-3.4.3 (Bike Safety in Schools) – Consult with the Chico Unified School District, CSU Chico, and Butte College regarding development

of an educational campaign promoting bicycle safety and safe routes to school programs.

Action CIRC-3.4.4 (Bicycle Detection at Traffic Signals) – Continue to install bicycle detector loops at high volume bicycle/automobile intersections that have actuated signals.

Policy CIRC-3.5 (Funding Bicycle Improvements) – Consider bikeway improvements when establishing funding priorities for the City and adopting the Capital Improvement Program.

Action CIRC-3.5.1 (Other Funding Sources) – Continue to pursue funding sources, including state and federal grants, for new bicycle facilities.

Policy CIRC-3.6 (Bicycle Parking) – Provide adequate bicycle parking and support facilities.

Action CIRC-3.6.1 (Secure Bicycle Parking and Facilities) – Update the Municipal Code requirements for bicycle parking, and include, where appropriate, requirements for bicycle-support facilities, such as personal lockers and showers.

Policy CIRC-4.1 (Pedestrian Master Planning) – Continue to integrate and highlight pedestrian access and dual use bicycle and pedestrian pathways in the Chico Urban Area Bicycle Plan.

Policy CIRC-4.2 (Continuous Network) – Provide a pedestrian network in existing and new neighborhoods that facilitates convenient and continuous pedestrian travel free of major impediments and obstacles.

Action CIRC-4.2.1 (Housing or Destination Connections) – Amend the Municipal Code to require new subdivisions and large-scale developments to include safe pedestrian walkways that provide direct links between streets and major destinations such as transit stops, schools, parks, shopping centers, and jobs.

Policy CIRC-4.3 (Pedestrian-Friendly Streets) – Ensure that streets in areas with high levels of pedestrian activity (such as employment centers, residential areas, mixed-use areas, and schools) support safe pedestrian travel by providing elements such as detached sidewalks, bulb-outs, enhanced pedestrian crossings, and medians.

Action CIRC-4.3.1 (Safe Pedestrian Crossings) – As funding allows, improve pedestrian safety at intersections and other crossing locations by providing safe, well-marked pedestrian crossings, bulb-outs, audible warnings, or median refuges that reduce crossing widths.

Policy CIRC-5.1 (Transit Planning) – Consult with and encourage the Butte County Association of Governments (BCAG) to implement a comprehensive transit system that serves Chico's current and future needs.

Action CIRC-5.1.1 (Transit Master Plan) – Participate in BCAG's transit master planning efforts to ensure that transit routes coincide with Chico's major destinations for employment and shopping, concentrations of housing, key institutions, and other land uses likely to supply riders for public transit.

Action CIRC-5.1.2 (Intercity Bus Service) – In consultation with BCAG, Greyhound, and Amtrak, monitor demand for intercity bus transit service.

Action CIRC-5.1.4 (Enhanced B-Line) – In consultation with BCAG, pursue funding sources and partnerships to support an enhanced B-Line with more frequent headways.

Policy CIRC-5.2 (Central City Transit Route) – Encourage the creation of a pilot program Central City Transit Route that is frequently served by branded transit vehicles connecting heavily visited City locations, such as CSU Chico, Enloe Medical Center, shopping, entertainment areas and Downtown.

Action CIRC-5.2.1 (Transit Oriented Development) – Support new development and redevelopment within the Central City and Corridor Opportunity Sites to support ridership.

Policy CIRC-5.3 (Transit Connectivity in Projects) – Ensure that new development supports public transit.

Action CIRC-5.3.1 (Roadway Transit Features) – When planning or retrofitting roadways, consult with BCAG regarding the inclusion of transit stops, shelters, bus turnouts, and other transit improvements.

Action CIRC-5.3.2 (Transit Improvements for New Development) – During the project review process, consult with BCAG to determine appropriate requirements for the installation of needed stops and streetscape improvements if needed to accommodate transit.

Action CIRC-8.1.1 (Parking Standards) – Amend the Municipal Code to establish parking standards that support trip reduction goals by:

- *Allowing parking reductions for projects that implement trip reduction methods (such as vehicle loan program and transit passes) and for mixed-use developments; and*
- *Requiring new office projects with more than 25 employees to provide preferential on-site parking for carpools.*

Policy CIRC-8.2 *(Parking Improvements) – Ensure that new parking facilities and renovations are designed to be safe, efficient, and pedestrian-friendly.*

Action CIRC-8.2.1 *(Parking Facility Design) – Require that parking facilities are designed with convenient connections to adjoining businesses and the public right-of-way and, where possible, shared access between land uses. This may include reducing barriers between existing parking lots to facilitate shared parking and providing pedestrian connections between adjacent developments.*

Policy CIRC-9.1 *(Reduce Peak-Hour Trips) – Strive to reduce single occupant vehicle trips through the use of transportation demand management strategies.*

Action CIRC-9.1.1 *(City Transportation Demand Management) – Implement a City of Chico Transportation Demand Management Plan that provides incentives for City employees who commute in modes other than single-occupant vehicles.*

Action CIRC-9.1.2 *(Employer Trip Reduction Programs) – Encourage employers to provide transit subsidies, bicycle facilities, alternative work schedules, ridesharing, telecommuting and work-at-home programs, and preferential parking for carpools/vanpools.*

Policy CIRC-9.2 *(Off-Peak Deliveries) – Encourage business owners to schedule deliveries during off-peak traffic periods.*

Policy CD-2.1 *(Walkable Grid and Creek Access) – Reinforce a walkable grid street layout and provide linkages to creeks.*

Action CD-2.1.2 *(Bike Trails, Paths and Medians) – Establish linkages and an improved sense of place through enhanced bike trails, pedestrian paths, landscaped medians and parkways.*

Policy CD-3.2 *(Bicycles and Pedestrians) – Maintain and enhance the pedestrian- and bicycle-friendly environment of Chico.*

Action CD-3.2.1 *(Pedestrian-Scale Site Planning) – Utilize design techniques provided in the City's Design Guidelines Manual that support pedestrian- and bicycle-friendly site planning.*

Policy CD-3.3 *(Pedestrian Environment and Amenities) – Locate parking areas and design public spaces within commercial and mixed-use projects in a manner that promotes pedestrian activity.*

Action DT-2.1.1 *(Incentives for Mixed-Use Downtown) – Utilize City incentives identified in Action LU-2.3.1 to support developers who construct vertical mixed-use projects within Downtown.*

Policy DT-3.1 *(Design for Pedestrian Environment) – Maintain and enhance the high-quality pedestrian environment within Downtown through the design of buildings and sidewalks.*

Policy DT-3.2 *(Streetscape Environment) – Ensure a lively streetscape environment.*

Action DT-3.2.1 *(Ground-Floor Uses) – Amend the Municipal Code to establish a Downtown Retail Zone in North Downtown that requires development to incorporate retail or other uses that contribute to increased pedestrian activity on the ground floor and requires use permit approval for other ground-floor uses.*

