

## 4.0 AIR QUALITY

Ambient air quality is generally affected by climatological conditions, the topography of the air basin, the type and amounts of pollutants emitted, and, for some pollutants, sunlight. The area of the proposed project is subject to a combination of topographical and climatic factors that create the potential for high regional and local concentrations of air pollutants. This chapter describes relevant characteristics of the air basin that affect pollutant dispersion in the *Dry Creek/West Placer Community Plan* (or *Community Plan*) and discusses types of air pollutants, health effects, and existing air quality levels. This chapter provides an overview of the existing air quality within *Community Plan* area and evaluates potential impacts to air quality that could result from implementation of the proposed project.

### 4.1 ENVIRONMENTAL SETTING

#### 4.1.1 Regional Climate and Topography

The proposed project is located in the Sacramento Valley Air Basin (SVAB), within the southwestern portion of Placer County. Weather patterns throughout the SVAB are, in part, affected by the geography. SVAB is bounded by the North Coast Ranges to the west, the northern Sierra Nevada Mountains to the east, and the Cascade Range to the north. The areas within the ranges and mountains are relatively flat. The Carquinez Strait breaches the Coast Range, exposing the middle portion of the SVAB to the influence of Pacific Coast marine weather. This geography channels winds through the Sacramento Valley but inhibits dispersion of pollutant emissions in portions of the valley. Typically, marine air entering the SVAB through the Carquinez Strait transports pollutants out of the valley to the north. However, conditions can lead to the prevailing winds circling back south, particularly between July and September, resulting in elevated pollution levels in the SVAB. This marine influence can result in pollutants being carried from the San Francisco Bay Area and Sacramento regions to West Placer County.

The climate of the SVAB is Mediterranean in character, with mild, rainy winter weather from November through March, and hot, dry weather from May through September. January temperatures in the area range from an average low in the 30s (degrees Fahrenheit [°F]) to an average high in the 50s (°F). July temperatures range from an average low in the 50s (°F) to an average high in the 90s (°F). These high temperatures, combined with low humidity, produce hot, dry summers that contribute to the buildup of ozone (a major constituent of smog).

Pollutant dispersion is also affected by temperature inversions that are common throughout the year but most prominent in the late summer and fall. Surface inversions are formed when the air close to the earth's surface cools more rapidly than the warm layer of air above it. Elevated inversions can occur when a layer of cool air is suspended between warm air layers above and below it. Both types of inversions inhibit vertical air dispersion. Coupled with the generally light winds during the late summer and fall, inversions contribute to high pollutant concentrations near ground level.

#### 4.1.2 Air Quality Standards and Existing Concentrations

The federal government and the state government of California have established separate ambient air quality standards. The U.S. Environmental Protection Agency (U.S. EPA) has established primary and secondary National Ambient Air Quality Standards (NAAQS) that specify allowable ambient concentrations for criteria pollutants under the provisions of the Clean Air Act. Primary NAAQS are established at levels necessary, with an adequate margin of safety, to protect the public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Similarly, secondary NAAQS specify the allowable levels of air quality determined appropriate to protect the public welfare

from any known or anticipated adverse effects associated with air contaminants. NAAQS are set for carbon monoxide (CO), lead (Pb), respirable particulate matter (PM<sub>10</sub>), fine particulate matter (PM<sub>2.5</sub>), nitrogen dioxide (NO<sub>2</sub>), ozone, and sulfur dioxide (SO<sub>2</sub>).

**Table 4-1** summarizes the NAAQS for these pollutants. The 8-hour ozone and PM<sub>2.5</sub> standards listed in the table were promulgated in 1997 but were challenged in the courts. In 2002, the courts upheld these two standards. The U.S. EPA made final designations for the 8-hour ozone standards on April 15, 2004, and made final designations for the new federal PM<sub>2.5</sub> standards on December 2004. Recently, U.S. EPA approved a more stringent 8-hour ozone standard (2008) and a more stringent PM<sub>2.5</sub> standard (2006). U.S. EPA and the states are currently working together to develop air quality plans to achieve compliance with these standards, where needed.

In California, the California Air Resources Board (CARB), which is part of the California Environmental Protection Agency, promulgated California Ambient Air Quality Standards (CAAQS) for CO, Pb, PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>2</sub>, ozone, and SO<sub>2</sub> that are more stringent than U.S. EPA's NAAQS, as shown in **Table 4-1**. In 2002, CARB revised the state annual PM<sub>10</sub> standard and established an annual PM<sub>2.5</sub> standard. These standards went into effect July 7, 2004. In April 2005, CARB approved a new 8-hour average standard for ozone that went into effect on May 17, 2006. CARB has also developed standards for hydrogen sulfide, sulfates, vinyl chloride, and visibility-reducing particles.

Areas (portions of or entire air districts, counties, or air basins) in California are classified separately as being either in attainment or nonattainment of the NAAQS and the CAAQS. An area's classification is determined by comparing actual monitored air pollutant concentrations to the NAAQS and the CAAQS. More than 200 air monitoring stations are located throughout California and are part of the State and Local Air Monitoring Network. These stations are operated by CARB, local Air Pollution Control Districts (APCDs) or Air Quality Management Districts (AQMDs), private contractors, and the National Park Service (NPS). Areas that do not have sufficient data for an attainment/nonattainment determination are given an unclassified designation and are not considered to be nonattainment.

The two ambient pollutant monitoring stations closest to the *Community Plan* area are located in North Highlands, which is about 2 miles south of the project, and Roseville, which is about 8 miles east. **Tables 4-2** and **4-3** summarize measured criteria pollutant concentrations over the past three years (2005 through 2007) at these stations.

At the monitoring stations listed in **Tables 4-2** and **4-3**, measured ozone concentrations have exceeded the NAAQS and the CAAQS; measured PM<sub>10</sub> concentrations have exceeded the CAAQS; but the measured PM<sub>2.5</sub> concentrations have not exceeded the NAAQS or the CAAQS. However, attainment designations are based on all monitored levels throughout the Sacramento area. As such, the region is designated as:

- Serious nonattainment of the 8-hour ozone NAAQS and nonattainment of the 1-hour and 8-hour ozone CAAQS;
- Nonattainment of the 24-hour and annual PM<sub>10</sub> CAAQS; and
- Nonattainment of the annual PM<sub>2.5</sub> CAAQS.

The nonattainment region is called the Sacramento Federal Nonattainment Area and includes all of Sacramento and Yolo Counties and portions of El Dorado, Placer (West Placer County), Sutter, and Solano counties.

The measured local concentrations, health effects, and other characteristics of CO, NO<sub>2</sub>, ozone, PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub> are discussed below; reactive organic gases (ROG), volatile organic compounds (VOC),

**Table 4-1  
Federal and California Ambient Air Quality Standards**

Pollutant	Averaging Time	NAAQS <sup>a</sup>	CAAQS
CO	1-hour	35 ppm	20 ppm
	8-hour	9 ppm	9.0 ppm
	8-hour (Lake Tahoe)	None	6 ppm
NO <sub>2</sub>	1-hour	None	0.18 ppm
	Annual Average	0.053 ppm	0.030 ppm
Ozone	1-hour	None <sup>b</sup>	0.09 ppm
	8-hour	0.08 ppm (1997) 0.075 ppm (2008) <sup>c</sup>	0.070 ppm
Pb	30 days	None	1.5 µg/m <sup>3</sup>
	Calendar Quarter	1.5 µg/m <sup>3</sup>	None
PM <sub>10</sub>	24-hour	150 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>
	Annual Average	Revoked <sup>d</sup>	20 µg/m <sup>3</sup>
PM <sub>2.5</sub>	24-hour	65 µg/m <sup>3</sup> (1997) 35 µg/m <sup>3</sup> (2006) <sup>e</sup>	None
	Annual Average	15 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>
SO <sub>2</sub>	1-hour	None	0.25 ppm
	3-hour	0.5 ppm <sup>f</sup>	None
	24-hour	0.14 ppm	0.04 ppm
	Annual Average	0.03 ppm	None
Hydrogen sulfide	1-hour	No federal standards	0.03 ppm
Sulfates	24-hour		25 µg/m <sup>3</sup>
Vinyl chloride	24-hour		0.01 ppm
Visibility reducing particles	8-hour		Extinction coefficient of 0.23 per kilometer

**Source:** CARB, 2008a and U.S. EPA, 2008a

<sup>a</sup> Primary National Ambient Air Quality Standards unless otherwise noted.

<sup>b</sup> 1-hour ozone standard revoked June 5, 2005, except for areas that do not yet have an effective date for their 8-hour designations.

<sup>c</sup> "The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard" (U.S. EPA, 2008a).

<sup>d</sup> Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, U.S. EPA revoked the annual PM<sub>10</sub> standard in 2006 (effective December 17, 2006).

<sup>e</sup> The 35 micrograms per cubic meter of air standard became effective December 17, 2006. The new standard is applicable to measurements beginning with year 2007; 65 micrograms per cubic meter of air prior to year 2007.

<sup>f</sup> Secondary NAAQS.

**Notes:**

Standards are expressed in units in which they were promulgated (ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter)

National standards (other than ozone, PM, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once per year.

California standards for ozone, CO, SO<sub>2</sub> (1-hour averaging period), NO<sub>2</sub>, and PM<sub>10</sub> are not to be exceeded. All others are not to be equalled or exceeded.

Compliance with state and federal standards is not entirely based on the highest measured concentrations. The process for determining compliance with ambient air quality standards is described in CCR Title 17 Section 70100.

