

The following section analyzes the potential impacts on air quality resulting from the proposed project. The air quality analysis was prepared using methodologies and assumptions recommended within the indirect source review guidelines of the Sacramento Metropolitan Air Quality Management District (SMAQMD). Regional and local air quality conditions are presented, along with pertinent air quality standards and regulations.

### 4.2.1 EXISTING SETTING

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, together with the current regulatory structure that applies to the Sacramento Valley Air Basin (SVAB) pursuant to the regulatory authority of the SMAQMD.

#### CLIMATE AND METEOROLOGY

Ambient air quality is commonly characterized by climatological conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that reduce the potential for high levels of regional and local air pollutants. The following section describes pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the project area.

#### Regional Climate

The project site is located in the SVAB, which is under the jurisdiction of the SMAQMD. The SVAB is relatively flat, bordered by mountains to the east, west, and north. Air flows into the SVAB through the Carquinez Strait, moving across the Delta, and bringing with it pollutants from the heavily populated San Francisco Bay Area. The climate is characterized by hot, dry summers and cool, rainy winters. Characteristic of SVAB winter weather are periods of dense and persistent low-level fog, which are most prevalent between storms. From May to October, the region's intense heat and sunlight lead to high ozone concentrations. Summer inversions are strong and frequent, but are less troublesome than those that occur in the fall. Autumn inversions, formed by warm air subsiding in a region of high pressure, have accompanying light winds that do not provide adequate dispersion of air pollutants.

Most precipitation in the SVAB results from air masses moving in from the Pacific Ocean during the winter months. These storms usually move through the area from the west or northwest. During the winter rainy season (November through February) over half the total annual precipitation falls while the average winter temperature is a moderate 49 degrees. During the summer, daytime temperatures can exceed 100 degrees Fahrenheit. Dense fog occurs mostly in mid-winter and never in the summer. Daytime temperatures from April through October average between 70 and 90 degrees with extremely low humidity. The inland location and surrounding mountains shelter the valley from much of the ocean breezes that keep the coastal regions moderate in temperature. The only breach in the mountain barrier is the Carquinez Strait, which exposes the midsection of the valley to the coastal air mass.

Winds across the study area are an important meteorological parameter because they control the dilution of locally-generated air pollutant emissions and their regional trajectory. Based on data obtained from the Sacramento Executive Airport, the closest station that measures wind speed and direction, southwest winds are the most predominant (Background Report, 2003).

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### Meteorological Influences on Air Quality

Regional flow patterns affect air quality patterns by directing pollutants downwind of sources. Localized meteorological conditions, such as moderate winds, disperse pollutants and reduce pollutant concentrations. However, the mountains surrounding the Sacramento Valley can create a barrier to airflow, which can trap air pollutants in the valley when meteorological conditions are right. The highest frequency of air stagnation occurs in the autumn and early winter when large high-pressure cells lie over the valley. The lack of surface wind during these periods as well as the reduced vertical flow caused by less surface heating reduces the influx of outside air and allows air pollutants to become concentrated in a stable volume of air. The surface concentrations of pollutants are highest when these conditions are combined with smoke from agricultural burning or when temperature inversions trap cool air, fog, and pollutants near the ground (SMAQMD 2004).

The ozone season (May through October) in the Sacramento Valley is characterized by stagnant morning air or light winds with the Delta sea breeze arriving in the afternoon out of the southwest. Usually the evening breeze transports the airborne pollutants to the north out of the Sacramento Valley. During about half of the days from July to September, however, a phenomenon called the "Schultz Eddy" prevents this from occurring. Instead of allowing for the prevailing wind patterns to move north carrying the pollutants out of the valley, the Schultz Eddy causes the wind pattern to circle back south. Essentially this phenomenon causes the air pollutants to be blown south toward the Sacramento nonattainment area. This phenomenon's effect exacerbates the pollution levels in the area and increases the likelihood of violating federal or state standards (SMAQMD 2004).

### AMBIENT AIR QUALITY

#### Criteria Air Pollutants

Ambient air quality in the project area can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. The Elk Grove-Bruceville air quality monitoring station, located approximately six miles south of the project site at 12490 Bruceville Road, is the closest station to the project site. The Elk Grove-Bruceville air quality monitoring station monitors ambient concentrations of ozone and nitrogen dioxide. Concentrations of carbon monoxide and airborne particulate matter were obtained from nearby monitoring stations located in Sacramento (i.e., Sacramento-3801 Airport Road and Sacramento-T Street air monitoring stations). Ambient emission concentrations will vary due to localized variations in emission sources and climate and should be considered "generally" representative of ambient concentrations within the project area.

**Table 4.2-1** summarizes the published data since 2005 from the nearest monitoring stations and identifies the relevant standards for each year that the monitoring data is provided. Please note that not all monitoring stations measure all types of pollutants; therefore multiple stations are identified in **Table 4.2-1**. As depicted in **Table 4.2-1**, state and federal ozone standards have been exceeded on several occasions during the last three years of available data.

**TABLE 4.2-1  
SUMMARY OF AMBIENT AIR QUALITY DATA**

Pollutant Standards	2005	2006	2007	2008*
<b>Elk Grove–Bruceville Road Air Monitoring Station</b>				
Ozone (O <sub>3</sub> )				
Maximum concentration (1-hr/8-hr, ppm)	0.113/0.095	0.143/0.112	0.102/0.0877	0.055/0.0456
Number of days state standard (1-hr/8-hr) exceeded	7/22	10/32	1/13	0/0
Number of days federal standard (8-hr) exceeded	2	7	1	0
Nitrogen Dioxide (NO <sub>2</sub> )				
Maximum 1-hour concentration (ppm)	0.050	0.050	Data not available	Data not available
Number of days state standard exceeded	0	0		
Annual Average	0.0083	0.0094		
Fine Particulate Matter (PM <sub>2.5</sub> )				
Maximum 24-hour concentration (µg/m <sup>3</sup> )	48.7	45.0	133.1	45.1
Number of days federal standard exceeded	**	**	23	1
<b>Sacramento-El Camino and Watt Air Monitoring Station</b>				
Carbon Monoxide (CO)				
Maximum concentration, 1-hr/8-hr period (ppm)	4.7/4.2	4.7/4.2	3.5/3.2	Data not available
Number of days state (1-hr/8-hr) standard exceeded	0/0	0/0	0/0	
Number of days federal (8-hr) standard exceeded	0	0	0	
<b>Sacramento-Health Dept. Stockton Blvd. Air Monitoring Station</b>				
Respirable Particulate Matter (PM <sub>10</sub> )				
Maximum daily concentration (µg/m <sup>3</sup> )	64.0	56.0	Data not available	Data not available
Number of days state standard exceeded	3	4		
Number of days federal standard exceeded	0	0		

AAM - Annual Arithmetic Mean

Ppm - Parts per Million

Source: ARB 2008 AQMIS2 - Data Report

Note: \*Through March 3, 2008. \*\* There was insufficient (or no) data available to determine the value.