Action DT-3.2.2 *(Mixed-Use Parking Structures) – New parking structures in Downtown will be ringed primarily with ground-floor retail suites, other pedestrian-oriented uses, or will be otherwise integrated into larger mixed-use development projects.*

Action DT-3.3.1 *(Sidewalk Uses) – Encourage the active use of sidewalks by expanding their allowed uses to include outdoor seating and dining, streetscape and landscape furnishings, and other pedestrian features, while maintaining space for a path of travel.*

Action DT-3.3.2 *(Enhance Downtown Open Space) – Increase the use of public open space by providing pedestrian pathways, landscaping, street furniture, lighting, courtyards, shade, and other amenities.*

Policy DT-3.5 *(Pedestrian Priorities) – Prioritize facilities for pedestrian travel within Downtown.*

Action DT-3.5.1 *(Enhance Sidewalks) – Enhance pedestrian facilities with features such as wide sidewalks, bulb-out corners, and street furniture, with an emphasis on extending sidewalk features to South Downtown.*

Action DT-3.5.2 *(Bicycling and Skating on Sidewalks) – Enforce regulations prohibiting bicycling and skating on sidewalks to maintain pedestrian safety and encourage alternate routes for bicyclists.*

Action DT-3.7.1 *(Number of Travel Lanes) – Giving special consideration for north-south circulation patterns and the delivery needs of Downtown businesses, identify options to reduce the number of travel lanes on Downtown streets to accommodate additional diagonal parking or an enhanced pedestrian environment.*

Policy DT-5.1 *(Multimodal Circulation) – Promote a balanced multimodal circulation system to and throughout Downtown that includes pedestrian, bicycle, vehicular, and public transit.*

Action DT-5.1.2 *(Expand Bicycle Amenities) – Create additional bicycle lanes and safe, convenient, and attractive bicycle parking.*

Action DT-5.1.3 *(Bicycle and Pedestrian Safety) – Identify and address hazards for pedestrians and bicyclists.*

Action DT-6.2.2 *(Creek Path) – Create a pedestrian/bicycle path along the south side of Big Chico Creek to improve circulation through Downtown and provide public access to the creek.*

Action DT-7.1.2 *(Parking Facilities) – Develop and charge for publicly-owned, safe parking facilities that allow pedestrians 24-hour access to Downtown and provide employee parking.*

Policy PPFS-2.1 *(Use of Creeks and Greenways) – Utilize the City's creekside greenways and other open spaces for public access and to enhance community connectivity.*

Action OS-1.1.3 *(Sustainable Community Strategy) – Work with Butte County Association of Governments to implement the Sustainable Community Strategy (SB 375), which directs smart growth development to urbanized areas.*

Policy OS-2.2 *(Creek Corridors and Greenways) – Expand creekside greenway areas for open space and additional pedestrian/bicycle routes.*

Policy OS-4.1 *(Air Quality Standards) – Work to comply with state and federal ambient air quality standards.*

Action OS-4.1.1 *(Air Quality Impact Fee) – Consult with the Butte County Air Quality Management District regarding development by the District of an air quality impact fee as a method to mitigate air quality impacts.*

Action OS-4.1.2 *(Air Quality Impact Mitigation) – During project and environmental review, evaluate air quality impacts and incorporate applicable mitigations to reduce impacts consistent with Butte County Air Quality Management District requirements.*

Action OS-4.1.3 *(Wood Burning) – Work with the Butte County Air Quality Management District to reduce air pollution from wood burning.*

Action OS-4.1.4 *(Pollution from City Equipment) – As viable alternatives become available, replace City-owned, gas-powered equipment with less polluting models.*

Action OS-4.1.5 *(Leaf Removal) – Continue the residential leaf pick-up program, encourage composting, and enforce the City's no burn regulations.*

Policy OS-4.2 *(Air Quality Education) – Participate in public education efforts to improve air quality.*

Action OS-4.2.1 *(Air Quality Education) – In consultation with the Butte County Air Quality Management District, disseminate information to educate the community about how to improve air quality.*

Policy OS-5.2 *(Agricultural Resources) – Minimize conflicts between urban and agricultural uses by requiring buffers or use restrictions.*

Action OS-5.2.1 *(Agricultural Buffers) – Require buffers for development adjacent to active agricultural operations along the Greenline reduce incompatibilities.*

Policy S-8.1 *(Hazardous Materials Safety Coordination) – Support efforts to reduce the potential for accidental releases of toxic and hazardous substances.*

Action S-8.1.1 *(Planning for Hazardous Materials Safety) – Consult with the State Office of Emergency Services, the State Department of Toxic Substances Control, the California Highway Patrol, Butte County, and other relevant agencies regarding hazardous materials routing and incident response programs.*

The impact analysis provided below utilizes these proposed policies and actions to determine whether implementation of the proposed General Plan Update would result in significant impacts. The analyses identify and describe how specific policies and actions as well as other City regulations and standards provide enforceable requirements and/or performance standards that protect air quality and avoid or minimize significant impacts.

IMPACTS AND MITIGATION MEASURES

Conflict with the NSVPA 2006 Air Quality Attainment Plan (Standard of Significance 1)

Impact 4.6.1 Subsequent land use activities associated with implementation of the proposed General Plan Update would not conflict with or obstruct implementation of the Northern Sacramento Valley Planning Area 2006 Air Quality Attainment Plan. The proposed General Plan Update also includes several policy provisions that would further assist in air quality attainment efforts. This impact is considered to be **less than significant**.

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment 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 nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under State law, the California Clean Air Act requires an air quality attainment plan (AQAP) to be prepared for areas designated as nonattainment with regard to the federal and state ambient air quality standards. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

The NSVPA 2006 Air Quality Attainment Plan is the most recent air quality planning document for Butte County and constitutes the regions SIP. SIPs are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations and federal controls describing how the state will attain national ambient air quality standards (NAAQS) for ozone and particulate matter. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts prepare SIP elements and submit them to CARB for review and approval. The NSVPA 2006 AQAP includes forecasted ROG and NO_x emissions (ozone precursors) for the entire NSVPA region through the year 2020. These emissions are not appropriated by county or municipality.

According to BCAQMD, the consistency of the proposed General Plan Update with the NSVPA 2006 Air Quality Attainment Plan, which is also the SIP for the air basin, should be determined by both (a) the General Plan Update's consistency with population and vehicle use projections utilized by the AQAP and (b) the extent to which the General Plan Update implements AQAP transportation control measures (BCAQMD, 2008).

Implementation of the proposed General Plan Update could increase population and vehicle miles traveled, which could conflict with BCAQMD air quality planning efforts. However, the NSVPA 2006 Air Quality Attainment Plan does not cite vehicle miles traveled or population numbers as the basis for its air quality planning efforts. The NSVPA 2006 Air Quality Attainment Plan does cite projected O_3 precursor emissions (ROG and NO_x) through the year 2020. For the purposes of this analysis, the resulting emissions of the draft General Plan's assumption of a year 2030 City population of 139,713 was quantified and compared with the NSVPA 2006 Air Quality Attainment Plan 2020 O_3 precursor emission projections.