CAAQS = California Ambient Air Quality Standards

CO = Carbon monoxide

NO<sub>2</sub> = Nitrogen dioxide

Pb = lead

PM<sub>10</sub> = respirable particulate matter

PM<sub>2.5</sub> = fine particulate matter

SO<sub>2</sub> = Sulfur dioxide

**Table 4-2  
Maximum Measured Pollutant Concentrations at North Highlands**

Pollutant	Averaging Time	Units	Standards		Maximum Measured Concentration		
			NAAQS	CAAQS	2005	2006	2007
CO	1 hour	Ppm	35	20	8.0	7.5	5.1
	8 hours	Ppm	9	9.0	2.86	2.70	1.73
NO <sub>2</sub>	1 hour	Ppm	None	0.25	0.060	0.097	0.127
	Annual Average	Ppm	0.053	None	0.011	0.012	0.013
Ozone	1 hour	Ppm	None	0.09	0.103 <sup>b</sup>	0.135 <sup>b</sup>	0.109 <sup>b</sup>
	8 hours	Ppm	0.08	0.070	0.086 <sup>a,b</sup>	0.093 <sup>a,b</sup>	0.096 <sup>a,b</sup>
PM <sub>10</sub>	24 hours	µg/m <sup>3</sup>	150	50	110.0 <sup>b</sup>	67.0 <sup>b</sup>	59.0
	Annual Average	µg/m <sup>3</sup>	None	20	27.9 <sup>b</sup>	26.6 <sup>b</sup>	24.8
PM <sub>2.5</sub>	24 hours	µg/m <sup>3</sup>	65	None	Not available at this site		
	Annual Average	µg/m <sup>3</sup>	15	12			
SO <sub>2</sub>	1 hour	Ppm	None	0.25	0.010	0.008	.030
	3 hours	Ppm	0.5	None	0.007	0.005	.017
	24 hours	Ppm	0.14	0.04	0.002	0.003	0.004
	Annual Average	Ppm	0.030	None	0.001	0.001	0.001

**Source:** Monitoring station located at 7823 Blackfoot Way, North Highlands, CA  
Data taken from CARB, 2008b and U.S. EPA, 2008b

<sup>a</sup> Exceeds the NAAQS

<sup>b</sup> Exceeds the CAAQS

**Notes:**

µg/m<sup>3</sup> = micrograms per cubic meter; NA= not available; ppm = parts per million

Co = Carbon monoxide; NO<sub>2</sub> = Nitrogen dioxide; PM<sub>10</sub> = respirable particulate matter; PM<sub>2.5</sub> = fine particulate matter; SO<sub>2</sub> = Sulfur dioxide

**Table 4-3  
Maximum Measured Pollutant Concentrations at Roseville**

Pollutant	Averaging Time	Units	Standards		Maximum Measured Concentration		
			NAAQS	CAAQS	2005	2006	2007
CO	1 hour	ppm	35	20	2.0	NA	NA
	8 hours	ppm	9	9.0	1.27	NA	NA
NO <sub>2</sub>	1 hour	ppm	None	0.25	0.079	0.063	0.058
	Annual Average	ppm	0.053	None	0.013	0.013	0.012
Ozone	1 hour	ppm	None	0.09	0.118 <sup>b</sup>	0.121 <sup>b</sup>	0.109 <sup>b</sup>
	8 hours	ppm	0.08	0.070	0.106 <sup>a,b</sup>	0.097 <sup>a,b</sup>	0.101 <sup>a,b</sup>
PM <sub>10</sub>	24 hours	µg/m <sup>3</sup>	150	50	58.0 <sup>b</sup>	55.0 <sup>b</sup>	45.0
	Annual Average	µg/m <sup>3</sup>	None	20	19.6	22.4 <sup>b</sup>	17.8
PM <sub>2.5</sub>	24 hours	µg/m <sup>3</sup>	65	None	51.0	54.7	30.0
	Annual Average	µg/m <sup>3</sup>	15	12	10.0	10.5	12.2
SO <sub>2</sub>	1 hour	ppm	None	0.25	Not available at this site		
	3 hours	ppm	0.5	None			
	24 hours	ppm	0.14	0.04			
	Annual Average	ppm	0.030	None			

**Source:** Monitoring station located at 151 N Sunrise Blvd., Roseville, CA  
Data taken from CARB, 2008b and U.S. EPA, 2008b

<sup>a</sup> Exceeds the NAAQS

<sup>b</sup> Exceeds the CAAQS

**Notes:**

µg/m<sup>3</sup> = micrograms per cubic meter; NA= not available; ppm = parts per million

greenhouse gas (GHG) emissions, and toxic air contaminants (TAC) are also addressed, as they are pollutants of concern. Hydrogen sulfide, Pb, sulfates, vinyl chloride, and visibility reducing particles are of least concern in this *Community Plan* area because recorded levels are well below standards. Therefore, further discussion of these pollutants is not presented.

### **Carbon Monoxide – Criteria Pollutant**

CO is an odorless, colorless gas that can impair the transport of oxygen in the bloodstream; aggravate cardiovascular disease; and cause fatigue, headache, confusion, and dizziness. CO forms through incomplete combustion of fuels in vehicles, wood stoves, industrial operations, and fireplaces. In Placer County, vehicular exhaust is a major source of CO. CO tends to dissipate rapidly into the atmosphere and consequently is generally a concern at the local level, particularly at major road intersections.

CO concentrations at the two monitoring stations have been well below the NAAQS and the CAAQS. In fact, all of Placer County is in attainment of the CO standards.

### **Nitrogen Dioxide – Criteria Pollutant**

NO<sub>2</sub> is a brownish, highly reactive gas that can irritate the lungs, cause pneumonia, and lower the resistance to respiratory infections. Oxides of nitrogen (NO<sub>x</sub>), which include NO<sub>2</sub>, are a key precursor to ozone and acid rain. NO<sub>x</sub> forms when fuel is burned at high temperatures and principally comes from transportation sources and stationary fuel combustion sources such as electric utility and industrial boilers.

**Tables 4-2** and **4-3** show that measured concentrations of NO<sub>2</sub> have consistently remained well below the NAAQS and the CAAQS. With similar trends throughout the region (and state), the region is classified as being in attainment for the NAAQS and the CAAQS.

### **Ozone – Criteria Pollutant**

Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. Here, ground level or "harmful" ozone is an air pollutant that has a pungent odor, causes eye irritation, reduces visibility, and damages human health, vegetable crops, and many common materials. The troposphere extends to a level about 10 miles above the earth's surface, where it meets the second layer, called the stratosphere. The stratospheric or "helpful" ozone layer extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays.

Unlike other pollutants, ground level ozone is not emitted directly into the air by specific sources. A primary constituent of smog, ozone is formed in the atmosphere in the presence of sunlight by a series of chemical reactions involving NO<sub>x</sub> and ROG. Because these reactions occur on a regional scale over a period of hours, ozone is considered a regional air pollutant. Industrial fuel combustion and motor vehicles are primary sources of NO<sub>x</sub>. Primary sources of ROG are fugitive emissions from petroleum production and marketing, solvent evaporation, and a wide variety of manufacturing processes.

As indicated in **Tables 4-2** and **4-3**, measured concentrations of ozone have exceeded the NAAQS and the CAAQS in each of the past several years. These violations, together with other violations throughout the area, have resulted in the region area being designated as nonattainment with respect to the NAAQS and the CAAQS.

## **Particulate Matter – Criteria Pollutant**

PM is generally composed of particles in the air such as dust, soot, aerosols, fumes, and mists. Of particular concern is PM<sub>10</sub> (particulates that have aerodynamic diameters of 10 micrometers or less). A subgroup of PM<sub>10</sub> is PM<sub>2.5</sub> (particles with aerodynamic diameters less than 2.5 micrometers), which have very different characteristics, sources, and potential health effects than particles with an aerodynamic diameter between 2.5 to 10 micrometers.

PM<sub>10</sub> is generated by sources such as windblown dust, agricultural fields, and dust from vehicular traffic on unpaved roads. PM<sub>2.5</sub> is generally emitted from activities such as industrial combustion, vehicle exhaust, and residential wood-burning stoves and fireplaces. PM<sub>2.5</sub> is also formed in the atmosphere when gases such as SO<sub>2</sub>, NO<sub>x</sub>, and ROG are transformed by chemical reactions in the atmosphere. PM<sub>10</sub> affects breathing and the respiratory system, and, in particular, can damage lung tissue, and contribute to cancer and premature death.

Separate standards for PM<sub>2.5</sub> were established in 1997 because these smaller particles can penetrate deep into the respiratory tract and cause adverse health effects even when the PM<sub>10</sub> levels are below the 1997 PM<sub>10</sub> standards (U.S. EPA, 1997). Health studies have shown a significant association between exposure to PM<sub>2.5</sub> and premature mortality. Other important effects include aggravation of respiratory and cardiovascular disease (as indicated by increased hospital admissions, emergency room visits, absences from school or work, and restricted activity days), lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and cardiac arrhythmia. Individuals particularly sensitive to PM<sub>2.5</sub> exposure include older adults, people with heart and lung disease, and children.

As shown in **Tables 4-2** and **4-3**, measured PM<sub>10</sub> concentrations have exceeded the CAAQS; whereas, PM<sub>2.5</sub> concentrations have not exceeded the NAAQS or the CAAQS. However, attainment designations are based on all monitored levels throughout the area. Therefore, the region is designated as PM<sub>10</sub> and PM<sub>2.5</sub> nonattainment for the CAAQS.

## **Sulfur Dioxide – Criteria Pollutant**

SO<sub>2</sub> is a colorless acidic gas with a strong odor. High concentrations of SO<sub>2</sub> affect breathing and may aggravate existing respiratory and cardiovascular disease. SO<sub>2</sub> is also a primary contributor to acid deposition, which, in high concentrations, can cause acidification of lakes and streams and can damage trees, crops, building materials, and statues. In addition, sulfur compounds in the air can contribute to visibility impairment. The major source category for SO<sub>2</sub> is fuel-burning equipment combusting fossil fuels.

SO<sub>2</sub> is measured at the North Highlands station but not the Roseville station. The North Highlands station has measured concentrations well within the NAAQS and the CAAQS.