(µg/m<sup>3</sup>) - Micrograms per Cubic Meter

-- - Not Calculated or Insufficient Data Available

### Attainment Status for Criteria Air Pollutants

The attainment status of Sacramento County is summarized in **Table 4.2-2**. An attainment designation for an area signifies that pollutant concentrations did not violate the standard for that pollutant in that area. A nonattainment designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation(s) was caused by an exceptional event, as defined in the criteria.

As depicted in **Table 4.2-2**, Sacramento County is currently designated nonattainment for the state and federal ozone and PM<sub>10</sub> standards, as well as the state PM<sub>2.5</sub> standard. Sacramento County is designated either attainment or unclassified for the remaining federal and state ambient air quality standards.

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**TABLE 4.2-2  
ATTAINMENT STATUS DESIGNATIONS**

<b>Pollutant</b>	<b>California Standard</b>	<b>Federal Standard</b>
Ozone	Non-Attainment Classification: Serious (1/8-hour Standards)	Non-Attainment Classification: Serious (8-hour Standards)
PM <sub>10</sub>	Non-Attainment (24-hour Standard and Annual Mean)	Non-Attainment Classification: Moderate (24-hour Standards)
PM <sub>2.5</sub>	Non-Attainment (Annual Standard)	Attainment/Unclassified (24-hour Standard and Annual Mean)
Carbon Monoxide	Attainment (1-hour and 8-hour Standards)	Attainment (1-hour and 8-hour Standards)
Nitrogen Dioxide	Attainment (1-hour Standard)	Attainment (Annual Standard)
Sulfur Dioxide	Attainment (1-hour and 24-hour Standards)	Attainment (3-hour ,24-hour & Annual Standards)
Lead	Attainment (30-day Standard)	Attainment (Calendar Quarter)
Visibility Reducing Particles	Unclassified (8-hour Standard)	No Federal Standard
Sulfates	Attainment (24-hour Standard)	No Federal Standard
Hydrogen Sulfide	Unclassified (1-hour Standard)	No Federal Standard

Source: SMAQMD, 2007.

### Odors

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

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor and in fact an odor that is offensive to one person may be perfectly acceptable to another (e.g., a fast food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known

as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

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

Neither the state nor the federal governments have adopted any rules or regulations for the control of odor sources. SMAQMD does not have an individual rule or regulation that specifically addresses odors; however, odors would be applicable to SMAQMD's Rule 204, Nuisance. Any actions related to odors would be based on citizen complaints to local governments and SMAQMD. No major stationary sources of odors have been identified in the vicinity of the project site.

### **Toxic Air Contaminants**

Toxic air contaminants (TACs) are not considered criteria pollutants in that the federal and California Clean Air Acts do not address them specifically through the setting of National or State Ambient Air Quality Standards. Instead, the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (ARB) regulate hazardous air pollutants (HAPs) and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology to limit emissions. In conjunction with District rules, they establish the regulatory framework for TACs. At the national levels, the EPA has established National Emission Standards for HAPs (NESHAPs), as required by the federal Clean Air Act Amendments. These are technology-based source-specific regulations that limit allowable emissions of HAPs.

At the state level, the ARB has authority for the regulation of emissions, including TACs, from motor vehicles, fuels, and consumer products. Within California, TACs are regulated primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB designates a substance as a TAC.

At the local level, air districts have the authority over stationary or industrial sources. All projects that require air quality permits from the SMAQMD are evaluated for TAC emissions. SMAQMD limits emissions and public exposure to TACs through a number of programs. SMAQMD prioritizes TAC-emitting stationary sources, based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors. SMAQMD requires a comprehensive health risk assessment for facilities that are classified in the significant risk category, pursuant to AB 2588.

Within the project area, the primary mobile-source TAC of concern is diesel-exhaust particulate matter (PM). No major stationary sources of TACs were identified within an approximate one-half-mile radius of the project site. Of all controlled TACs, emissions of diesel-exhaust PM are estimated to be responsible for approximately 70 percent of the total ambient TAC risk. As a

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result, the ARB has made the reduction of the public's exposure to diesel-exhaust PM one of its highest priorities, with an aggressive plan to require cleaner diesel fuel and cleaner diesel engines and vehicles (ARB 2005).

### Greenhouse Gas Emissions & Climate Change

The earth's climate has been warming for the past century. It is believed that this warming trend is related to the release of certain gases into the atmosphere. The greenhouse gases (GHG) include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and hydrofluorocarbons. Greenhouse gases absorb infrared energy that would otherwise escape from the earth. As the infrared energy is absorbed, the air surrounding the earth is heated. An overall warming trend has been recorded since the late 19th century, with the most rapid warming occurring over the past two decades. The 10 warmest years of the last century all occurred within the last 15 years. It appears that the decade of the 1990s was the warmest in human history. Human activities have been attributed to an increase in the atmospheric abundance of greenhouse gases. There are uncertainties as to exactly what the climate changes will be in various local areas of the earth and what the effects of clouds will have in determining the rate at which the mean temperature will increase. There are also uncertainties associated with the magnitude and timing of other consequences of a warmer planet: sea level rise, spread of certain diseases out of their usual geographic range, the effect on agricultural production, water supply, sustainability of ecosystems, increased strength and frequency of storms, extreme heat events, air pollution episodes, and the consequence of these effects on the economy (ARB 2005b, 2006). Refer to Section 5.0, Cumulative Impacts Summary, for a discussion of the potential increase in long-term atmospheric greenhouse gas emissions as a result of the proposed project as well as a discussion on the cumulative effect of global climate change on the City of Elk Grove.