As noted in Section 3.0, Project Description, the proposed General Plan Update seeks to reduce the environmental impact (including air quality) of land use development by limiting the amount of land consumed and increasing the viability of walking, biking, and transit by balancing growth and conservation through the reinforcement of the city's compact urban form, establishing urban growth limits, and managing where and how growth and conservation will occur. According to the traffic analysis conducted for the proposed General Plan Update which compared the "smart growth" strategies of the proposed General Plan Update to the relatively sprawling, low-density land use pattern outlined in the 1994 General Plan, build-out of the proposed General Plan Update would result in an average 56 daily vehicle miles traveled per Chico household compared with an average 64 daily vehicle miles traveled per Chico household under build-out of the current 1994 General Plan (see *City of Chico 4D Model Development and Results*, Fehr & Peers, 2010).

The NSVPA 2006 Air Quality Attainment Plan includes control strategies necessary to attain the California ozone standard at the earliest practicable date as well as developed emission inventories and associated emissions projections for the NSVPA showing a downtrend for both ROG and NOx. Implementation of the proposed General Plan Update will result in long-term emissions from area and mobile emission sources associated with future growth. As illustrated in **Table 4.6-7**, the O_3 precursor emissions, ROG and NO_x, are anticipated to decrease with 2030 conditions versus existing conditions (2008) by 18.5 percent and 67 percent, respectively, due to improvements in vehicle emission technology. The downward trend in O_3 precursor emissions is reflective of the projected O_3 emissions reductions documented in the NSVPA 2006 Air Quality Attainment Plan, which projects a 21.7 percent reduction in ROG emissions and a 31.5 percent reduction of NO_x emissions within the NSVPA by the year 2020 (the latest year projected in the NSVPA 2006 Air Quality Attainment Plan). Proposed General Plan Update Action OS-4.1.2 states that during project and environmental review, applicable mitigations to reduce impacts consistent with Butte County Air Quality Management District requirements shall be incorporated.

TABLE 4.6-7
CRITERIA POLLUTANT AND PRECURSOR EMISSIONS (2008 AND 2030)
(POUNDS PER DAY)

Source	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2008 Existing Conditions						
Area Sources	6,927.94	1,062.92	22,769.44	68.36	3,526.79	3,394.74
Mobile Sources	6,524.38	9,244.11	70,456.71	28.52	4,972.62	1,009.14
Total Unmitigated	13,452.32	10,307.03	93,226.15	96.88	8,499.41	4,403.88
2030 Conditions						
Area Sources	9,126.99	1,512.52	33,107.98	101.26	5,164.86	4,971.47
Mobile Sources	1,829.64	1,808.60	17,151.71	33.81	5,927.33	1,127.14
Total Unmitigated	10,956.63	3,321.12	50,259.69	135.07	11,092.19	6,098.61
Net Difference (2030 Conditions – 2008 Existing Conditions)						
Net Difference	(2,495.69)	(6,985.91)	(42,966.46)	38.19	2,592.78	1,694.73

Source: California Air Resources Board, URBEMIS 2007 v. 9.2.4 Outputs (see Appendix C)

The proposed General Plan Update is designed to ensure that subsequent land use activities associated with implementation of the proposed General Plan Update would not conflict with applicable air quality plans. The intent of the proposed General Plan Update is to accommodate anticipated growth in a compact urban form, including infill, new complete neighborhoods and mixed-use development, as well as focusing redevelopment along transit corridors and at other key locations. The proposed General Plan Update and its Land Use Diagram would provide for this growth, minimize outward expansion of the city's boundaries, and retain the current Greenline along the western boundary of the city. Further, O_3 precursor (ROG and NO_x) emissions are anticipated to decrease with 2030 conditions versus existing conditions (2008) by 2,495 pounds per day of ROG (18.5 percent reduction) and 6,985 pounds per day of NO_x (67 percent reduction) due to improvements in vehicle emission technology (**Table 4.6-7**). Since it is the intent of the NSVPA 2006 Air Quality Attainment Plan to achieve O_3 attainment status, and O_3 precursor emissions are projected to decrease as a result of the General Plan Update, this impact is expected to be **less than significant.**

It is important to note that while the proposed General Plan Update would result in an increase in PM_{10} and $PM_{2.5}$ emissions for which BCAQMD is in nonattainment, the NSVPA 2006 Air Quality Attainment Plan only includes forecast ROG and NO_x emissions for the NSVPA region, not PM_{10} and $PM_{2.5}$ emissions. Therefore, the proposed General Plan Update would not conflict with PM_{10} and $PM_{2.5}$ emissions projections as there are none. (As previously mentioned, BCAQMD staff expects the $PM_{2.5}$ State Implementation Plan to be completed by 2012).

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Short-Term, Construction Emissions (Standards of Significance 2 and 3)

Impact 4.6.2 Subsequent land use activities associated with implementation of the proposed General Plan Update could result in short-term construction emissions that could violate or substantially contribute to a violation of federal and state standards for ozone and coarse and fine particulate matter. This impact is considered to be **potentially significant**.

Implementation of the proposed General Plan Update will result in short-term emissions from construction activities associated with subsequent development, including site grading, asphalt paving, building construction, and architectural coating. Emissions commonly associated with construction activities include fugitive dust from soil disturbance, fuel combustion from mobile heavy-duty diesel- and gasoline-powered equipment, portable auxiliary equipment, and worker commute trips. During construction, fugitive dust, the dominant source of PM_{10} and $PM_{2.5}$ emissions, is generated when wheels or blades disturb surface materials. Uncontrolled dust from construction can become a nuisance and potential health hazard to those living and working nearby. Demolition and renovation of buildings can also generate PM_{10} and $PM_{2.5}$ emissions. Off-road construction equipment is often diesel-powered and can be a substantial source of NO_X emissions, in addition to PM_{10} and $PM_{2.5}$ emissions. Worker commute trips and architectural coatings are dominant sources of ROG emissions.

Since the actual phasing of the proposed General Plan Update build-out is not known at this time, construction-related emissions were modeled assuming an equal distribution of development over the plan period. For example, the proposed General Plan Update projects a future growth potential of an additional 5,836,549 square feet of commercial, 1,761,594 square feet of office, 7,980,786 square feet of industrial, and 183,749 square feet of other land uses over baseline conditions. For the purposes of this analysis, this projected square footage was divided by 20 (the number of years accounted for in the proposed General Plan Update) in order to roughly depict potential construction-related criteria pollutant emissions which may result in any given year over the span of the proposed General Plan Update. However, it is important to note that the proposed General Plan Update does not include any policy provisions that require that its growth potential be attained. Not all of the identified land will be available for development at any given time based on landowner willingness to sell or develop, site readiness, environmental constraints, market changes, and other factors. This impact discussion assumes full growth potential under the General Plan Update in order to present the maximum amount of pollutant emissions possible. Unlike the impact discussion above, it is not possible to rely on population increase alone for modeling purposes, and so the total build-out potential of the General Plan needs to be used. Thus, the emissions identified in Table 4.6-8 are considered very conservative and likely overstate the extent of air pollutant emissions that would occur during these time periods. **Table 4.6-8** illustrates the beginning year (2010) and ending year (2030) construction-related criteria and precursor emissions that would result from implementation of the proposed General Plan Update. As shown in **Table 4.6-8**, O_3 precursor (ROG and NO_x) emissions as well as CO emissions are anticipated to decrease with build-out of the proposed General Plan Update versus existing conditions due to improvements in construction vehicle/equipment emission technology. However, as illustrated in the table, construction emissions could exceed BCAQMD emission thresholds for ROG (25 pounds per day), NO_X (25 pounds per day), and PM_{10} (80 pounds per day). It should be noted that all projects in the City of Chico are subject to applicable BCAQMD rules and regulations identified above in effect at the time of construction that address particulate matter, open burning, and equipment emissions.