## **Reactive Organic Gases and Volatile Organic Compounds – Precursor to Ozone**

Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases, including VOC and ROG. ROG include all hydrocarbons except those exempted by CARB. Therefore, ROG are a set of organic gases based on state rules and regulations. VOC are similar to ROG in that they include all organic gases except those exempted by federal law. Both VOC and ROG are emitted from incomplete combustion of hydrocarbons or other carbon-based fuels. Combustion engine exhaust from automobiles and trucks and oil refineries are the primary sources of hydrocarbons. Another source of hydrocarbons is evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of hydrocarbons result from the formation of ozone and its related health effects (see ozone health effects discussion above). High levels of hydrocarbons in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. There are no separate federal or California ambient air quality standards for ROG. Carcinogenic forms of ROG are considered TACs.

## Greenhouse Gases

The earth's atmosphere naturally contains a number of gases, including (but not limited to) carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>), which are collectively referred to as greenhouse gases. In this report, GHG emissions are numerically depicted as carbon dioxide equivalents (CO<sub>2</sub>e). CO<sub>2</sub>e represents CO<sub>2</sub> plus the additional warming potential from CH<sub>4</sub> and N<sub>2</sub>O. In general, CH<sub>4</sub> and N<sub>2</sub>O have 21 and 310 times the warming potential of CO<sub>2</sub>, respectively. Manmade emissions of GHG occur through the combustion of fuels, as well as a variety of other sources. Only CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O are discussed in this Focused Draft EIR as they are the only GHGs associated with the proposed project (i.e., combustion of fossil fuels).

These gases trap some amount of solar radiation and the earth's own radiation, preventing it from passing through earth's atmosphere and into space. GHG are vital to life on earth; without them, earth would be an icy planet. For example, CO<sub>2</sub> is an element that is essential to the cycle of life. However, increasing GHG concentrations are believed to be warming the planet.

As the average temperature of the earth increases, weather may be affected, including changes in precipitation patterns, accumulation of snow pack, and intensity and duration of spring snowmelt. The sea level may rise, resulting in coastal erosion and inundation of coastal areas. Emissions of air pollutants and ambient levels of pollutants also may be affected in areas. Climate zones may change, affecting the ecology and biological resources of a region. There may be changes in fire hazards due to the changes in precipitation and climate zones.

While scientists have established a connection between increasing CO<sub>2</sub>e concentrations and increasing average temperatures, important scientific questions remain about how much warming will occur, how fast it will occur, and how the warming will affect the rest of the climate system. At this point, scientific efforts are unable to quantify the degree to which human activity impacts climate change. The phenomenon is worldwide, yet it is expected that there will be substantial regional and local variability in climate changes. It is not possible with today's science to determine the effects of global climate change in a specific locale, or whether the effect of one aspect of climate change may be counteracted by another aspect of climate change, or exacerbated by it.

Human activities generate GHG. Since pre-industrial times, there has been a build-up of levels of GHG in the atmosphere. The human contribution to the increase in atmospheric CO<sub>2</sub>e concentrations has resulted largely from the burning of fossil fuels. Fossil fuel combustion accounts for approximately 98 percent of CO<sub>2</sub>e emissions from human activity.

The United States has among the highest emissions of GHG of any nation on earth, though CO<sub>2</sub>e emissions in California are less than the national average, both in per capita emissions and in emissions per gross state product. Transportation is the largest source of CO<sub>2</sub>e emissions in California, accounting for approximately 41 percent of total emissions. Electricity generation accounts for approximately 22 percent of CO<sub>2</sub>e emissions in California, and the industrial sector accounts for approximately 20.5 percent.

## Toxic Air Contaminants

In addition to the criteria pollutants discussed above, TACs are another group of pollutants of concern. 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. Cars and trucks release at least 40 different toxic air contaminants. The most important, in terms of health risk, are diesel particulate, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

### 4.1.3 Existing Emission Sources

The pollutant concentrations measured at monitoring stations adjacent to the *Community Plan* area are a result of emissions from both human-generated and natural sources. Human-generated sources of emissions are generally divided into three types: stationary, area-wide, and mobile sources. The contributions of these source categories vary from region to region. CARB maintains an emissions inventory to determine the sources and quantities of air pollution generated within the state's counties and air basins. **Table 4-4** presents a summary of the projected 2006 pollutant emission data for a number of general source categories in Placer County. Emissions from mobile sources constitute the majority of ROG, CO, NO<sub>x</sub>, and SO<sub>x</sub> emissions in Placer County. Area-wide emissions contribute more than 87 percent of the PM<sub>10</sub> emissions in Placer County.

**Table 4-4  
Summary of Estimated 2006 Pollutant Emissions in Placer County  
(tons per day)**

Source	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	ROG	SO <sub>x</sub>
<b>Stationary Sources</b>						
Fuel Combustion	2.00	3.20	0.29	0.28	0.43	0.06
Waste Disposal	--	--	--	--	0.10	--
Cleaning And Surface Coating	--	--	--	--	1.63	--
Petroleum Production and Marketing	--	--	--	--	0.70	--
Industrial Processes	0.24	0.14	1.50	0.73	1.57	0.03
<b>Subtotal Stationary Sources</b>	<b>2.24</b>	<b>3.34</b>	<b>1.80</b>	<b>1.01</b>	<b>4.43</b>	<b>0.09</b>
<b>Area Sources</b>						
Solvent Evaporation	--	--	--	--	3.21	--
Miscellaneous Processes	46.92	1.08	22.51	7.11	3.54	0.16
<b>Subtotal Area Sources</b>	<b>46.92</b>	<b>1.08</b>	<b>22.51</b>	<b>7.11</b>	<b>6.74</b>	<b>0.16</b>
<b>Mobile Sources</b>						
On-Road Motor Vehicles	62.75	19.51	0.87	0.67	6.76	0.16
Other Mobile Sources	46.24	9.26	0.63	0.54	8.46	0.20
<b>Subtotal Mobile Sources</b>	<b>108.98</b>	<b>28.77</b>	<b>1.50</b>	<b>1.21</b>	<b>15.21</b>	<b>0.37</b>
<b>Total of All Sources</b>	<b>158.14</b>	<b>33.19</b>	<b>25.81</b>	<b>9.33</b>	<b>26.39</b>	<b>0.61</b>

Source: CARB, 2008c

#### 4.1.4 Sensitive Receptors

This section identifies sensitive receptors and land uses in the vicinity of the proposed project. A discussion of the air quality impacts affecting these receptors is discussed in **Section 4.3**. “Sensitive individuals refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses where sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses)” (CARB, 2005). Sensitive land uses are located throughout the *Community Plan* area. The closest sensitive receptors/land uses to the proposed project are as follows:

- Residential dwelling – approximately 50 feet from Cook-Riolo Road (at northern Central Avenue);
- Residential dwelling – approximately 40 feet from PFE Road (at Billy Mitchell Boulevard);
- Dry Creek Elementary School – located at the corner of PFE Road and Cook-Riolo Road; and
- Creekview Ranch Middle School – located on the east side of Cook-Riolo Road, and north of Dry Creek.

## 4.2 REGULATORY SETTING

Air quality in the study area is regulated by several agencies, including the U.S. EPA, the CARB, and the Placer County APCD (PCAPCD). Although U.S. EPA regulations may not be superseded, both state and local regulations may be more stringent than the federal requirements. The U.S. EPA is responsible for establishing the NAAQS, setting minimum New Source Review permitting and Operating Permit requirements for stationary sources; establishing New Source Performance Standards, National Emission Standards for Hazardous Pollutants and the Acid Deposition Control program; and administering regional air quality initiatives. The CARB’s role includes development, implementation, and enforcement of California’s motor vehicle pollution control program, administration of the state’s air pollution research program, adoption and updating, as necessary, of CAAQS, review of local APCD activities, and coordination of the development of the State Implementation Plan for achievement of the national ambient standards. Local APCDs are responsible for implementing federal and state regulations at the local level, permitting stationary sources of air pollution, and developing the local elements of the SIP. Emissions from indirect sources, such as automobile traffic associated with development projects, are addressed through the APCD’s air quality plans.

Placer County spans portions of three air basins in California: the southwestern third of the county (which includes the Plan Area) is within the SVAB; the northeastern portion is within the Lake Tahoe Air Basin; and the remainder is within the Mountain Counties Air Basin. Since air quality is sometimes regulated on a county-by-county basis and sometimes on a regional basis (e.g., within an air basin), air quality regulations and planning efforts in Placer County are intricate and require close coordination among several agencies. For example, because the southwestern part of Placer County lies within the SVAB, the District coordinates with other SVAB air districts (e.g., Sacramento Metropolitan Air Quality Management District) to resolve basin-wide air pollution problems.

The following three sections describe in more detail the roles and requirements at the federal, state, and local levels of government, and how these levels interact with each other to maintain and improve air quality. In addition to this, a fourth section covers GHG and climate change, including a review of recent federal and state regulations.

#### 4.2.1 Federal

As discussed previously, the federal government, through the U.S. EPA, has established primary and secondary NAAQS for criteria pollutants under the provisions of the Clean Air Act (see **Table 4-1**). U.S. EPA promulgated new 8-hour ozone and annual and 24-hour PM<sub>2.5</sub> ambient air quality standards, which have been upheld in the courts. The U.S. EPA made final designations for the 8-hour ozone standards on April 15, 2004, and made final designations for the new federal PM<sub>2.5</sub> standards in December 2004. With the new 8-hour ozone standard in place, the 1-hour federal ozone standard has been revoked for the region. Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, EPA revoked the annual PM<sub>10</sub> standard in 2006 (effective December 17, 2006).

A large region consisting of Sacramento and parts of Yolo, Placer (including the *Community Plan* area), and Solano counties has received a serious nonattainment designation with respect to the 8-hour average ozone NAAQS. This nonattainment area is called the Sacramento Ozone Nonattainment Area. The U.S. EPA, under the provisions of the Clean Air Act, requires each state with regions that have not attained the NAAQS to prepare a plan called the State Implementation Plan (SIP), detailing how these standards are to be met in each local area. The SIP is not a single document, but a compilation of new and previously submitted plans, programs, district rules, state regulations, and federal controls. Areas designated as serious nonattainment are required to achieve attainment by June 15, 2013. In California, CARB is the lead agency for developing the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards the SIP revisions to U.S. EPA for approval and publication in the Federal Register.