### POTENTIAL SENSITIVE RECEPTORS

Some land uses are considered more sensitive to air pollutants than others. The reasons for greater sensitivity than average include proximity to the emissions source, duration of exposure to air pollutants, or occupants with pre-existing health problems. A sensitive receptor is a location where human populations, especially children, seniors, and sick persons, are present and where there is a reasonable expectation of continuous human exposure to pollutants. The term "sensitive receptors" refers to specific population groups, as well as the land uses where they would reside for long periods. Commonly identified sensitive population groups are children, the elderly, the acutely ill, and the chronically ill. Commonly identified sensitive land uses are residences, schools, playgrounds, childcare centers, retirement homes, or convalescent homes, hospitals, and clinics. The closest sensitive receptors are residences located along the perimeter of the project.

Criteria air pollutants, common sources, and associated effects are summarized in **Table 4.2-3**.

**TABLE 4.2-3  
CRITERIA AIR POLLUTANTS  
SUMMARY OF COMMON SOURCES AND EFFECTS**

<b>Pollutant</b>	<b>Description</b>	<b>Sources</b>	<b>Health Effects</b>	<b>Welfare Effects</b>
Carbon Monoxide	Colorless, odorless gas	Motor vehicle exhaust, indoor sources include kerosene and wood-burning stoves	Headaches, reduced mental alertness, heart attack, cardio-vascular diseases, impaired fetal development, death	Contribute to the formation of smog
Sulfur Dioxide	Colorless gas that dissolves in water vapor to form acid and interacts with other gases and particulates in the air	Coal-fired power plants, petroleum refineries, manufacture of sulfuric acid, and smelting of ores containing sulfur	Eye irritation, wheezing, chest tightness, shortness of breath, lung damage	Contribute to the formation of acid rain, visibility impairment, plant and water damage, aesthetic damage
Nitrogen Dioxide	Reddish brown, highly reactive gas	Motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels	Susceptibility to respiratory infections, irritation of the lung and respiratory symptoms (e.g., cough, chest pain, difficulty breathing).	Contribute to the formation of smog, acid rain, water quality deterioration, global warming, and visibility impairment
Ozone	Gaseous pollutant when it is formed in the troposphere	Primarily vehicle exhaust; formed from the combination of reactive organic gases and oxides of nitrogen in the presences of sunlight	Eye and throat irritation, coughing, respiratory tract problems, asthma, lung damage	Plant and ecosystem damage
Lead	Metallic element	Metal refineries, smelters, battery manufacturers, iron and steel producers, use of leaded fuels by racing and aircraft industries	Anemia, high blood pressure, brain and kidney damage, neurological disorders, cancer, lowered IQ	Affects animals and plants, affects aquatic ecosystems
Particulate Matter	Very small particles of dust, soot, or other matter, including tiny droplets of liquids	Diesel engines, power plants, industries, windblown dust, wood stoves	Eye irritation, asthma, bronchitis, lung damage, cancer, heavy metal poisoning, cardiovascular effects	Visibility impairment, atmospheric deposition, aesthetic damage, impaired plant photosynthesis

Source: EPA 2006

#### 4.2.2 REGULATORY FRAMEWORK

Air quality within the SVAB is regulated by several jurisdictions including the United States Environmental Protection Agency (EPA), California Air Resources Board (ARB), and the

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SMAQMD. Each of these jurisdictions develops rules, regulations, and policies to attain the goals or directives imposed upon them through legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent.

Pollutants subject to federal ambient standards are referred to as “criteria” pollutants because the EPA publishes criteria documents to justify the choice of standards. One of the most important reasons for air quality standards is the protection of those members of the population who are most sensitive to the adverse health effects of air pollution, termed “sensitive receptors.” The federal and state standards for the criteria pollutants and other state-regulated air pollutants are shown in **Table 4.2-4**.

**TABLE 4.2-4**  
SUMMARY OF AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards <sup>(a, c)</sup>	National Standards <sup>(b, c)</sup>	
			Primary <sup>(d)</sup>	Secondary <sup>(e)</sup>
Ozone (O <sub>3</sub> )	1-hour	0.09 ppm (180 µg/m <sup>3</sup> )	----	Same as Primary
	8-hour	0.070 ppm (137 µg/m <sup>3</sup> )	0.08 ppm (157 µg/m <sup>3</sup> )	
Particulate Matter (PM <sub>10</sub> )	AAM	20 µg/m <sup>3</sup>	----	
	24-hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	
Fine Particulate Matter (PM <sub>2.5</sub> )	AAM	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	
	24-hour	No Standard	35 µg/m <sup>3</sup> <sup>(f)</sup>	
Carbon Monoxide (CO)	1-hour	20 ppm (23 mg/m <sup>3</sup> )	35 ppm (40 mg/m <sup>3</sup> )	None
	8-hour	9 ppm (10 mg/m <sup>3</sup> )	9 ppm (10 mg/m <sup>3</sup> )	
	8-hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )	–	
Nitrogen Dioxide (NO <sub>2</sub> ) <sup>g</sup>	AAM	0.030 ppm (56 µg/m <sup>3</sup> )	0.053 ppm (100 µg/m <sup>3</sup> )	Same as Primary
	1-hour	0.18 ppm (338 µg/m <sup>3</sup> )	–	
Sulfur Dioxide (SO <sub>2</sub> )	AAM	–	0.03 ppm (80 µg/m <sup>3</sup> )	–
	24-hour	0.04 ppm (105 µg/m <sup>3</sup> )	0.14 ppm (365 µg/m <sup>3</sup> )	–
	3-hour	–	–	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1-hour	0.25 ppm (655 µg/m <sup>3</sup> )	–	–
Lead	30-day Average	1.5 µg/m <sup>3</sup>	–	–
	Calendar Quarter	–	1.5 µg/m <sup>3</sup>	Same as Primary

Pollutant	Averaging Time	California Standards <sup>(a, c)</sup>	National Standards <sup>(b, c)</sup>	
			Primary <sup>(d)</sup>	Secondary <sup>(e)</sup>
Sulfates	24-hour	25 µg/m <sup>3</sup>	No Federal Standards	
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m <sup>3</sup> )		
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m <sup>3</sup> )		
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient of 0.23 per kilometer — visibility of 10 miles or more (0.07—30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.		