TABLE 4.6-8
CONSTRUCTION-RELATED CRITERIA POLLUTANT AND PRECURSOR EMISSIONS (2010 AND 2030)
(POUNDS PER DAY)

Source	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2010 Construction Activities						
Site Grading	11.34	95.76	50.36	0.00	1,248.28	264.01
Asphalt Paving	4.24	21.90	13.15	0.00	1.80	1.64

Source	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Building Construction	18.19	92.55	319.50	0.28	5.23	4.11
Architectural Coating	294.80	0.31	5.16	0.00	0.03	0.01
Total Unmitigated	328.57	210.51	388.17	0.28	1,255.40	269.78
BCAQMD Potentially Significant Impact Threshold	*25 pounds/day*	*25 pounds/day*	–	–	*80 pounds/day*	–
2030 Construction Activities						
Site Grading	6.24	42.82	32.52	0.00	1,245.34	261.31
Asphalt Paving	2.58	10.96	10.16	0.00	0.86	0.78
Building Construction	3.79	21.02	67.11	0.28	2.53	1.57
Architectural Coating	294.62	0.04	0.85	0.00	0.03	0.01
Total Unmitigated	307.23	74.84	110.64	0.28	1,248.75	263.67
BCAQMD Potentially Significant Impact Threshold	*25 pounds/day*	*25 pounds/day*	–	–	*80 pounds/day*	–

Source: California Air Resources Board, URBEMIS 2007 v. 9.2.4 Outputs (See Appendix C)

Implementation of BCAQMD rules and regulations and proposed General Plan Update policies and actions and would prevent, reduce, and minimize potential construction-related air quality impacts. BCAQMD monitors air quality, prepares clean air plans, and responds to citizen complaints concerning air quality. All projects in Butte County and in the City of Chico are subject to applicable BCAQMD rules and regulations in effect at the time of construction. For instance, all stationary construction equipment, other than internal combustion engines less than 50 horsepower, require an Authority to Construct (ATC) and Permit to Operate (PTO) from the District, emissions must be prevented from creating a nuisance to surrounding properties as regulated under BCAQMD Rule 200 Nuisance, and visible emissions from stationary diesel-powered equipment are not allowed to exceed 40 percent opacity for more than three minutes in any one hour, as regulated under BCAQMD Rule 201 Visible Emissions. The proposed General Plan Update contains Action OS-4.1.2 which mandates that during project and environmental review, the City shall evaluate air quality impacts and incorporate applicable mitigations to reduce impacts consistent with BCAQMD requirements. BCAQMD's CEQA Air Quality Handbook (BCAQMD, 2008), identifies a list of best available mitigation strategies tailored to the type of project being proposed.

However, these actions might not fully offset air pollutant emissions resulting from construction activities. Projected growth under the General Plan Update could add a significant amount of development and supporting infrastructure in Chico. Construction of these projects could result in construction emission in excess of the BCAQMD threshold levels that are provided in **Table 4.6-8.** Thus, this impact is considered **significant and unavoidable**.

Violate Air Quality Standard or Contribute Substantially to an Air Quality Violation: Long-Term, Operational Emissions (Standards of Significance 2 and 3)

Impact 4.6.3 Subsequent land use activities associated with implementation of the proposed General Plan Update could result in long-term, operational emissions that could violate or substantially contribute to a violation of federal and state standards for ozone and coarse and fine particulate matter. This impact is considered to be **significant**.

Area Source and Mobile Source Emissions

Implementation of the proposed General Plan Update will result in long-term emissions from operation and use of subsequent development. **Table 4.6-7** summarizes the emissions associated with 2030 build-out conditions with implementation of the proposed General Plan Update. As shown in the table, the proposed General Plan Update would result in emissions in excess of BCAQMD thresholds for criteria air pollutants and precursors for which BCAQMD is in nonattainment. While ozone emission sources are expected to be reduced as compared to existing conditions (O_3 precursor (ROG and NO_x) emissions are anticipated to decrease with build-out of the proposed General Plan Update (2030) versus existing conditions (2008) due to improvements in vehicle emission technology), future particulate matter emissions would increase at build-out. As a result, this impact is considered significant.

Stationary Source Emissions

Implementation of the proposed General Plan Update could include stationary sources of pollutants that would be required to obtain permits to operate in compliance with BCAQMD rules. These sources include, but are not limited to, gasoline stations, dry cleaners, internal combustion engines, and surface coating operations. The permit process ensures that these sources would be equipped with the required emission controls and that, individually, these sources would result in a less than significant impact. However, the emissions from these sources would be additive to the area source and mobile source emissions noted above.

The proposed General Plan Update includes a number of policies and actions that would reduce the potential impacts associated with long-term operational emissions. Policy CIRC-2.1 seeks to develop an integrated, multimodal circulation system that provides opportunities to reduce air pollution such as the development of non-polluting bicycle and pedestrian facilities. Indeed the General Plan Update Circulation Element contains more than 22 provisions instigating the improvement/expansion of bicycle and pedestrian facilities in the City. For example, Action CIRC-3.1.1 will incorporate bicycle facilities into public road construction projects and private development projects while Policy CIRC-4.3 ensures that streets in areas with high levels of pedestrian activity support safe pedestrian travel by providing elements such as detached sidewalks, bulb-outs, enhanced pedestrian crossings, and medians.

BCAQMD's recommends general strategies for all projects and standard mitigation measures for residential, commercial, or industrial projects to reduce operational emissions (BCAQMD, 2009). **Table 4.6-9** summarizes the level of compliance of the proposed General Plan Update with these recommended emission reduction strategies and standard mitigation measures, including the reference to the relevant proposed General Plan Update policies and actions.