The APCDs within the nonattainment area had developed the 1994 *Sacramento Area Regional Ozone Attainment Plan* to satisfy the SIP requirement for the 1-hour ozone standard. This Attainment Plan identifies source controls and trip reduction strategies aimed at achieving the federal 1-hour ozone standard by 2005. The attainment strategy requires reductions of approximately 38 percent of ROG and 40 percent of NO<sub>x</sub> emissions (ozone precursors) relative to 1990 baseline emissions. The strategy relies heavily on mobile-source NO<sub>x</sub> reductions since, as shown previously, mobile sources generate a large majority of the regional NO<sub>x</sub> emissions. With the revocation of the 1-hour ozone standard, the APCDs continue to implement the existing control strategies, although efforts are currently underway to develop and submit an 8-hour ozone attainment plan for the Sacramento Federal Nonattainment Area, which includes Placer County (CARB, 2008d).

The Federal Clean Air Act regulates hazardous air pollutants (HAPs), airborne pollutants that are known to have adverse human health effects. Unlike criteria pollutants, HAPs do not have adopted ambient air quality standards. HAPs have been regulated at the federal level since the Clean Air Act of 1977 under Title 40 of the Code of Federal Regulations, Part 61 (40 CFR Part 61). The proposed project is not considered to be a major source of HAPs. A source that emits more than 10 tons per year of any single HAP or 25 tons per year of all combined HAPs would be considered a major source of HAPs.

#### 4.2.2 State

The State of California has established its own ambient air quality standards (the CAAQS) for criteria air pollutants that are, in general, more stringent than the federal standards (see **Table 4-1**). CARB, the state's air quality management agency, enforces these standards by regulating mobile emission sources and overseeing activities of the county APCDs and regional AQMDs. As stated previously, the proposed project is located in a nonattainment area with respect to the state ozone, PM<sub>10</sub>, and PM<sub>2.5</sub> CAAQS.

The California Clean Air Act requires that each area exceeding the state ambient air quality standards for ozone, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, and NO<sub>2</sub> must develop a plan aimed at achieving those standards

(California Health and Safety Code 40911). The California Health and Safety Code Section 40914 requires the AQMDs to design a plan that achieves an annual reduction in district-wide emission of 5 percent or more, averaged every consecutive three-year period. To satisfy this requirement, local air districts have developed an Air Quality Attainment Plan (AQAP) outlining strategies for achieving the state ambient air quality standard for ozone. The AQAP outlines both stationary and mobile emission source control measures and emphasizes Transportation Control Measures and Indirect Source Control Measures to reduce mobile source emissions. These measures are also incorporated into the SIP to satisfy federal requirements.

California also regulates TACs, which are a class of airborne pollutants similar to the federal HAPs. California's air toxics control program began in 1983 with the passage of the Toxic Air Contaminant Identification and Control Act, better known as Assembly Bill 1807 (AB 1807) or the Tanner Bill. The Tanner Bill established a regulatory process for the scientific and public review of individual toxic compounds. When a compound becomes listed as a TAC under the Tanner process, CARB normally establishes minimum statewide emission control measures to be adopted by local APCD. By 1992, 18 of the 189 federal HAPs had been listed by CARB as state TACs. Later legislative amendments (AB 2728) required CARB to incorporate all 189 federal HAPs into the state list of TACs.

The second major component of California's air toxics program, which supplements the Tanner process, was provided by the passage of AB 2588, the Air Toxics "Hot Spots" Information and Assessment Act of 1987. AB 2588 currently regulates over 600 air compounds, including all of the Tanner-designated TACs. Under AB 2588, specified facilities must quantify emissions of regulated air toxics and report them to the local APCD or AQMD. If the APCD determines that a potentially significant public health risk is posed by a given facility, the facility is required to perform a health risk assessment and notify the public in the affected area if the calculated risks exceed specified criteria.

On August 27, 1998, CARB formally identified PM emitted by diesel-fueled engines as a TAC. Diesel engines emit TACs in both gaseous and particulate forms. The particles emitted by diesel engines are coated with chemicals, many of which have been identified as HAPs by the U.S. EPA, and as TACs by CARB. Since by weight, the vast majority of diesel exhaust particles are very small (94 percent of their combined mass consists of particles less than 2.5 microns in diameter), both the particles and their coating of TACs are inhaled into the lungs. While the gaseous portion of diesel exhaust also contains other TACs, CARB's August 1998 action was specific to diesel particulate matter (DPM) emissions, which, according to supporting CARB studies, represent 50 to 90 percent of the mutagenicity (ability to cause mutations that lead to cancer) of diesel exhaust. Accordingly, diesel particulates are generally used as a surrogate to identify potential health risks from diesel emissions (CARB, 1998; CARB, 2006).

CARB's 1998 ruling prompted CARB to begin searching for means to reduce DPM emissions. In September 2000, CARB approved the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. The Diesel Risk Reduction Plan outlines a comprehensive and ambitious program that includes the development of numerous new control measures over the next several years aimed at substantially reducing emissions from new and existing on-road vehicles (e.g., heavy-duty trucks and buses), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps), and stationary engines (e.g., stand-by power generators).

### 4.2.3 Local

At the local level, the PCAPCD regulates air quality by establishing local air quality regulations, permitting stationary sources, and planning activities related to air quality. The PCAPCD is also responsible for enforcing and implementing NAAQS and CAAQS. Through its enhanced CEQA review process, the PCAPCD has developed significance thresholds for land use projects that generate air

pollutants. These thresholds apply to both short- and long-term air pollutant emissions. Projects with the potential to generate emissions exceeding the thresholds would have a significant impact on air quality. If the project's impact exceeds any of the significance criteria, various mitigation measures are available, depending on the nature of the air quality impact. The significance criteria are discussed in **Section 4.3.1**.

The 1988 California Clean Air Act requires nonattainment areas to develop plans aimed at achieving state ambient standards. The PCAPCD has developed an AQAP outlining strategies for achieving the state ambient ozone standard (as discussed above). The AQAP outlines both stationary and mobile emission source control measures, and emphasizes Transportation Control Measures and Indirect Source Control Measures as a means of reducing mobile source emissions in Placer County.

## **Placer County General Plan**

In addition to the air quality regulations, Placer County manages air quality through land use and development planning practices. The *Placer County General Plan – Air Quality Element* provides countywide goals and policies aimed at improving air quality. Goals and policies in the *Air Quality Element* parallel those identified in state and federal plans applicable to Placer County. *General Plan* policies and goals potentially applicable to the proposed project are summarized below (Placer County, 1994):

### **Air Quality – General**

- Goal 6.F            To protect and improve air quality in Placer County.
- Policy 6.F.1        The County shall cooperate with other agencies to develop a consistent and effective approach to air quality planning and management.
- Policy 6.F.2        The County shall develop mitigation measures to minimize stationary source and area source emissions.
- Policy 6.F.3        The County shall support the Placer County Air Pollution Control District (PCAPCD) in its development of improved ambient air quality monitoring capabilities and the establishment of standards, thresholds, and rules to more adequately address the air quality impacts of new development.
- Policy 6.F.4        The County shall solicit and consider comments from local and regional agencies on proposed projects that may affect regional air quality.
- Policy 6.F.5        The County shall encourage project proponents to consult early in the planning process with the County regarding the applicability of Countywide indirect and area wide source programs and transportation control measures (TCM) programs. Project review shall also address energy efficient building and site designs and proper storage, use, and disposal of hazardous materials.
- Policy 6.F.6        The County shall require project-level environment review to include identification of potential air quality impacts and designation of design and other appropriate mitigation measures or offset fees to reduce impacts. The County shall dedicate staff to work with project proponents and other agencies in identifying, ensuring the implementation of, and monitoring the success of mitigation measures.

- Policy 6.F.7 The County shall encourage development to be located and designed to minimize direct and indirect air pollutants.
- Policy 6.F.8 The County shall submit development proposals to the PCAPCD for review and comment in compliance with CEQA prior to consideration by the appropriate decision-making body.
- Policy 6.F.9 In reviewing project applications, the County shall consider alternatives or amendments that reduce emissions of air pollutants.
- Policy 6.F.10 The County may require new development projects to submit an air quality analysis for review and approval. Based on this analysis, the County shall require appropriate mitigation measures consistent with the PCAPCD's 1991 Air Quality Attainment Plan (or updated edition).
- Policy 6.F.11 The County shall apply the buffer standards described in Part I of this Policy Document and meteorological analyses to provide separation between possible emission/nuisance sources (such as industrial and commercial uses) and residential uses.

**Air Quality – Transportation/Circulation**

- Goal 6.G To integrate air quality planning with the land use and transportation planning process.
- Policy 6.G.1 The County shall require new development to be planned to result in smooth flowing traffic conditions for major roadways. This includes traffic signals and traffic signal coordination, parallel roadways, and intra- and inter-neighborhood connections where significant reductions in overall emissions can be achieved.
- Policy 6.G.2 The County shall continue and, where appropriate, expand the use of synchronized traffic signals on roadways susceptible to emissions improvement through approach control.
- Policy 6.G.3 The County shall encourage the use of alternative modes of transportation by incorporating public transit, bicycle, and pedestrian modes in County transportation planning and by requiring new development to provide adequate pedestrian and bikeway facilities.
- Policy 6.G.4 The County shall consider instituting disincentives for single-occupant vehicle trips, including limitations in parking supply in areas where alternative transportation modes are available and other measures identified by the Placer County Air Pollution Control District and incorporated into regional plans.
- Policy 6.G.5 The County shall endeavor to secure adequate funding for transit services so that transit is a viable transportation alternative. New development shall pay its fair share of the cost of transit equipment and facilities required to serve new projects.
- Policy 6.G.6 The County shall require large new developments to dedicate land for and construct appropriate improvements for park-and-ride lots, if suitably located.
- Policy 6.G.7 The County shall require stationary-source projects that generate significant amounts of air pollutants to incorporate air quality mitigation in their design.