<sup>a</sup> California standards for O<sub>3</sub>, CO (except Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, PM (PM<sub>10</sub> and PM<sub>2.5</sub>), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

<sup>b</sup> National standards (other than O<sub>3</sub>, PM, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The O<sub>3</sub> standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than one. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98 percent of daily concentrations, average over three years, are equal to or less than the standard.

<sup>c</sup> Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25° C and a reference pressure of 760 torr.

<sup>d</sup> The levels of air quality necessary to protect the public health.

<sup>e</sup> The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

<sup>f</sup> Based on revised particulate standards adopted by the US EPA on September 21, 2006. Due to lack of evidence linking health problems to long-term exposure to coarse particulate pollution, the US EPA has revoked the annual PM<sub>10</sub>.

<sup>g</sup> On February 22, 2007, the ARB approved a new hourly CAAQS for NO<sub>x</sub> of 0.18 ppm and a new annual CAAQS of 0.30 ppm, not to be exceeded. These newly approved standards will become effective March 20, 2008.

Source: ARB 2008; US EPA 2006.

## FEDERAL

### Environmental Protection Agency

At the federal level, the EPA has been charged with implementing national air quality programs. The EPA's air quality mandates are drawn primarily from the Federal Clean Air Act (FCAA), which was signed into law in 1970. Congress substantially amended the FCAA in 1977 and again in 1990.

The FCAA required the EPA to establish National Ambient Air Quality Standards (NAAQS) and also set deadlines for their attainment. Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects, such as visibility restrictions (**Table 4.2-4**).

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STATE

### **California Clean Air Act**

The California Clean Air Act (CCAA), 1988, requires that all air districts in the state endeavor to achieve and maintain California Ambient Air Quality Standards (CAAQS) for O<sub>3</sub>, CO, SO<sub>2</sub>, and nitrogen dioxide (NO<sub>2</sub>) by the earliest practical date. See **Table 4.2-4** for California air quality standards. Plans for attaining CAAQS were to be submitted to ARB by June 30, 1991. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the act provides districts with authority to regulate indirect sources. Each district plan is required to either (1) achieve a 5 percent annual reduction, averaged over consecutive three-year periods, in district-wide emissions of each non-attainment pollutant or its precursors, or (2) to provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

### **California Air Resources Board**

The ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the CCAA of 1988. Any additional development within the region obviously would impede the reduction goals of the CCAA.

Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control districts and air quality management districts), establishing CAAQS (which in many cases are more stringent than the NAAQS), and setting emissions standards for new motor vehicles. The emission standards established for motor vehicles differ depending on various factors including the model year and the type of vehicle, fuel, and engine used.

### **California Building Energy Efficiency Standards**

The Energy Efficiency Standards for Residential and Nonresidential Buildings were established in 1978 in response to a legislative mandate to reduce California's energy consumption. These standards are codified in Title 24, Part 6, of the California Code of Regulations and are generally referred to as "Title 24 Standards." The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The most recent update was adopted in 2003 and took effect as of October 1, 2005. California's building efficiency standards (along with those for energy efficient appliances) have saved more than \$56 billion in electricity and natural gas costs since 1978. It is estimated the standards will save an additional \$23 billion by 2013 (CEC, 2007). By reducing the heating and cooling demands of buildings, California's Energy Efficiency Standards result in decreased emissions associated with the use of natural-gas fired appliances and electricity production. Reduction in energy consumption reduces the amount of air pollutants emitted by energy purveyors.

### **Assembly Bill 32 (AB 32)**

The State of California has been studying the impacts of climate change since 1988, when AB 4420 was approved. This legislation directed the California Energy Commission (CEC), in consultation with the ARB and other agencies, to study the implications of global warming on California's environment, economy, and water supply. The CEC was also directed to prepare and maintain the state's inventory of GHG emissions. That bill directed the ARB to adopt regulations to achieve the maximum feasible and cost-effective reduction of greenhouse gas

emissions from motor vehicles. ARB staff's proposal implementing these regulations was approved by the ARB in September 2004. With implementation, the average reduction of greenhouse gases from new California cars and light trucks will be approximately 22 percent in 2012 and approximately 30 percent in 2016, compared to today's vehicles (ARB 2005b, 2006).

Most recently, California adopted AB 32, the Global Warming Solutions Act of 2006. AB 32 codifies the state's goal by requiring that the state's global warming emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on global warming emissions that will be phased in starting in 2012. In order to effectively implement the cap, AB 32 directs ARB to develop appropriate regulations and establish a mandatory reporting system to track and monitor global warming emissions levels.

### **Sacramento Metropolitan Air Quality Management District**

The SMAQMD, in coordination with the air quality management districts and air pollution control districts of El Dorado, Placer, Solano, Sutter, and Yolo counties, prepared and submitted the 1991 Air Quality Attainment Plan (AQAP) in compliance with the requirements set forth in the CCAA, which specifically addressed the nonattainment status for ozone and to a lesser extent, CO and PM<sub>10</sub>. The CCAA also requires a triennial assessment of the extent of air quality improvements and emission reductions achieved through the use of control measures. As part of the assessment, the attainment plan must be reviewed and, if necessary, revised to correct for deficiencies in progress and to incorporate new data or projections. The requirement of the CCAA for a first triennial progress report and revision of the 1991 AQAP was fulfilled with the preparation and adoption of the 1994 Ozone Attainment Plan (OAP). The OAP stresses attainment of ozone standards and focuses on strategies for reducing ozone precursor emissions of ROG and NO<sub>x</sub>. It promotes active public involvement, enforcement of compliance with SMAQMD rules and regulations, public education in both the public and private sectors, development and promotion of transportation and land use programs designed to reduce vehicle miles traveled (VMT) within the region, and implementation of stationary and mobile-source control measures. The OAP became part of the State Implementation Plan in accordance with the requirements of the CAAA and amended the 1991 AQAP. However, at that time the region could not show that the national ozone (1-hour) standard would be met by 1999. In exchange for moving the deadline to 2005, the region accepted a designation of "severe nonattainment" coupled with additional emission requirements on stationary sources. Additional triennial reports were also prepared in 1997, 2000, and 2003 in compliance with the CCAA that act as incremental updates.