TABLE 4.6-9
COMPLIANCE OF GENERAL PLAN UPDATE WITH
BCAQMD-RECOMMENDED OPERATION EMISSION REDUCTION STRATEGIES

BCAQMD-Recommended General Strategy/ Standard Mitigation Measure	Compliance
Land Use	
Build compact communities to limit urban sprawl.	Compliant See Policy LU-1.2; Policy LU-1.3; Action LU-1.3.1; Policy LU-5.1; Action LU-5.1.1; Action LU-5.1.2; Policy LU-5.2; Action LU-5.2.1; Policy LU-6.5; Action LU-6.5.1; Action LU-6.5.3; Action LU-6.5.4
Mix complementary land uses, such as commercial services and employment located within and/or adjacent to medium or higher density housing.	Compliant See Policy LU-2.3; Policy LU-3.1; Action LU-5.2.1; Policy LU-6.1; Policy LU-6.4; Action LU-6.4.1; Action LU-6.4.2; Policy LU-6.5; Action LU-6.5.1; Action LU-6.5.3; Action LU-6.5.4; Policy LU-7.4; Action LU-7.4.1; Policy LU-7.5; Action LU-7.5.1; Policy LU-7.6; Action LU-7.6.1; Policy LU-7.7; Action LU-7.7.1; Policy DT-2.1; Action DT-2.1.1; Action DT-2.2.1; Action DT-3.2.2
Develop core commercial areas within 1/4 to 1/2 mile of residential housing areas.	Compliant See Action LU-2.2.2; Action LU-2.2.3; Action LU-5.2.1; Policy LU-6.1; Policy LU-6.5; Action LU-6.5.1; Action LU-6.5.3; Action LU-6.5.4; Policy LU-7.4; Action LU-7.4.1
Increase residential and commercial densities along transit corridors.	Compliant See Action LU-3.1; Policy LU-3.2; Policy LU-6.1; Action LU-6.1.3; Policy LU-6.2; Action LU6.2.1; Policy LU-6.3; Action CIRC-6.3.1; Policy DT-2.1; Action DT-2.1.1; Policy DT-2.2; Action DT-2.2.1; Policy DT-2.4; Action DT-3.2.1; Action DT-3.2.2
Prioritize in-fill projects that provide development within the urban core and urban reserve boundaries.	Compliant See Policy LU-5.2; Action LU-5.2.1; Action LU-5.2.2; Action LU-5.2.3; Action LU-5.2.2; Action LU-5.2.3; Action LU-6.1.2; Policy LU-6.5; Action LU-6.5.1; Action LU-6.5.3; Action LU-6.5.4; Policy DT-2.1; Action DT-2.1.1; Action DT-2.2.1; Policy DT-2.4; Action DT-3.2.2; Action ED-1.5.6; Action ED-1.5.7
Neighborhood park(s) or other recreational options such as trails within the development to minimize vehicle travel to off-site recreational uses and/or commercial areas.	Compliant See Policy DT-6.2; Action 6.2.2; Policy PPFS-3.1; Action PPFS-3.1.5; Policy OS-2.2
Orient buildings toward streets with automobile parking in the rear to promote a pedestrian-friendly environment and to provide convenient pedestrian and transit access.	Compliant See Action CIRC-2.1.4; Policy CIRC-6.4; Policy CD-3.2; Action CD-3.2.1; Policy CD-3.3; Action CD-3.3.1; CD-3.3.2; Policy DT-3.1; Action DT-3.1.1; Action DT-3.2.1; Action DT-3.2.2

BCAQMD-Recommended General Strategy/ Standard Mitigation Measure	Compliance
Energy Efficiency	
Orient building structures to maximize the potential for natural heating and cooling and passive solar design principles (this may include the use of appropriate landscaping).	Compliant See Action SUS-5.2.4
Use of energy-efficient lighting (includes controls) and process systems such as water heaters, furnaces, and boiler units.	Compliant See Policy SUS-3.2 The use of such energy-efficient hardware is mandated in California Energy Code Sections 113, 119, and 144
Use of energy-efficient and automated controls for air conditioning.	Compliant See Policy SUS-3.2
Transit	
Develop residential housing areas within 1/4 mile of transit centers and transit corridors.	Compliant See Policy LU-3.1; Policy LU-3.2; Policy LU-6.3; Action CIRC-6.3.3; Policy DT-2.1; Action DT-2.1.1; Action DT-2.2.1; Policy DT-2.4
Provide abundant and safe access for pedestrians, bicyclists, and transit users.	Compliant See Policy CIRC-2.1; Action CIRC-2.1.1; Action CIRC-2.1.3; Action CIRC-4.1.2; Policy CIRC-4.2; Policy CIRC-4.3; Policy CIRC-5.2
Arterial and collector streets planned as transit routes to allow the efficient operation of public transit.	Compliant See Policy CIRC-2.1; Action CIRC-2.1.1
Pedestrian	
Provide a pedestrian-friendly and interconnected streetscape to make walking more convenient, comfortable and safe.	Compliant See Action LU-6.3.1; Policy CIRC-2.1; Action CIRC-2.1.1; Action CIRC-2.1.3; Policy CIRC-5.2; Policy CD-2.1; Action CD-2.1.3; Policy CD-3.3; Action CD-3.3.1; Action CD-3.3.2; Policy CD-4.1; Policy DT-3.1; Action DT-3.1.1; Policy DT-3.5; Action DT-3.5.1
Services	
Provide a balance of job opportunities and housing within communities.	Compliant Action LU-2.2.2; Action LU-2.2.3; Policy LU-5.1; Action LU-6.2.3; Policy LU-6.5; Action LU-6.5.1; Action LU-6.5.3; Action LU-6.5.4; Policy LU-7.4; Action LU-7.4.1; Policy LU-7.5; Action LU-7.5.1; Policy LU-7.6; Action LU-7.6.1; Policy LU-7.7; Action LU-7.7.1; Policy DT-2.1; Action DT-2.1.1; Policy DT-2.2; Action DT-2.2.1; Policy DT-2.4
Development of a neighborhood telecommunication infrastructure or telework center.	Compliant See Policy LU-1.4; Policy LU-3.2; Policy CIRC-10.1; Action CIRC-10.1.1; Action CIRC-10.1.2
Standard Mitigation Measure	