## Dry Creek/West Placer Community Plan

The 1990 Community Plan – Environmental Resources Management Element: Natural Resources Section provides additional specific goals and policies aimed at improving air quality. Goals and policies in the Community Plan – Environmental Resources Management Element: Natural Resources Section parallel those identified in Placer County General Plan. Community Plan – Environmental Resources Management Element: Natural Resources Section policies and goals potentially applicable to the proposed project are summarized below:

- |           |  |
|-----------|--|
| Goal 8    | Recognize that clean air and water are essential resources for maintaining a high quality of living, and ensure that these resources are maintained at acceptable levels.  |
| Policy 11 | Recognize clean air as a resource to be protected and improved through project mitigation.   |
| Policy 15 | Coordinate with local, state, and federal agencies who have a trustee responsibility for the management of natural resources when land development activities affect resource conservation and management efforts. |
| Policy 17 | Incorporate a mitigation monitoring program for all projects subject to environmental review where detrimental impacts to an area’s natural resources have been identified.  |
| Policy 22 | Continue to monitor and control land uses which threaten to deteriorate air and water quality.   |
| Policy 23 | Require the application of measures which mitigate soil erosion and air and water pollution from earth disturbing activities related to land development.  |

### 4.2.4 Greenhouse Gases

In 1988, the United Nations established the Intergovernmental Panel on Climate Change to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United Nations Framework Convention on Climate Change established an agreement with the goal of controlling GHG emissions, including CH<sub>4</sub>. As a result, the Climate Change Action Plan was developed to address the reduction of GHG in the United States. The plan consists of more than 50 voluntary programs.

Currently, the U.S. EPA does not regulate GHG emissions. In *Massachusetts v. U.S. EPA*, decided April 2, 2007, the U.S. Supreme Court held that U.S. EPA has the authority to regulate GHG emissions from cars and trucks under the Clean Air Act. However, the court did not decide whether U.S. EPA is required to regulate GHG emissions, or may exercise discretion to not regulate at this time. Currently, U.S. EPA has not adopted any regulations to date directly regulating emissions of GHG.

The federal government recently passed the Energy Independence and Security Act of 2007, which mandates a host of actions that will aid in the reduction of GHGs. However, the federal government has stopped short of directly regulating GHG emissions. Under this Act, the following provisions were enacted (non-inclusive): fuel economy standard of 35 miles per gallon by 2020; improve energy efficiency in lighting and appliances; and investments in efficiency and renewable energy use (White House, 2008).

In 2005, Governor Schwarzenegger established Executive Order S-3-05, which sets forth a series of target dates by which statewide emissions of GHG would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

In 2006, California passed the California Global Warming Solutions Act of 2006 (Assembly Bill No. 32; California Health and Safety Code Division 25.5, Sections 38500, et seq., [AB 32]), which requires CARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions).

This Act defines GHG emissions as all of the following gases: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. This agreement represents the first enforceable statewide program in the United States to cap all GHG emissions from major industries that includes penalties for noncompliance. While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB 32 lays out a program to inventory and reduce GHG emissions in California and from power generation facilities located outside the state that serve California residents and businesses.

AB 32 established a timetable for the CARB to adopt emission limits, rules, and regulations designed to achieve the intent of the Act, as follows:

- Publish a list of discrete early-action GHG emission reduction measures by June 30, 2007.
- Establish a statewide GHG emissions cap for 2020, equivalent to the 1990 emissions level by January 1, 2008.
- Adopt mandatory reporting rules for significant sources of GHGs by January 1, 2008.
- Adopt a scoping plan by January 1, 2009, indicating how GHG emission reductions would be achieved from significant GHG sources via regulations, market-based compliance mechanisms, and other actions, including the recommendation of a *de minimis* threshold for GHG emissions, below which emission reduction requirements would not apply.
- Adopt regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in GHGs, including provisions for using both market-based and alternative compliance mechanisms.
- Establish January 1, 2012 as the date by which all regulations adopted prior to January 1, 2010 are to become operative (enforceable).

As directed by AB 32, CARB has developed a series of “Early Action Measures” to reduce GHG emissions. The intent of these measures is to make a substantial contribution to the overall 2020 statewide GHG emission reduction goal. The early action measures are divided into three groups:

- **Group 1:** Three new GHG-only regulations are proposed to meet the narrow legal definition of “discrete early action GHG reduction measures”: a low-carbon fuel standard, reduction of refrigerant losses from motor vehicle air conditioning system maintenance, and increased methane capture from landfills. These regulations are expected to take effect by January 1, 2010.

- **Group 2:** CARB is initiating work on 23 other GHG emission-reducing measures in the 2007-to-2009 time period with rulemaking to occur as soon as possible, where applicable. These GHG measures relate to the following sectors: agriculture, commercial, education, energy efficiency, fire suppression, forestry, oil and gas, and transportation.
- **Group 3:** CARB is initiating work on 10 conventional air pollution controls aimed at criteria and toxic air pollutants, but with concurrent climate co-benefits through reductions in carbon dioxide or non-Kyoto pollutants (i.e., diesel particulate matter, other light-absorbing compounds, and/or ozone precursors) that contribute to global warming.

As directed by AB 32, CARB has also approved a statewide greenhouse gas emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons of CO<sub>2</sub>e as the total statewide greenhouse gas 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector or facility specific limit (CARB, 2007).

On December 6, 2007, CARB approved a regulation for the mandatory reporting of greenhouse gas emissions from major sources, pursuant to the California Global Warming Solutions Act of 2006. CARB staff was directed by the Board to make specified modifications to the proposed regulation that was released on October 19, 2007. CARB staff anticipates that the revised version of the mandatory reporting regulation, with the board directed changes, will be made available in early April 2008. Upon release of the revised regulation, CARB staff will invite all stakeholders to provide comments during a 15-day comment period (CARB, 2008e)

CARB is then to conduct rulemaking, culminating in rule adoption by January 1, 2011, for reducing GHG emissions to achieve the emissions cap by 2020. The rules must take effect no later than 2012. In designing emission reduction measures, CARB must aim to minimize costs, maximize benefits, improve and modernize California's energy infrastructure, maintain electric system reliability, maximize additional environmental and economic co-benefits for California, and complement the state's efforts to improve air quality.

In concurrence with the state's plans for GHG reductions, CEQA documents must address the effect of GHG emissions from new projects. However, the analytical tools required to do so are still being developed. There is currently no established guidance or method to determine the effect on worldwide global warming from a particular increase in GHG emissions, or the resulting effects on climate change in a particular locale. Accordingly, no CEQA significance threshold has yet been developed to evaluate the impacts of the proposed project, or any project, on global climate change or on the environment in California. The approach used in this report for addressing the significance of GHG is detailed in Impact 4-8.

### **4.3 IMPACTS**

This section identifies and discusses the environmental impacts that would result from the proposed project, and suggests mitigation measures to reduce the levels of impact. The discussion begins by describing the thresholds for determining when an impact is considered significant (standards of significance). This is followed by a description of the analysis methodology, and the presentation of specific impacts. A detailed discussion of mitigation measures is included in **Section 4.4**.

### 4.3.1 Standards of Significance

In accordance with Appendix G of the state CEQA Guidelines, Placer County has determined that a project would have a significant adverse air quality impact if project-generated pollutant emissions would:

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

In practice, the PCAPCD recommends use of a combination of quantitative and qualitative criteria described below. For the purposes of this Draft EIR, impacts are considered significant if the proposed project would:

#### Construction

- Generate construction emissions from all project-related sources (including mobile sources) that exceed the PCAPCD's significance thresholds of 550 pounds per day (lb/day) (CO) or 82 lb/day (NO<sub>x</sub>, PM<sub>10</sub>, ROG); or
- Expose sensitive receptors to toxic air contaminants (specifically DPM for this project) that would adversely impact their health and well being.

#### Operation

- Generate operational emissions from all project-related sources (including mobile sources) that exceed the PCAPCD's significance thresholds of 550 lb/day (CO) or 82 lb/day (NO<sub>x</sub>, PM<sub>10</sub>, ROG);
- Expose sensitive receptors to toxic air contaminants (specifically DPM for this project) that would adversely impact their health and well being;
- Cause or contribute to local CO concentrations exceeding 20 parts per million (ppm) over a 1-hour averaging period or 9 ppm over an 8-hour averaging period;
- Frequently expose members of the public to objectionable odors; or
- Conflict with or obstruct implementation of any applicable air quality plans or create a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable NAAQS or CAAQS.

## **Greenhouse Gas Emissions and Climate Change**

No air district in California, including PCAPCD, has identified a significance threshold for GHG emissions. The state has identified 1990 emission levels as a goal through adoption of AB 32. To meet this goal, California would need to generate lower levels of GHG emissions than current levels.

CARB is currently working to develop significance criteria for GHG emissions. These criteria would be sector-specific, differing depending on the source of the GHG emissions. CARB is currently conducting workshops to gather comments on its proposed significance criteria, but none have yet been adopted. It is expected that significance criteria will be adopted in early 2010.

It is recognized that for most projects, there is no simple metric available to determine if a single project would help or hinder meeting the AB 32 emission goals. Furthermore, at this time AB 32 only applies to stationary source emissions, none of which are a part of the proposed project. Combustion of fossil fuels in the transportation sector accounted for more than 40 percent of the total GHG emissions in California in 2004 (Cal EPA, 2006). Current standards for reducing vehicle emissions considered under AB 1493 call for “the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks and other vehicles” and do not provide a quantified target for GHG emissions reductions for vehicles.