As a nonattainment area, the region is also required to submit rate-of-progress milestone evaluations in accordance with the CAAA. Milestone reports were prepared for 1996, 1999, and 2002. These milestone reports include compliance demonstrations that the requirements have been met for the Sacramento nonattainment area. The air quality attainment plans and reports present comprehensive strategies to reduce ROG, NO<sub>x</sub>, and PM<sub>10</sub> emissions from stationary, area, mobile, and indirect sources. Such strategies include the adoption of rules and regulation, enhancement of CEQA participation, implementation of a new and modified indirect source review program, adoption of local air quality plans, and stationary-, mobile-, and indirect-source control measures.

In July of 1997, the EPA promulgated a new 8-hour ozone standard. This change lowered the standard for ambient ozone from 0.12 ppm (parts per million) averaged over one hour to 0.08 ppm averaged over eight hours. In general, the 8-hour standard is more protective of public health and more stringent than the 1-hour standard. The promulgation of this standard prompted new designations and nonattainment classifications in June 2004 and resulted in the

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revocation of the 1-hour standard in June 2005. The region has been designated as a nonattainment (serious) area for the national (8-hour) ozone standard with an attainment deadline of June 2013. The Sacramento Metropolitan Air Quality Management District is considering adoption of the Federal 8-Hour Ozone 2011 Reasonable Further Progress Plan (RFP) for the Sacramento Federal Ozone Nonattainment Area.

The SMAQMD has also adopted various rules and regulations pertaining to the control of emissions from area and stationary sources. Some of the more pertinent regulatory requirements applicable to the proposed project are identified as follows:

**Rule 402. Nuisance:** The purpose of this rule is to limit emissions which cause injury, detriment, nuisance or annoyance to any considerable number of persons or the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause or have natural tendency to cause injury or damage to business or property.

**Rule 403. Fugitive Dust:** The purpose of this rule is to require that reasonable precautions be taken so as not to cause or allow the emissions of fugitive dust from non-combustion sources from being airborne beyond the property line from which the emission originates.

**Rule 442: Architectural Coatings:** The developer or contractor is required to use coatings that comply with the volatile organic compound (VOC) content limits specified in the rule.

### LOCAL

#### City of Elk Grove General Plan

**Table 4.2-5** identifies the City of Elk Grove General Plan policies regarding air quality that are applicable to the proposed Laguna Ridge Town Center project and presents an evaluation of the consistency of the project with these statements as required by CEQA Guidelines Section 15125(d). This assessment is based on City staff's interpretation of the General Plan policies and action items. The final authority for interpretation of these policy statements and determination of the project's consistency with the City's General Plan rests with the Elk Grove City Council.

**TABLE 4.2-5  
PROJECT CONSISTENCY WITH GENERAL PLAN AIR QUALITY OBJECTIVES AND POLICIES**

General Plan Policies	Consistency With General Plan	Analysis
<p>Policy CAQ-27: The City shall promote energy conservation measures in new development to reduce on-site emissions and power plant emissions. The City shall seek to reduce the energy impacts from new residential and commercial projects through investigation and implementation of energy efficiency measures during all phases of design and development.</p>	Yes	While the project does not include any development plans at this time, any subsequent improvement plans for the project would be required to incorporate energy conservation measures into all phases of design and development. Compliance with the City's energy conservation requirements would result in consistency with this policy.
<p>Policy CAQ-30: All new development projects, which have the potential to result in substantial air quality</p>	Yes	An Air Quality Management Plan will be required to be prepared when a development project is proposed for the project site. This Plan must identify design, construction and

General Plan Policies	Consistency With General Plan	Analysis
impacts, shall incorporate design, construction, and/or operational features to result in a reduction in emissions equal to 15 percent compared to an “unmitigated baseline” project. An “unmitigated baseline project” is a development project, which is built and/or operated without the implementation of trip-reduction, energy conservation, or similar features, including any such features, which may be required by the Zoning Code or other applicable codes.		operational features to reduce the project’s emissions by 15 percent over “Existing Base” conditions. The project would be required to implement “Emission Reduction Measures” as required by mitigation measures in this section to reduce air related impacts; thereby, making it consistent with this General Plan policy.
<p>Policy CAQ-32:</p> <p>As part of the environmental review of projects, the City shall identify the air quality impacts of development proposals to avoid significant adverse impacts and require appropriate mitigation measures, potentially including—in case of projects, which may conflict with applicable air quality plans—emission reductions in addition to those required by Policy CAQ-30.</p>	Yes	This section of the EIR (Section 4.2, Air Quality) identifies the potential air quality impacts resulting from the project. Implementation of mitigation measures included in this section and requirements imposed by the City would ensure consistency with this policy.
<p>Policy CAQ-33</p> <p>The City shall require that public and private development projects use low emission vehicles and equipment as part of project construction and operation, unless determined to be infeasible.</p>	Yes	<p>The project applicant will be required to submit a list of construction equipment for the City’s approval prior to the start of any construction on the project site as required by mitigation measures identified in this section.</p> <p>Compliance with SMAQMD emission standards would result in consistency with this policy.</p>

**Laguna Ridge Specific Plan**

The Laguna Ridge Specific Plan serves to implement the City’s General Plan policies and establishes clear direction for the development of the entire Specific Plan Area. The Specific Plan is both a policy and a regulatory document. It provides definition of policy direction, establishes zoning designations for the property, and includes standards to guide the detailed design of individual projects within the Specific Plan Area.

The Specific Plan does not provide any standards for the protection of air quality. However, the Specific Plan does provide a list of proposed CAQ-30 mitigation measures which are required to be implemented into project design.<sup>1</sup> The City’s General Plan Policy CAQ-30 calls for the preparation of an air quality management plan and implementation of specific measures from a prepared list that can serve to reduce air quality impacts. The Laguna Ridge Specific Plan provided measures to respond to CAQ-30 requirements that were deemed appropriate to the Laguna Ridge Plan Area. These measures were included in Table 7.1 of the Specific Plan. **Table 4.2-6** is a reiteration of Table 7.1 and provides a list of the measures to be applied to projects within the entire Plan Area.