BCAQMD-Recommended General Strategy/ Standard Mitigation Measure	Compliance
Link or minimize cul-de-sacs and dead-end streets, to encourage pedestrian and bicycle travel.	Compliant See Action CIRC-2.1.3; Policy CIRC-3.1; Action CIRC-3.1.1; Policy CIRC-4.3; Action CIRC-4.3.1; Policy CD-2.1
Traffic calming modifications to project roads, such as narrower streets, speed platforms, bulb-outs and intersection modifications designed to reduce vehicle speeds, thus encouraging pedestrian and bicycle travel.	Compliant See Action CIRC-3.1.1; Policy CIRC-5.3; Action CIRC-5.3.2; Action DT-3.5.1
Synchronize traffic signals along streets impacted by project development.	Compliant See Policy CIRC-1.2; Policy CIRC-1.3; Action CIRC-1.3.2; Policy CIRC-3.1
Provide continuous sidewalks separated from the roadway by landscaping and on-street parking.	Compliant See Policy CIRC-5.2; Action CIRC-5.2.1; Policy CIRC-5.3; Action DT-3.7.1
Provide adequate lighting for sidewalk, along with crosswalks at intersections.	Compliant See Policy CIRC-4.4; Action CIRC-4.4.2; Action DT-5.1.4
Increase the building energy efficiency rating by 10% above what is required by Title 24 requirements. This can be accomplished in a number of ways (increasing attic, wall or floor insulation, etc.).	Compliant See Policy SUS-4.1; Action SUS-4.1.1; Policy SUS-5.2; Action SUS-5.2.2; Action SUS-5.2.3
Improvement of thermal efficiency of commercial and industrial structures as appropriate by reducing thermal load with automated and timed temperature controls, or occupancy load limits.	Compliant See Policy SUS-4.1; Action SUS-4.1.1; Action SUS-4.3.4; Action SUS-5.2.4 Improvement of thermal efficiency is also mandated in California Energy Code Sections 114, 124, and 160
Incorporate shade trees, adequate in number and proportional to the project size, throughout the project site to reduce building heating and cooling requirements.	Compliant Action LU-6.2.2; Policy OS-8.1; Action OS-8.1.1; Action OS-8.1.2; Action OS-8.1.3; Action OX-8.1.4; Policy OS-8.2; Action OS-8.2.1; Action OS-8.2.2
Use fleet vehicles that run on clean-burning fuels as may be practicable.	Compliant See Policy SUS-3.4; Action SUS3.4.2; Policy SUS-5.3; Action OS-5.1.4

Implementation of the proposed General Plan Update policies and actions direct maintaining consistency with BCAQMD standards and requirements (Actions OS-4.1.1, OS-4.1.2, and OS-4.1.3), and would reduce potential long-term operational air quality impacts. As previously mentioned, BCAQMD's CEQA Air Quality Handbook identifies a list of best available mitigation strategies tailored to the type of project being proposed. For instance, mitigation measures to be implemented for a hypothetical future commercial development could include a provision for the minimum parking required in order to discourage vehicle trips and/or an increase in parking lot shading by 20 percent over the minimum requirement. However, these actions would not fully offset air pollutant emissions resulting from long-term operations consequential to build-out of the proposed General Plan Update. The region is nonattainment for federal ozone and $PM_{2.5}$ standards, and nonattainment for state O_3 and PM_{10} and $PM_{2.5}$ standards and even with implementation of relevant policies and actions from the proposed General Plan Update, the long-term, operational emissions resulting from build-out could violate or substantially contribute

to a violation in O_3, PM_{10}, and/or $PM_{2.5}$ federal and state standards (while ozone emission sources are expected to be reduced as compared to existing conditions, future particulate matter emissions would increase at build-out).

The intent of the proposed General Plan Update is to accommodate anticipated growth in a compact, walkable community, through thoughtful infill, focused redevelopment along transit corridors and at other key locations, and new mixed-use and complete neighborhoods. The proposed General Plan Update and its Land Use Diagram would provide for this growth and would minimize outward expansion of the City's boundaries. The General Plan identifies new growth areas (Special Planning Areas) with a mix of uses and higher density residential development. Thus, growth accommodated under the proposed General Plan Update would avoid growth effects of a sprawl development patterns (sprawl development patterns contribute to increased vehicle miles traveled and thus air pollutants emissions).

Implementation of the proposed General Plan Land Use Diagram, however, could violate or substantially contribute to a violation in already nonattainment O_3, PM_{10}, and/or $PM_{2.5}$ federal and state standards (see **Table 4.6-7**). Thus, this impact is considered **significant and unavoidable**.

Exposes Sensitive Receptors to Substantial Carbon Monoxide Pollutant Concentrations (Standard of Significance 4)

Impact 4.6.4 Implementation of the proposed General Plan Update would result in increased population and employment that would increase traffic volumes on area roadways. This could result in elevated carbon monoxide emissions from motor vehicle congestion that could expose sensitive receptors to elevated carbon monoxide concentrations. However, traffic volumes would not be large enough to generate excessive carbon monoxide emission levels. This is considered to be a **less than significant** impact.

Localized CO concentrations near roadway intersections are a function of traffic volume, speed, and delay (Toxic Air Contaminants are discussed under **Impact 4.6.5**). Transport of CO is extremely limited because it disperses rapidly with distance from the source under normal meteorological conditions. Under specific meteorological conditions, CO concentrations near roadways and/or intersections may reach unhealthy levels with respect to sensitive receptors, often referred to as a "CO hotspot."

BCAQMD recommends use of a screening approach to determine if long-term project operations would have the potential to create a violation of the CO standard (BCAQMD, 2008). Based on BCAQMD guidance, the proposed General Plan Update could have a significant impact on localized CO concentrations if:

- A traffic study indicates that the peak hour level of service (LOS) on 1 or more streets or at 1 or more intersections will be reduced to LOS E or F; or

- A traffic study indicates that the project will substantially worsen (i.e., increase delay by 10 or more seconds) an already existing LOS F on one or more streets or intersections.

If either of the above criteria can be associated with any road segment or intersection affected by the proposed General Plan Update additional CO analysis would be needed to determine significance.

The traffic modeling conducted for this Draft EIR projected that one road segment, Nord Avenue between W. Sacramento Avenue to W. Sacramento Avenue in front of the Safeway shopping center complex will be reduced from LOS E to F as a result of the General Plan Update and one intersection at Mangrove Avenue and Vallombrosa Avenue will be reduce to LOS D to LOD E as a result of the General Plan Update. shopping center complex. Therefore, this impact does not meet the screening criteria listed above and additional CO analysis is needed to determine significance.

CO concentrations were modeled using the California Line Source Dispersion Model (CALINE4) with emission factors from the EMFAC 2007 computer model. Modeling was conducted in accordance with the University of California Davis Transportation Project-Level Carbon Monoxide Protocol (Garza, Granly, and Sperling, 1997). Background (ambient) CO concentrations were obtained from the USEPA (USEPA, 2009b) and were identified as the highest concentrations recorded during the last three years. However, it is expected that background CO concentrations in the year 2030 would be lower than those recorded during 2006, due to continuous improvement in CO emissions control technology over time, making this analysis conservative. According to the USEPA data, the 1-hour and 8-hour background CO concentrations for the proposed General Plan Update build-out conditions were estimated to be 4.3 parts per million (ppm) and 2.7 ppm, respectively. The maximum General Plan Update traffic-generated 1-hour CO concentration was calculated to be 1.8 ppm. Assuming a persistence factor of 0.7, the 8-hour concentration was estimated at 1.3 ppm. Total 1-hour and 8-hour estimated CO concentrations at proposed General Plan Update build-out (2030) conditions would be approximately 6.1 ppm and 4.0 ppm, respectively. Because the proposed General Plan Update would not be anticipated to result in or contribute to local CO concentrations that exceed the state 1-hour or 8-hour ambient air quality standards of 20 ppm or 9 ppm, respectively, this impact is considered to be **less than significant** and no mitigation measures are required.