It is possible to generally estimate a project’s incremental contribution of CO<sub>2</sub> into the atmosphere, but it is typically not possible to determine whether or how an individual project’s relatively small incremental contribution might translate into physical effects on the environment. Given the complex interactions between various global and regional-scale physical, chemical, atmospheric, terrestrial, and aquatic systems that result in the physical expressions of global climate change, it is impossible to discern whether the presence or absence of CO<sub>2</sub> emitted by the proposed project would result in any altered conditions.

Given the challenges associated with determining project-specific significance criteria for GHG emissions when the issue must be viewed on a global scale, quantitative significance criteria are not proposed in this Draft EIR. Furthermore, the proposed project would not significantly increase capacity, but instead would improve traffic flow and safety. The proposed project is designed to improve traffic flow, not increase capacity, and would not change vehicle miles traveled from conditions without the proposed project.

### **4.3.2 Methodology**

#### **Construction Emissions**

Construction emissions are addressed qualitatively, as there is not adequate information at the current programmatic level of the proposed project to perform emissions calculations. Instead, typical construction impacts are identified and mitigation measures to reduce construction emissions are provided.

#### **Regional Criteria Pollutant and Greenhouse Gas Emissions**

A qualitative discussion of potential GHG impacts is presented. The proposed project is designed to improve traffic flow, not increase capacity, and would not change vehicle miles traveled from conditions without the proposed project. Thus there would be no net change in criteria pollutant or GHG emissions. However, construction operations would have an effect on criteria pollutant and GHG emissions, and that impact is discussed qualitatively, because emissions calculations were not performed for this program-level Draft EIR.

### Carbon Monoxide Hot Spot Analysis

CO modeling was performed for intersections that would be affected by the proposed project. Traffic volumes obtained from the Dry Creek/West Placer Community Plan Transportation Element Update Draft Traffic Study (Fehr & Peers, 2009a) were used to model future CO levels near the most congested intersections (worst Level of Service) in and around the *Community Plan* area. The CALINE4 model was used for the analysis, following the guidelines contained in the Transportation Project-Level Carbon Monoxide Protocol (UC Davis, 1997). In general, this protocol states that for projects in areas that have been re-designated as CO attainment areas, intersections experiencing congestion at level of service (LOS) E or F must be analyzed to evaluate CO concentrations for comparison to ambient air quality standards.

The CALINE4 model is a Gaussian line-source dispersion model that was written by the California Department of Transportation. This model uses emission factors from the CARB EMFAC model, which is updated periodically and reflects changes in the vehicle fleet and emission standards. CALINE4 predicts 1-hour and 8-hour CO concentrations for comparison to the 1-hour and 8-hour state and/or federal CO standards. Peak hour vehicle volumes, conservative wind speed, and atmospheric stability values are used to predict the maximum hourly concentrations, based on the wind angle that produces the highest result. Eight-hour concentrations are derived from the modeled 1-hour concentrations by applying a persistence factor of 0.7 (UC Davis, 1997).

Background ambient CO levels were added to the modeled CO concentrations to obtain total CO concentrations near the modeled intersections. The model only calculates CO from vehicle volumes input to the model and does not incorporate ambient CO levels that already exist in the area. Background (1-hour and 8-hour) CO concentrations were obtained from the most recent monitoring data at the North Highlands monitoring station, which is the closest to the *Community Plan* area, and added to modeled results to obtain total concentrations.

### 4.3.3 Impacts

#### 4.3.3.1 Construction Impacts

<b>IMPACT 4-1:</b>	Increased short-term criteria air pollutant emissions
<b>SIGNIFICANCE:</b>	Short-term: Significant for CO, CO <sub>2e</sub> , NO <sub>x</sub> , PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>x</sub> , and ROG Long-term: Less-than-Significant
<b>MITIGATION:</b>	Mitigation Measures 4-1a through 4-1p
<b>Proposed:</b>	Mitigation Measures 4-1a through 4-1p
<b>Significance After Proposed Mitigation:</b>	Short-term: Less-than-Significant Long-term: Less-than-Significant
<b>Recommended:</b>	None
<b>RESIDUAL SIGNIFICANCE:</b>	Short-term: Less-than-Significant Long-term: Less-than-Significant

Construction of the proposed project would result in short-term impacts to the existing air quality in the *Community Plan* area. These impacts would include temporary increases of CO, CO<sub>2e</sub>, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>x</sub>, and ROG emissions. Emissions resulting from the construction of the proposed project are broadly categorized as follows:

- Equipment exhaust (CO, CO<sub>2e</sub>, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>x</sub>, and ROG);

- Fugitive dust from earth moving (PM<sub>10</sub>, PM<sub>2.5</sub>);
- Employee vehicle emissions (CO, CO<sub>2e</sub>, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>x</sub>, and ROG);
- Construction truck emissions (CO, CO<sub>2e</sub>, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>x</sub>, and ROG); and
- Paving emissions (ROG).

Equipment exhaust emissions are generated from the combustion of fuels used to operate construction equipment. Fugitive dust emissions are generated by the suspension of particulates during earth-moving activities. Employee vehicle emissions and construction truck emissions are generated from the combustion of fuels and from the entrainment of road dust during travel along roadways both on and off of the construction area. Asphalt paving emissions are generated from the evaporation of regulated volatiles, or diluents, used to liquefy asphalt cement.

As was discussed in the project description, the *Community Plan*, originally approved in 1990, mandated the closure of the PFE Road at Cook-Riolo Road when average daily traffic volumes surpassed 5,000 vehicles per day. Year 2005 traffic counts showed the daily volume on PFE Road to be approximately 5,800 vehicles per day. Under the proposed project, the Placer County Department of Public Works is proposing to keep PFE Road open, construct speed reduction treatments on PFE Road and Cook-Riolo Road, and widen selected *Community Plan* area roadways. Speed-reduction treatments are proposed at the following five intersections:

- Billy Mitchell Boulevard at PFE Road;
- Pinehurst Drive at PFE Road;
- Jimmy Way at Cook Riolo Road;
- Vineyard Road at Cook Riolo Road; and
- Central Avenue at Cook Riolo Road.

Watt Avenue, Walerga Road, and PFE Road are proposed for widening at the following locations:

- Widen Watt Avenue from four to six lanes from PFE Road south to Sacramento County line.
- Widen Walerga Road<sup>1</sup> from four to six lanes from Baseline Road south to Sacramento County line.
- Widen PFE Road from two to four lanes from Watt Avenue east to Walerga Road.

Construction of speed reduction treatments could be completed in approximately two months per site (10 months total for all five sites). Construction activities for the roadway widening would most likely occur over two to three years to minimize the impact on area schools. It is anticipated that the removal of the existing Baseline Road/Cook-Riolo Road/Woodcreek Oaks Boulevard intersection through-movement restriction, including re-striping, modification of signal facilities and re-programming of signals, could be accomplished in two to four weeks.

To evaluate the significance of construction impacts to air quality, the focus in this program-level EIR is on mitigation rather than detailed quantification. Specific details about the construction equipment and scheduled use are not currently available for calculating estimated emissions. Depending on the level of concurrent construction activities, construction impacts could be significant.

Many air districts accept that comprehensive mitigation of construction emissions would bring impacts to below a level of significance. **Mitigation Measures 4-1a, 4-1c, and 4-1d** would require the proposed project to provide the PCAPCD with a Construction Emissions and Dust Control Plan, equipment

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<sup>1</sup> Currently, Walerga Road from Baseline Road south to PFE Road is partially a two-lane road and partially a four-lane road. As a part of planned roadway projects, Placer County intends to widen Walerga Road to four lanes from Baseline Road south to PFE Road in the future. The widening to six lanes will be developer-driven along the existing two-lane section and County-driven along the existing four-lane section. This planned project is not a component of the proposed project.

inventory, and plan showing how the construction equipment would meet NO<sub>x</sub> and PM<sub>10</sub> emissions reductions. These three mitigation measures would ensure that a commitment is made by the contractor to minimize emissions of regional pollutants from construction activities. Along with **Mitigation Measures 4-1b** and **4-1e** through **4-1p**, these mitigation measures would reduce short-term criteria air pollutant emissions to a less-than-significant level.

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<b>IMPACT 4-2:</b>	Exposure of nearby sensitive receptors to toxic air contaminants (specifically DPM) that would adversely impact their health and well being during construction
<b>SIGNIFICANCE:</b>	Short-term: Less-than-Significant Long-term: Less-than-Significant
<b>MITIGATION:</b>	None Warranted

Construction of the proposed project would generate emissions from diesel-fueled construction equipment. TACs would be present in the diesel exhaust. Of the TACs found in diesel exhaust, the primary TAC of concern is DPM. DPM is a combination of various particulate compounds found in diesel exhaust. According to CARB, DPM represents 50 to 90 percent of the mutagenicity (ability to cause mutations that lead to cancer) of diesel exhaust. Therefore, DPM is generally used as a surrogate to identify the potential health risks from diesel emissions (CARB, 1998; CARB, 2006).

Sensitive land uses are located throughout the *Community Plan* area. The closest sensitive receptors/land uses are as follows:

- Residential dwelling – approximately 50 feet from Cook-Riolo Road (at northern Central Avenue);
- Residential dwelling – approximately 40 feet from PFE Road (at Billy Mitchell Boulevard);
- Dry Creek Elementary School – located at the corner of PFE Road and Cook-Riolo Road; and
- Creekview Ranch Middle School – located on the east side of Cook-Riolo Road, and north of Dry Creek.