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<sup>1</sup> CAQ 30 is referred to AQ-15 in the Laguna Ridge Specific Plan. This is due to a revision the General Plan after the Specific Plan was adopted.

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**TABLE 4.2-6  
SUMMARY OF PROPOSED SPECIFIC PLAN CAQ-30 MEASURES**

#	Measure/Description	Land Use Type	Maximum Point Value	Allowed Point Value
<b>Bicycle/Pedestrian/Transit</b>				
1	Non-residential project provide bicycle lockers and/or racks.	C	0.5	0.25
2	Provide an additional 20 percent of required Class I or Class II bicycle parking facilities.	C	0.5	0.25
3	Bicycle storage (Class I or bike lockers) at apartment complexes or condos without garages.	R	0.5	0.25
4	Entire project is located within ½ mile of an existing Class I or Class II bike lane and provides a comparable bikeway connection to that existing facility.	R, C, M	1.0	1.0
5	The project provides for pedestrian facilities and improvements such as wider sidewalks, which are increased by one foot in width. These increases would be along arterial roads where there are separated sidewalks.	R, C, M	1.0	1.0
6	Provide a display case or kiosk displaying transportation information in a prominent area accessible to employees or customers. Provide opportunity in model home complexes to demonstrate electric vehicles.	C	0.5	0.5
<b>Subtotal</b>				<b>3.25</b>
<b>Parking</b>				
7	Provide lighter colored reflective surface where parking lot areas are unshaded, at driveways, or fire lanes that reduces standard blacktop paving in these areas by 10% or more. This could be accomplished by using a lighter colored asphalt, pigment or concrete as an accent paver, or turf block.			0.5
8	Provide electric charging facilities. Run conduit into residential garages per building code: provide one charger in commercial areas if over 100 parking spaces; two chargers if over 200 parking spaces.	R, C, M	1.0	1.0
9	Provide preferential parking for carpools/vanpools.	C	0.5	0.5
10	Provide loading and unloading facilities for transit and carpool/vanpool users.	C	0.5	0.5
20	Project is located within one mile of a park and ride lot operated by a transportation agency.	R	0.5	0.2
21	Provide a parking lot design that includes clearly marked and shaded pedestrian pathways between transit facilities and building entrances.	C	0.5	0.5
<b>Subtotal</b>				<b>3.20</b>
<b>Residential Development:</b>				
27	Multiple and direct street routing (grid style).	R, C, M	2.5	1.5

#	Measure/Description	Land Use Type	Maximum Point Value	Allowed Point Value
28	Granny Flats – Have ability to do ancillary “granny units” (requires Special Development Permit but no Accessory Structure Use Permit).	R	0.5	0.5
<b>Subtotal</b>				<b>2.0</b>
<b>Mixed Use</b>				
30	Mixed use-Have at least 3 of the following on site and/or within a ¼ mile: Residential, Retail, Personal Services, Open Space, Office.	R, C, M	1.0	1.0
31	Neighborhood serving as focal point with parks, schools and civic uses within ¼ mile.	R, M	0.5	0.25
32	Separate, safe, and convenient bicycle and pedestrian paths connecting residential, commercial, and office uses.	R, C, M	2.0	2.0
33	The project provides a development pattern that eliminates physical barriers such as walls, berms, landscaping, and slopes between multi-family and nonresidential uses that impede bicycle or pedestrian circulation.	R, C, M	1.0	1.0
<b>Subtotal</b>				<b>4.25</b>
<b>Building Component Measures:</b>				
41	Install lowest emitting commercially feasible fireplace.	R	1.0	1.0
44	Install Energy Star labeled roof materials or equivalent.	C	0.5	0.5
45	Install fiber optic wiring and connection (i.e., CAT-5).	R, C, M	0.5	0.5
46	Comply with SMUD Advantage (Tier II) energy standards..	R, C, M	0.5	0.5
<b>Subtotal</b>				<b>2.5</b>
<b>TOTAL POINTS</b>				<b>15.20</b>

Source: Laguna Ridge Specific Plan, page 7-6.

Notes: C = commercial, M = manufacturing, and R = residential uses

### 4.2.3 IMPACTS AND MITIGATION MEASURES

#### STANDARDS OF SIGNIFICANCE

The impact analysis provided below is based on the application of the following State CEQA Guidelines Appendix G thresholds of significance:

- 1) Conflict with or obstruct implementation of any applicable air quality plan.
- 2) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- 3) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

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- 4) Expose sensitive receptors to substantial pollutant concentrations.
- 5) Create objectionable odors affecting a substantial number of people.

In addition, the following thresholds of significance, as identified by the SMAQMD have been used to determine whether implementation of the proposed project would result in significant air quality impacts:

- **Short-term Emissions of Criteria Air Pollutants:** Construction-generated criteria air pollutant or precursor emissions exceed the SMAQMD-recommended threshold of 85 pounds per day (lbs/day) for NOX, or substantially contribute to emissions concentrations (e.g., PM<sub>10</sub>) that exceed the NAAQS or CAAQS. When emissions of NOx can be reduced to below 85 lbs/day with implementation of all feasible mitigation measures and offsets other construction-generated mobile-source pollutants can be considered to be less than significant (SMAQMD 2004).

The SMAQMD provides screening criteria that can also be used for the evaluation of construction-generated PM<sub>10</sub>, based on the overall maximum daily area of disturbance associated with proposed projects (refer to **Table 4.2-7**). In accordance with these criteria, areas of disturbance in excess of SMAQMD's screening criteria would also be considered potentially significant. These screening levels are based on the maximum actively disturbed area of the project site. For example, assuming a maximum daily disturbance of less than 15 acres, implementation of recommended "Level Three Mitigation" would typically be considered sufficient to reduce fugitive dust-related impacts to a less-than-significant level. If the maximum daily area of disturbance would exceed the screening criteria or if the project cannot undertake the mitigation measures that would be required, a more detailed analysis involving dispersion modeling may be required (SMAQMD 2004).