Exposes Sensitive Receptors to Substantial Toxic Air Contaminant Concentrations (Standard of Significance 4)

Impact 4.6.5 Subsequent land use activities associated with implementation of the proposed General Plan Update could result in projects that would include sources of toxic air contaminants which could affect surrounding land uses. Subsequent land use activities could also place sensitive land uses near existing sources of toxic air contaminants. These factors could result in the exposure of sensitive receptors to substantial pollutant concentrations such as toxic air contaminants. However, Butte County Air Quality Management District and state regulations would address exposure to toxic air contaminants. This is considered a **less than significant** impact.

Subsequent land use activities associated with implementation of the proposed General Plan Update could potentially include short-term construction sources of TACs and long-term operational sources of TACs, including stationary and mobile sources.

Short-Term Construction Sources

Implementation of the proposed General Plan Update would result in the potential construction of a variety of projects. This construction would result in short-term emissions of diesel PM, which was identified as a TAC by CARB in 1998. Construction would result in the generation of diesel PM emissions from the use of off-road diesel equipment required for site grading and excavation, paving, and other construction activities. The amount to which the receptors are exposed (a

function of concentration and duration of exposure) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Health-related risks associated with diesel-exhaust emissions are primarily linked to long-term exposure and the associated risk of contracting cancer. The calculation of cancer risk associated with exposure to TACs is typically based on a 70-year period of exposure. The use of diesel-powered construction equipment, however, would be temporary and episodic and would occur over a relatively large area. For these reasons, diesel PM generated by construction activities, in and of itself, would not be expected to create conditions where the probability of contracting cancer is greater than 10 in 1 million for nearby receptors. Long-term health risks associated with short-term construction activities would therefore be considered **less than significant**. It should also be noted the diesel construction emissions are regulated by BCAQMD Rule 201 (Visible Emissions).

Long-Term Operational Sources

Stationary Sources

The issuance of BCAQMD air quality permits and compliance with all BCAQMD, state, and federal regulations regarding stationary TACs reduce potential stationary sources of TAC emissions such that sensitive receptors would not be exposed to substantial pollutant concentrations. BCAQMD limits public exposure to TACs through a number of programs. BCAQMD reviews the potential for TAC emissions from new and modified stationary sources through the BCAQMD permitting process for stationary sources. TAC emissions from existing stationary sources are limited by:

1. BCAQMD adoption and enforcement of rules aimed at specific types of sources known to emit high levels of TACs;
2. Implementation of the Air Toxics "Hot Spots" (Assembly Bill 2588) Program as described under the Regulatory Framework subsection above; and
3. Implementation of the federal Title III Toxics program (BCAQMD, 2008).

Facilities and equipment that require permits from the BCAQMD are screened from risks from toxic emissions and are required to install Toxic Best Available Control Technology (T-BACT) to reduce the risks to below significant. If a significant impact remains after T-BACT is implemented, an air permit may not be issued unless it meets the discretionary approval criteria of the BCAQMD's Risk Management Policy for Permitting New and Modified Sources (BCAQMD, 2008). T-BACTs are the most up-to-date methods, systems, techniques, and production processes available to achieve the greatest feasible emission reductions for TACs. Therefore, the proposed General Plan Update's potential stationary TAC impacts are considered **less than significant**.

Mobile Sources

Mobile sources of TAC emissions in the city are primarily associated with traffic associated with State Route 99, operation of school buses and diesel-powered delivery trucks associated with roadways, and commercial, retail, and industrial uses.

Railroad Operations

As noted in **Table 4.6-5**, CARB considers major service and maintenance rail yards as potential sources of TACs. However, operation of rail lines outside of rail yards has not been identified as a potential source of TACs that pose a significant risk to sensitive receptors. The Union Pacific JR Davis Rail Yard in Roseville (over 70 miles to the south of the City of Chico) is the nearest major

rail yard. Therefore, exposure of sensitive receptors to substantial TAC pollutant concentrations from rail operations would be considered **less than significant**.

On-Road Operations

Approximately 60 percent of California's diesel exhaust is emitted on roadways by heavy-duty trucks, buses, and light-duty passenger vehicles. People living and/or working near busy roadways, such as State Route 99, are exposed to higher than average concentrations of diesel exhaust (CARB, 2005).

Emissions from school buses can vary depending on various factors, including bus type, age, and maintenance, and the amount of time spent idling. Health impacts from exhaust exposure include eye and respiratory irritation, enhanced respiratory allergic reactions, asthma exacerbation, increased cancer risk, and immune system degradation. Generally, children are more vulnerable to air pollutants because of their higher inhalation rates, narrower airways, and less mature immune systems.

In response to the above issue, CARB adopted an Airborne Toxics Control Measure (ATCM) as part of the Particulate Matter Risk Reduction Plan to specifically deal with diesel emissions from school buses. This measure became effective July 16, 2003. The school bus-idling ATCM includes the following requirements:

a) The driver of a school bus or vehicle, transit bus, or heavy-duty vehicle (other than a bus) shall manually turn off the bus or vehicle upon arriving at a school and shall restart no more than 30 seconds before departing. A driver of a school bus or vehicle shall be subject to the same requirement when operating within 100 feet of a school and shall be prohibited from idling more than five minutes at each stop beyond schools, such as parking or maintenance facilities, school bus stops, or school activity destinations. A driver of a transit bus or heavy-duty vehicle (other than a bus) shall be prohibited from idling more than five minutes at each stop within 100 feet of a school. Idling necessary for health, safety, or operational concerns shall be exempt from these restrictions.

b) The motor carrier of the affected bus or vehicle shall ensure that drivers are informed of the idling requirements, track complaints and enforcement actions, and keep track of driver education and tracking activities.

According to CARB, implementation of the above requirements would eliminate unnecessary idling for school buses and other heavy-duty vehicles, thus reducing localized exposure to TAC emissions and other harmful air pollution emissions at and near schools and protecting children from unhealthy exhaust emissions.

In addition to the school bus-idling ATCM, CARB adopted an idling-restriction ATCM for large commercial diesel-powered vehicles that became effective February 1, 2005. In accordance with this measure, affected vehicles are required to limit idling to no longer than 5 minutes under most circumstances. CARB is currently evaluating additional ATCMs intended to further reduce TACs associated with commercial operations, including a similar requirement to limit idling of smaller diesel-powered commercial vehicles.

In 2001, CARB adopted new PM and NO_x emission standards to clean up large diesel engines that power big-rig trucks, trash trucks, delivery vans and other large vehicles. The new standard for PM took effect in 2007 and reduces emissions to 0.01 gram of PM per brake horsepower-hour (g/bhp-hr.) This is a 90-percent reduction from the pre-2007 PM standard. New engines will meet

the 0.01 g/bhp-hr PM standard with the aid of diesel particulate filters that trap the PM before exhaust leaves the vehicle.