The risk of cancer from TACs is generally evaluated for a project's long-term operational emissions because "for cancer health effects, risk is expressed as an estimate of the increased chances of getting cancer due to facility emissions over a 70-year lifetime" (CARB, 2005). Construction of speed-reduction treatments could be completed in approximately 2 months per site (10 months total for all five sites). Construction activities for the roadway widening would most likely occur over two to three years to minimize the impact on area schools. It is anticipated that the removal of the existing Baseline Road/Cook-Riolo Road/Woodcreek Oaks Boulevard intersection through-movement restriction, including re-striping, modification of signal facilities and re-programming of signals, could be accomplished in two to four weeks. Therefore, receptor exposure to DPM and the risk of cancer from diesel construction equipment emissions used to construct the proposed project would not be expected. CARB limits DPM emissions from construction activities through CARB's off-road equipment diesel regulations, which are intended to reduce DPM emissions from in-use off-road equipment as much as technically and economically feasible in the short and long term. This would also reduce the diesel particulate emissions from construction equipment. Short-term impacts would be less-than-significant. Also, **Mitigation Measures 4-1a, 4-1c, 4-1d, 4-1i, 4-1j, 4-1k, and 4-1l**, which would be implemented for the proposed project (see Impact 4-1 above), would further reduce this less-than-significant impact. Because the proposed project would have no DPM emissions impacts beyond construction, long-term impacts would also be less-than-significant.

#### 4.3.3.2 Operation Impacts

<b>IMPACT 4-3:</b>	Regional criteria pollutant emissions
<b>SIGNIFICANCE:</b>	Short-term: Less-than-Significant for CO, NO <sub>x</sub> , PM <sub>10</sub> , and ROG Long-term: Less-than-Significant for CO, NO <sub>x</sub> , PM <sub>10</sub> , and ROG
<b>MITIGATION:</b>	None Warranted

The proposed project would not create any new emissions sources, because the proposed project would not increase the number of vehicles that would be present in the *Community Plan* area (in its broad context, the PCAPCD). The proposed project would merely redistribute existing traffic. Due to redistribution, the proposed project would have the potential to increase localized pollutants (such as CO due to traffic conditions). However, these impacts are different and are discussed separately in **Impacts 4-4** and **4-5**, below.

Because the proposed project would not generate any new emissions sources, operation of the proposed project would not result in emissions of criteria pollutants in excess of 550 lb/day (CO) or 82 lb/day (NO<sub>x</sub>, PM<sub>10</sub>, and ROG). Thus, the impact from operation of the proposed project would be less-than-significant.



<b>IMPACT 4-4:</b>	Exposure of nearby sensitive receptors to toxic air contaminants (specifically DPM) that would adversely impact their health and well being during operation
<b>SIGNIFICANCE:</b>	Short-term: Less-than-Significant for DPM Long-term: Less-than-Significant for DPM
<b>MITIGATION:</b>	None Warranted

Implementation of the proposed project would result in increased traffic at particular roadways and intersections throughout the *Community Plan* area, and correspondingly decreased traffic at other locations. Within the *Community Plan* area, developed land consists of agricultural uses, rural residences, and some small low-density residential developments (i.e., typical suburban development of 0.5 to 2 dwelling units per acre). Although the proposed project would redistribute traffic, this would mainly consist of passenger vehicles. There are no major truck routes through the area affected by the proposed project. Implementation of the proposed project would not be likely to divert truck traffic past sensitive receptors that are currently unexposed to DPM. Trucks would generally continue to use the main thoroughfares. Thus, the impact from operation of the proposed project to nearby sensitive receptors would be less-than-significant.



<b>IMPACT 4-5:</b>	Increased CO mobile source emissions that violate NAAQS or CAAQS
<b>SIGNIFICANCE:</b>	Short-term: Less-than-Significant for CO Long-term: Less-than-Significant for CO
<b>MITIGATION:</b>	None Warranted

The proposed project would not generate new traffic but would redistribute traffic throughout the *Community Plan* area with the potential to increase local congestion at some intersections. In such situations, the potential increase in CO concentrations at these intersections is of particular concern. To evaluate the potential effect of the proposed project on local CO concentrations, the existing and

cumulative conditions plus the proposed project were modeled at four nearby intersections using the California Department of Transportation (Caltrans) CALINE4 roadway dispersion model. The CALINE4 model is a Gaussian line source dispersion model that uses worst-case meteorology and peak-hour traffic to predict worst-case (1-hour and 8-hour) CO concentrations from traffic congestion. The increases in CO concentration from traffic were added to the background ambient CO levels in the area to obtain the total expected CO levels near intersections and/or roadways that would be affected by the proposed project. The modeling assumptions are adequately conservative such that the modeled results plus background represent levels that would likely not ever be reached, much less exceeded.

Emission factors for CO that were used in the CO dispersion modeling were obtained from the EMFAC2007 program, which is the most recent CARB on-road emissions model. The CO emission factors from EMFAC2007 vary with analysis year and speed.

The four intersections selected for modeling were:

- Baseline Road/Walerga Road/Fiddymont Road
- Watt Avenue/Elverta Road
- Cirby Way/Riverside Avenue
- Watt Avenue/Antelope Road

Other intersections that would be potentially affected by the proposed project are not expected to experience CO concentrations higher than the highest predicted among these four intersections. The LOS at all the above intersections under project and cumulative conditions is LOS F, which is the worst LOS ranking (see Chapter 6, Transportation and Circulation, for a discussion of LOS rankings). Therefore, one of these four intersections is expected to represent the worst-case intersection.

For modeling of the above intersections, sensitive receptors were assumed to be present immediately adjacent to the roadway on all sides of the modeled intersections. The CALINE4 and EMFAC2007 model outputs are included in **Appendix E**.

Background CO concentrations were added to the CALINE4 modeled concentration increases to generate total CO concentrations. The background was obtained from the maximum 1-hour CO concentration measured at the North Highlands monitoring station from 2005 to 2007, which was 8 ppm in 2005 (see **Table 4-2**). Use of this maximum value is conservative because the CO concentrations are expected to improve over the years as cleaner cars enter the vehicle fleet.

Maximum 1-hour and 8-hour average CO concentrations predicted at the four intersections are presented in **Table 4-5**. As recommended by the Project-Level Carbon Monoxide Protocol (UC Davis, 1997), 8-hour concentrations were estimated by multiplying the 1-hour average concentrations by a persistence factor of 0.7. This factor represents a ratio of 8-hour ambient levels to 1-hour ambient levels and is generally conservative.

A project is considered to have significant impacts if it results in CO concentrations that exceed the 1-hour average standard of 20 ppm and/or the 8-hour average standard of 9.0 ppm. As shown in **Table 4-5**, the maximum predicted concentrations at the selected intersections under cumulative conditions are below these standards.

**Table 4-5  
Highest Modeled CO Concentrations at Worst-Case Intersections  
under Cumulative Conditions**

Intersection	1-Hour Concentration (ppm)	8-Hour Concentration (ppm)
Baseline Rd/Walerga Rd/Fiddymment Rd	9.8	8.59
Watt Ave/Elverta Rd	9.5	8.38
Cirby Way/Riverside Ave	8.6	7.75
Watt Ave/Antelope Rd	9.2	8.17
NAAQS	35	9
CAAQS	20	9

**Notes:**

<sup>a</sup> 1-hour and 8-hour background concentrations were obtained from North Highland station, 7823 Blackfoot Way, North Highlands, CA

<sup>b</sup> 1-hour background concentration was recorded in 2007 and was found to be 5.1 ppm

<sup>c</sup> 8-hour background concentration was recorded in 2007 and was found to be 1.73 ppm

<sup>d</sup> Modeled concentrations in the table include these 1- and 8-hour backgrounds

CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; ppm = parts per million



**IMPACT 4-6:** Exposure of nearby sensitive receptors to objectionable odor  
**SIGNIFICANCE:** Short-term: Less-than-Significant  
 Long-term: Less-than-Significant  
**MITIGATION:** None Warranted

The severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and sensitivity of the receptor. In general, odors are usually associated with sources such as wastewater treatment plants, composting facilities, chemical plants, and other similar facilities. Such inherently odorous sources would not be part of the proposed project. In general, road development projects would not expose sensitive receptors to sources of odors. Thus, objectionable odor impacts from operation of the proposed project to nearby sensitive receptors would be less-than-significant.



**IMPACT 4-7:** Conflict with or obstruct implementation of any applicable air quality plan or create a cumulatively considerable net increase in criteria pollutant emissions in a region that is in nonattainment under the applicable NAAQS or CAAQS  
**SIGNIFICANCE:** Short-term: Less-than-Significant  
 Long-term: Less-than-Significant  
**MITIGATION:** None Warranted

The region is currently designated as:

- Serious nonattainment of the 8-hour ozone NAAQS and nonattainment of the 1-hour and 8-hour ozone CAAQS;
- Nonattainment of the 24-hour and annual PM<sub>10</sub> CAAQS; and

■ Nonattainment of the annual PM<sub>2.5</sub> CAAQS.

PCAPCD developed the *Placer County Air Quality Attainment Plan* in 1991. As part of the Sacramento Federal Nonattainment Area, PCAPCD contributed to the preparation of the 1994 *Sacramento Area Regional Ozone Attainment Plan* to satisfy the SIP requirement for the 1-hour ozone standard. With the revocation of the 1-hour ozone standard, the APCDs under this plan have continued to implement control strategies developed under that plan. Efforts are currently underway to develop and submit an 8-hour ozone attainment plan for the Sacramento Federal Nonattainment Area (CARB, 2008d).

There would be no increase of operational emissions of ozone precursors (NO<sub>x</sub> and VOC) and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) because the proposed project would not create any new emissions sources. It would merely redistribute existing traffic. Because the proposed project would not generate any new emissions sources, operation of the proposed project would not conflict with or obstruct implementation of the applicable air quality plans nor would it create a cumulatively considerable net increase of ozone precursors (NO<sub>x</sub> and VOC) or particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>). Thus, the impact from operation of the proposed project on nonattainment areas would be less-than-significant.

In addition, clean air plans are often tied to a region's general plans because the emissions budgets in clean air plans take into account the development and projects included in the General Plans and are thus updated regularly to coordinate with General Plan update. This Focused Draft EIR is analyzing the Placer County Department of Public Works proposed updates of the *Community Plan Transportation Element*, which includes the physical improvements identified herein. Once approved, this update would be an extension and update of the *Placer County General Plan*.