**TABLE 4.2-7  
SMAQMD PARTICULATE MATTER SCREENING LEVELS FOR CONSTRUCTION PROJECTS**

Maximum Daily Area of Disturbance	Recommended Mitigation
5 Acres and Below	No Mitigation Required
5.1 – 8 Acres	Level One Mitigation Required: Water exposed soil twice daily. Maintain two feet of freeboard space on haul trucks.
8.1 – 12 Acres	Level Two Mitigation Required: Water exposed soil three times daily. Water soil piles three times daily. Maintain two feet of freeboard space on haul trucks.
12.1 – 15 Acres	Level Three Mitigation Required: Keep soil moist at all times. Maintain two feet of freeboard space on haul trucks. Use emulsified diesel or diesel catalysts on applicable heavy-duty diesel construction equipment.

Source: SMAQMD 2004.

- **Long-term Emissions of Criteria Air Pollutants:** Long-term regional criteria air pollutant or precursor emissions exceed the SMAQMD-recommended threshold of 65 lbs/day

for ROG and NO<sub>x</sub>, or substantially contribute to emissions concentrations (e.g., PM<sub>10</sub>) that exceed the NAAQS or CAAQS.

- **Local Carbon Monoxide Concentrations:** Local mobile-source emissions exceed or substantially contribute to CO concentrations that violate the 1-hour ambient air quality standard of 20 ppm or the 8-hour standard of 9 ppm.
- **Local Toxic Air Contaminant Concentrations:** Exposure of sensitive receptors to TAC emissions exceeds 10 in one million for the maximally exposed individual (MEI) to contract cancer and/or a hazard index of one for the MEI.
- **Local Odor Concentrations:** Frequent exposure of a substantial number of individuals to odorous emissions would be considered significant.

### METHODOLOGY

The analysis of air quality impacts was based on the assumption that the buildout of the project site would occur against current conditions. Operational air quality impacts of the project are based on project buildout. Maximum and worst case scenario buildout conditions of the project site under the proposed General Plan Amendment, Specific Plan Amendment, and Rezone consist of 312 to -390 residential units and 79.7 acres of commercial designated uses. Short-term impacts associated with project construction and long-term impacts associated with project operation were analyzed, as described below.

The Initial Study prepared for the project determined that the project proposed is not expected to result in additional significant impacts related to sensitive receptors and objectionable odors other than those previously disclosed and analyzed in the Laguna Ridge Specific Plan EIR. As a result, these issues will not be discussed further in this analysis.

### Short-term Impacts

The SMAQMD recommends that construction-generated emissions of ROG and NO<sub>x</sub> be quantified and presented as part of the analysis of project-generated emissions. However, because construction equipment emits relatively low levels of ROG and because ROG emissions from other construction processes for the proposed project (e.g., asphalt paving, architectural coatings) are typically regulated by SMAQMD, the District has not adopted a construction emissions threshold for ROG. SMAQMD has, however, adopted a construction emissions threshold of 85 lbs/day for NO<sub>x</sub>. In addition, if daily emissions of NO<sub>x</sub> from heavy-duty mobile equipment do not exceed the 85 lbs/day threshold, then SMAQMD considers exhaust emissions of other pollutants to also be less than significant (SMAQMD, 2004).

Short-term construction emissions of ROG and NO<sub>x</sub> were estimated using the ARB-approved URBEMIS 2007 (Version 9.2.2) computer program as recommended by the SMAQMD. The URBEMIS 2007 analysis is included as **Appendix B**. URBEMIS is designed to model construction emissions for land use development projects and allows for the input of project-specific information. Detailed construction information (e.g., equipment requirements, type, hours of operation, number of employees, etc.) was not available at the time this analysis was conducted. As a result, the estimation of construction-generated emissions was based primarily on the default assumptions contained in the model. Model parameters were adjusted to include equipment assumptions recommended by the SMAQMD, based on the size of the proposed project site (i.e., 95.3± acres).

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### Long-term Impacts

Regional area- and mobile-source emissions associated with the proposed project were estimated using the ARB-approved URBEMIS 2007 (version 9.2.2) computer program, which includes options for the estimation of operational emissions for land use development projects. Emissions were calculated for both summer and winter conditions based on the default parameters contained in the model. Cumulative increases in regional criteria air pollutants were analyzed in comparison to the emission inventories used for development of regional air quality attainment plans.

The SMAQMD's *Guide to Air Quality Assessment (2004)* provides a project-level screening procedure to determine whether detailed intersection-level modeling is required for a proposed development project. The screening procedure conservatively estimates the background CO concentration in the project area and the project's contribution to predicted future concentrations, based on an estimation of peak-hour vehicle trips.

### PROJECT IMPACTS AND MITIGATION MEASURES

#### Construction Related Air Quality Impacts

**Impact 4.2.1** Construction activities associated with the development of the proposed project may emit pollutants equal or greater than five percent of the CAAQS could contribute to PM<sub>10</sub>. This would result in a **potentially significant** impact.

Development in the Laguna Ridge Specific Plan Area is guided by the Laguna Ridge Specific Plan, which includes land use designations, development standards, design guidelines, infrastructure plans, financing plans. The EIR prepared for the Laguna Ridge Specific Plan (SCH #2000082139) determined that construction activities associated with the development of the Specific Plan area would contribute to regional pollutants, such as ROG, NO<sub>x</sub>, and PM<sub>10</sub> to a level that is significant and unavoidable, despite implementation of several mitigation measures that reduce the project's construction impact. These mitigation measures include maximum vehicle speed requirements for on-site construction vehicles and construction worker ridesharing requirements.

Construction activities, such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils, would generate exhaust emissions and fugitive particulate matter emissions that would affect local air quality at various times during project construction. This is variable depending on the weather, soil conditions, the amount of activity taking place, and nature of dust control efforts. The dry climate of the area during the summer months creates a high potential for dust generation.

Construction activities would be subject to the SMAQMD Rule 403 that requires taking reasonable precautions to prevent the emissions of fugitive dust, such as "using water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the construction of roadways, or the clearing of land" where possible and applying "asphalt, oil, water, or suitable chemicals on dirt roads, materials, stockpiles, and other surfaces which can give rise to airborne dust."