The proposed General Plan Update contains Action OS-4.1.2, which mandates that during project and environmental review, the City shall evaluate air quality impacts and incorporate applicable mitigations to reduce impacts consistent with BCAQMD requirements. Compliance with BCAQMD rules and regulations regarding stationary sources of TACs would reduce the exposure of sensitive receptors to substantial TAC pollutant concentrations from stationary and mobile sources because an air permit may not be issued unless proposed development meets the discretionary approval criteria of the BCAQMD's Risk Management Policy for Permitting New and Modified Sources (BCAQMD, 2008). Therefore, this impact would be considered to be **less than significant** and no mitigation is necessary.

Creates Objectionable Odors Affecting a Substantial Number of People (Standard of Significance 5)

Impact 4.6.6 Subsequent land use activities associated with implementation of the proposed General Plan Update could include sources that could create objectionable odors affecting a substantial number of people or expose new residents to existing sources of odor. However, continued implementation of BCAQMD rules and regulations and proposed General Plan Update policy provisions would address this issue. Thus, this impact is considered to be **less than significant**.

Subsequent land use activities associated with implementation of the proposed General Plan Update could allow for the development of uses that have the potential to produce odorous emissions either during the construction or operation of future development. Additionally, subsequent land use activities may allow for the construction of sensitive land uses (i.e., residential development, schools, parks, offices, etc.) near existing or future sources of odorous emissions.

Future construction activities could result in odorous emissions from diesel exhaust associated with construction equipment. However, because of the temporary nature of these emissions and the highly diffusive properties of diesel exhaust, exposure of sensitive receptors to these emissions would be limited.

BCAQMD has adopted a nuisance rule that addresses the exposure of nuisance air contaminant discharges. Rule 200 states that no person shall discharge from any non-vehicular source such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property (BCAQMD, 2009). If public complaints are sufficient to cause the odor source to be considered a public nuisance, then BCAQMD can require the identified source to incorporate mitigation measures to correct the nuisance condition.

The proposed General Plan Update contains policies and actions that include specific, requirements that address impacts resulting from odors. The maintenance of long-term boundaries between urban and agricultural uses and retention of the Greenline as required by Policy LU-1.2 and associated Action LU-1.2.1 will buffer non-agricultural uses from odors related to agricultural activities. Specifically Policy LU-2.6 requires a minimum 100-foot wide physical

separation between agricultural uses and any habitable structure and seeks the incorporation of vegetation in these buffer areas when possible.

Implementation of the proposed General Plan Update policies and actions described above, which primarily address odors resulting from agricultural activities, in combination with BCAQMD's Rule 200, would minimize the creation of objectionable odors affecting a substantial number of people. No mitigation measures are required and this impact is considered **less than significant**

4.6.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

CUMULATIVE SETTING

The policies and actions in the proposed General Plan Update would provide direction for growth within the city limits, while the Butte County General Plan policies and actions provide direction for growth outside the city limits within Butte County. Similar relationships between cities and counties occur throughout the SVAB. Thus, the setting for this cumulative analysis consists of the SVAB and associated growth and development anticipated in the SVAB. A considerable amount of the ozone that is monitored in the SVAB results from pollutants that have been transported from the San Francisco Bay Area. Due to the lack of physical barriers and coastal winds blowing inland, air pollution generated in the metropolitan Bay Area is easily spread to the Sacramento Valley.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

Result in a Cumulatively Considerable Net Increase in Nonattainment Criteria Pollutant (Standard of Significance 3)

Impact 4.6.7 Implementation of the proposed General Plan Update, in combination with cumulative development in the Sacramento Valley Air Basin, would result in a cumulatively considerable net increase of ozone and coarse and fine particulate matter. This is considered a **cumulatively considerable** impact.

Table 4.6-10 compares criteria air pollutant emissions between General Plan Update build-out conditions and existing conditions (2008). As illustrated in **Table 4.6-10**, ROG, NO_x, and CO emissions are anticipated to decrease with build-out conditions versus existing conditions (2008) by 1,718, 6,747, and 38,941.77 pounds per day, respectively. This reduction in emissions is due to improvements in vehicle emission technology. However, as described under Impact 4.6.2 and Impact 4.6.3, subsequent construction and development activity under the proposed General Plan Update would result in emissions in excess of BCAQMD thresholds for criteria air pollutants and precursors for which BCAQMD is in nonattainment. As a result, this impact is cumulatively considerable.

TABLE 4.6-10
CRITERIA POLLUTANT EMISSIONS (2008 AND BUILD-OUT)
(POUNDS PER DAY)

Source	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
2008 Existing Conditions						
Area Sources	6,927.94	1,062.92	22,769.44	68.36	3,526.79	3,394.74
Mobile Sources	6,524.38	9,244.11	70,456.71	28.52	4,972.62	1,009.14
Total Unmitigated	13,452.32	10,307.03	93,226.15	96.88	8,499.41	4,403.88
Build-Out Conditions						
Area Sources	9,811.34	1,657.26	36,303.66	111.53	5,676.78	5,464.26
Mobile Sources	1,922.16	1,902.34	17,980.72	35.54	6,238.91	1,186.07
Total Unmitigated	11,733.50	3,559.60	54,284.38	147.07	11,915.69	6,650.33
Net Difference (Build-Out Conditions – 2008 Existing Conditions)						
Net Difference	(1,718.82)	(6,747.43)	(38,941.77)	50.19	3,416.28	2,246.45

Source: California Air Resources Board, URBEMIS 2007 v. 9.2.4 Outputs (see Appendix C)

As discussed throughout this section, the General Plan Update contains several policy provisions to address air quality. Proposed General Plan Update Action OS-4.1.2 states that during project and environmental review, applicable mitigations to reduce impacts consistent with BCAQMD requirements shall be incorporated. BCAQMD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs. Other responsibilities include monitoring air quality, preparing clean air plans, and responding to citizen complaints concerning air quality. All projects in the City of Chico are subject to applicable BCAQMD rules and regulations in effect at the time of construction. Descriptions of specific rules applicable to future construction and development operations resulting from implementation of the proposed General Plan Update have been identified throughout this section. In addition, Action OS-4.1.1 seeks collaboration with BCAQMD regarding development by the District of an air quality impact fee as a method to mitigate air quality impacts.

The proposed General Plan Update seeks to reduce the environmental impact of land use development by limiting the amount of land consumed and increasing the viability of walking, biking, and transit by balancing growth and conservation through the reinforcement of the city's compact urban form, establishing urban growth limits, and managing where and how growth and conservation will occur. The proposed General Plan Update and its Land Use Diagram would provide for growth while minimizing outward expansion of the City's boundaries, would reduce increases in vehicle miles traveled within the city and thus reduce air quality impacts. However, while implementation of proposed General Plan Update policies and actions would assist in preventing, reducing, and minimizing the proposed General Plan Update's contribution to cumulative air quality impacts, this contribution is still considered **cumulatively considerable** and thus a **significant and unavoidable** impact as these actions might not fully offset air pollutant emissions resulting from construction and operational activities and could violate or substantially contribute to a violation in already nonattainment O_3, PM_{10}, and $PM_{2.5}$ federal and state standards. There are no feasible mitigation measures that can further offset air pollutant emissions from subsequent development and growth under the proposed General Plan Update.

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