<b>IMPACT 4-8:</b>	Emission of greenhouse gases
<b>SIGNIFICANCE:</b>	Short-term: Potentially Significant Long-term: No Impact
<b>MITIGATION:</b>	Mitigation Measure 4-8a
<b>Proposed:</b>	Mitigation Measure 4-8a
<b>Significance After Proposed Mitigation:</b>	Short-term: Less-than-Significant Long-term: No Impact
<b>Recommended:</b>	None
<b>RESIDUAL SIGNIFICANCE:</b>	Short-term: Less-than-Significant Long-term: No Impact

The proposed project would produce a minor increase in GHG emissions from construction operations only. Operation of the proposed project would not create any new GHG emissions sources; it would only redistribute existing traffic. Currently, there are no established significance thresholds for GHG emissions. CARB is currently developing some significance criteria on a sector-specific basis, but none have been adopted yet.

Despite the absence of adopted thresholds, GHG emissions must still be addressed in CEQA documents. A project's incremental contribution to global climate change could be considered significant if, due to the size or nature of the project, it would generate a substantial increase in GHG emissions relative to existing conditions. However, no threshold or scientific basis exists to determine what defines a substantial increase. As such, the GHG emissions and their potential for a significant impact are discussed qualitatively.

## Construction

Construction of the proposed project would result in short-term and temporary increases in GHG emissions. These increases are associated with the operation of construction equipment, material hauling vehicles, and construction employee vehicles, and would subside following construction.

**Mitigation Measure 4-8a (Implement Mitigation Measures 4-1a, 4-1c, 4-1d, 4-1i, 4-1k, and 4-1l)** would aid in the reduction of the emissions generated from all construction equipment exhaust and is consistent with federal and state emission reduction strategies. Furthermore, existing CARB regulations (Title 13 of the California Code of Regulations, Sections 2480 and 2485) and Early Action Measures (pursuant to the California Global Warming Solutions Act of 2006) would require emission reduction measures for diesel trucks and diesel off-road equipment. CARB would review and adopt Early Action Measures by January 1, 2010, and equipment used for the construction of the proposed project could be subject to these requirements. The proposed project would implement these measures as required.

Construction emissions are temporary. Therefore, once construction of the proposed project is finished, GHG emissions generated by the project's construction activities would cease. At this time, it is impossible to determine where the GHG emissions that were generated during the proposed project's construction would reside following dispersion to the atmosphere. However, given that a minor amount (comparatively) of GHG would be emitted during construction of the proposed project, and with implementation of **Mitigation Measure 4-8a** and continuing compliance with federal and state GHG regulations, construction of the proposed project would not conflict with the state goal of reducing GHG emissions in California to 1990 levels by 2020, as set forth by the timetable established in AB 32 (California Global Warming Solutions Act of 2006). Thus, GHG emission construction impacts on the region would be less-than-significant.

## Operation

The proposed project would not create any new emissions sources because it would not increase the number of vehicles that would be present in the *Community Plan* area (in its broad context, the PCAPCD); it would merely redistribute existing traffic. Thus, operation of the proposed project would have no impact on GHGs and would not impede the state goal of achieving 1990 GHG levels by the year 2020.



## 4.4 MITIGATION MEASURES

This section discusses mitigation measures that will be implemented to reduce project-related impacts to air quality. During project-level environmental review, these mitigation measures may be augmented or revised based on more detailed project information.

### **Mitigation Measure 4-1a: Prepare an Emission and Dust Control Plan Prior to Construction (Proposed)**

Prior to the approval of Grading/Improvement Plans, the Placer County Department of Public Works shall require the primary contractor to submit a Construction Emission/Dust Control Plan to the PCAPCD. This plan must address the minimum Administrative Requirements found in Sections 300 and 400 of PCAPCD Rule 228, Fugitive Dust. The Placer County Department of Public Works shall not break ground prior to receiving PCAPCD approval of the Construction Emission/Dust Control Plan (PCAPCD, 2003).

**Mitigation Measure 4-1b: Maintain Construction Equipment and Vehicles (Proposed)**

Construction equipment exhaust emissions shall not exceed District Rule 202 Visible Emission limitations. Operators of vehicles and equipment found to exceed opacity limits are to be immediately notified to cease operations and the equipment must be repaired within 72 hours. Additional information regarding Rule 202 can be found at: <http://www.placer.ca.gov/Departments/Air/Rules.aspx> (PCAPCD, 1985).

**Mitigation Measure 4-1c: Provide PCAPCD with a List of Equipment and Anticipated Timeline Prior to Construction (Proposed)**

The Placer County Department of Public Works shall require the primary contractor to submit to the PCAPCD a comprehensive inventory (i.e., make, model, year, and emission rating) of all the heavy-duty off-road equipment (50 horsepower or greater) that will be used an aggregate of 40 or more hours for the construction project. The inventory shall be updated, beginning 30 days after any initial work on site has begun, and shall be submitted on a monthly basis throughout the duration of the project, except that an inventory shall not be required for any 30-day period in which no construction activity occurs. At least three business days prior to the use of subject heavy-duty off-road equipment, the project representative shall provide the PCAPCD with the anticipated construction timeline including start date, and name and phone number of the property owner, project manager, and on-site foreman.

**Mitigation Measure 4-1d: Provide PCAPCD with a List of Equipment That Meets CARB Standards Prior to Construction (Proposed)**

Prior to the approval of Grading/Improvement Plans, the Placer County Department of Public Works shall require the primary contractor to provide a plan to the PCAPCD for approval by the District demonstrating that the heavy-duty (greater than 50 horsepower) off-road vehicles to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project-wide fleet-average 20 percent NO<sub>x</sub> reduction and 45 percent particulate reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions may include use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and/or other options as they become available (SMAQMD, 2007).

**Mitigation Measure 4-1e: Implement Measures to Reduce Fugitive Dust During Construction (Proposed)**

The Placer County Department of Public Works shall require the primary contractor to suspend all grading operations when fugitive dust exceeds PCAPCD Rule 228 (Fugitive Dust) limitations. The Placer County Department of Public Works shall be responsible for having an individual who is CARB-certified to perform Visible Emissions Evaluations. This individual shall evaluate compliance with Rule 228 on a weekly basis. It is to be noted that fugitive dust is not to exceed 40 percent opacity and not go beyond property boundary at any time. If lime or other drying agents are used to dry out wet grading areas they shall be controlled as to not to exceed PCAPCD Rule 228 Fugitive Dust limitations (PCAPCD, 2003).

**Mitigation Measure 4-1f: Minimize Debris During Construction (Proposed)**

The Placer County Department of Public Works shall require the primary contractor to be responsible for keeping adjacent public thoroughfares clean of silt, dirt, mud, and debris, and shall “wet broom” if silt, dirt, mud or debris is carried over to adjacent public thoroughfares. Dry mechanical sweeping is prohibited.

**Mitigation Measure 4-1g: Implement Measures to Control Dust During Construction (Proposed)**

The Placer County Department of Public Works shall require the primary contractor to apply water to control dust, as required by Rule 228, Fugitive Dust, to prevent dust impacts off site. Operational water truck(s), shall be on site, at all times, to control fugitive dust.

**Mitigation Measure 4-1h: Implement Measures to Control Construction Zone Speeds (Proposed)**

The Placer County Public Works Department shall require the primary contractor to reduce traffic speeds on all unpaved surfaces to 15 miles per hour or less.

**Mitigation Measure 4-1i: Minimize Idling Time for Diesel-Powered Equipment During Construction (Proposed)**

During construction, the Placer County Department of Public Works shall require the primary contractor to minimize idling time to a maximum of 5 minutes for all on-road and off-road diesel powered equipment.

**Mitigation Measure 4-1j: Use Low-Sulfur Fuel on Stationary Equipment During Construction (Proposed)**

The Placer County Department of Public Works shall require the primary contractor to use CARB ultra low diesel fuel for all diesel-powered equipment. In addition, low sulfur fuel shall be used for all stationary equipment.

**Mitigation Measure 4-1k: Use Low Emission Equipment During Construction (Proposed)**

The Placer County Public Works Department shall require the primary contractor to use classified “low emission” on-site stationary equipment.

**Mitigation Measure 4-1l: Use Existing Nearby Power Sources During Construction (Proposed)**

The Placer County Public Works Department shall require the primary contractor to use existing power sources (e.g., power poles) or clean fuel generators rather than temporary diesel power generators.

**Mitigation Measure 4-1m: Use Registered Portable Engines During Construction (Proposed)**

Any portable engine greater than 50 horsepower will need either the registration from the State Air Resource Board’s Portable Engine Registration Program or the registration with the District Portable Equipment Registration Program (Rule 501) (PCAPCD, 2004).

**Mitigation Measure 4-1n: Provide PCAPCD with Measures to Enforce Equipment Emission Compliance Prior to Construction (Proposed)**

Prior to the approval of Grading/Improvement Plans an enforcement plan shall be established, and submitted to the PCAPCD for review, in order to evaluate project-related on- and off-road heavy-duty vehicle engine emission opacities on a weekly basis, using standards as defined in California Code of Regulations, Title 13, Sections 2180-2194. An Environmental Coordinator, CARB-certified to perform Visible Emissions Evaluations, shall routinely evaluate project-related off-road and heavy duty on-road equipment emissions for compliance with this requirement. Operators of vehicles and equipment found to exceed opacity limits will be notified and the equipment must be repaired within 72 hours.

**Mitigation Measure 4-1o: No Open Burning During Construction (Proposed)**

During construction, the Placer County Public Works Department shall require the primary contractor to not allow open burning of removed vegetation. All removed vegetative material shall be either chipped on site or taken to an appropriate disposal site.

**Mitigation Measure 4-1p: Cease Construction During High Winds (Proposed)**

The Placer County Public Works Department shall require the primary contractor to suspend all grading operations when wind speeds (including instantaneous gusts) exceed 25 miles per hour and dust is impacting adjacent properties.

**Mitigation Measure 4-8a: Implement Mitigation Measures 4-1a, 4-1c, 4-1d, 4-1i, 4-1k, and 4-1l (Proposed)**

These mitigation measures are described above.