The project site is currently vacant. Daily emissions from the current land use designations, which were analyzed in the Laguna Ridge Specific Plan EIR, as well as the proposed project, which proposes the land use reconfiguration of sites that are currently zoned Multi-Family Residential/20-25 dwelling units per acre (RD-20), Medium Residential/15.1-20 dwelling units per

acre (RD-15), and Single-Family/10 dwelling units per acre (RD-10) to be rezoned to a mix of RD-20 and Shopping Commercial (SC), resulting in an increase of 23.3 acres of commercial zoning and a decrease of approximately 285 to 341 potential residential units, have been estimated using SMAQMD methodology and are shown in **Table 4.2-8** and **Table 4.2-9**. These emissions are based on the worst case assumption that construction would occur simultaneously for the residential and commercial components of the project. Emissions would exceed the SMAQMD significance criterion of 85 pounds per day of NO<sub>x</sub>. Furthermore, construction activities are considered to have a potential to create a local nuisance and exceed the standard of PM<sub>10</sub>.

**TABLE 4.2-8  
CONSTRUCTION EMISSIONS UNDER CURRENT LAND USE DESIGNATIONS  
(POUNDS PER DAY)**

Source	Emissions (pounds per day)		
	ROG	NO <sub>x</sub>	PM <sub>10</sub>
Maximum Construction Emissions (unmitigated)	1,745.39	126.06	483.42
Maximum Construction Emissions (mitigated)	1,571.89	126.06	115.04
<b>Sacramento Metropolitan AQMD Threshold</b>	N/A	85	CAAQ

Source: URBEMIS 2007 ver. 9.2.2.

**TABLE 4.2-9  
CONSTRUCTION EMISSIONS UNDER PROPOSED PROJECT  
(POUNDS PER DAY)**

Source	Emissions (pounds per day)		
	ROG	NO <sub>x</sub>	PM <sub>10</sub>
Maximum Construction Emissions (unmitigated)	1,690.08	126.06	483.42
Maximum Construction Emissions (mitigated)	1,522.08	126.06	115.04
<b>Sacramento Metropolitan AQMD Threshold</b>	N/A	85	CAAQ

Source: URBEMIS 2007 ver. 9.2.2.

During construction various diesel-powered vehicles and equipment in use on the site would create odors. These sources are mobile and transient in nature, and the emission occurs at a substantial distance from nearby receptors (which provides for dilution of odor-producing constituents). These odors would be temporary and unlikely to be noticeable beyond the project boundaries.

The City Council adopted a Statement of Overriding Considerations for significant and unavoidable impacts anticipated with implementation of the Laguna Ridge Specific Plan which included creation of period exhaust emissions and fugitive dust from construction activities that would affect local air quality. While the proposed project does not include the actual construction of dwellings, the land use reconfiguration would result in a slight decrease (ROG) or similar (NO<sub>x</sub> and PM<sub>10</sub>) construction related air quality emissions as existing land use designations of the project site (see **Tables 4.2-8** and **4.2-9**).

As indicated in **Table 4.2-8**, the current land use configuration of the site is projected to emit approximately 126 pounds/day of NO<sub>x</sub> during construction activities; therefore, the current land

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use would exceed SMAQMD's established threshold of 85 pounds/day for NO<sub>x</sub>. As indicated in **Table 4.2-9**, the proposed General Plan Amendment, Specific Plan Amendment, and Rezone is also projected to emit approximately 126 pounds/day of NO<sub>x</sub> during construction activities. Therefore, the proposed land use reconfiguration of the site would result in a no net increase or decrease compared with the current land use, yet would still exceed SMAQMD's established threshold of 85 pounds/day for NO<sub>x</sub>.

The proposed land use reconfiguration coupled with the mitigation measures described below as well as standard Laguna Ridge Specific Plan mitigation measures (MM 4.3.1a through MM 4.3.1g of the Laguna Ridge Specific Plan EIR) would also result in the same level of PM<sub>10</sub> emissions during construction activities when compared with the current land use configuration of the site (see **Tables 4.2-8** and **4.2-9**). Although the potential to locally exceed the PM<sub>10</sub> CAAQ Standard exists with the proposed project, SMAQMD has no established daily thresholds for PM<sub>10</sub> during construction activities due to the temporary generation of this emission which would cease once construction is completed.

The air quality impacts associated with the Laguna Ridge Specific Plan would remain significant and unavoidable as a result of the proposed General Plan Amendment, Specific Plan Amendment, and Rezone because this change does not reduce air pollutant emissions to less than significant levels for the Specific Plan area. However, the proposed project would not substantially increase the severity of construction-related air quality impacts and is therefore considered to be **less than significant**.

### Mitigation Measures

Implementation of mitigation measures MM 4.3.1a through MM 4.3.1g of the Laguna Ridge Specific Plan EIR, as well as MM 4.2.1a through 4.2.1d below, are required in order to reduce project construction-related emissions.

**MM 4.2.1a** Wash dirt off construction vehicles and equipment within the staging area prior to leaving the construction site. This requirement shall be noted in project improvement plans.

*Timing/Implementation:* During all grading and construction phases of the project.

*Enforcement/Monitoring:* City of Elk Grove Development Services and SMAQMD

**MM 4.2.1b** Pave, apply water three times daily, or apply (non-stick) soil stabilizers on all unpaved access roads, parking areas and staging areas. This requirement shall be noted in project improvement plans.

*Timing/Implementation:* During all grading and construction phases of the project.

*Enforcement/Monitoring:* City of Elk Grove Development Services and SMAQMD

**MM 4.2.1c** The project shall provide a plan for approval by the City of Elk Grove and SMAQMD demonstrating that the heavy-duty (> 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 NOx reduction and 45 percent particulate reduction compared to the most recent ARB fleet average at time of construction;

And

The project applicant shall submit to SMAQMD a comprehensive inventory of all off-road construction equipment, equal to or greater than 50 horsepower, that will be used an aggregate of 40 or more hours during any portion of the construction project. The inventory shall include the horsepower rating, engine production year, and projected hours of use or fuel throughput for each piece of equipment. The inventory shall be updated and submitted monthly 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 48 hours prior to the use of subject heavy-duty off-road equipment, the project representative shall provide SMAQMD with the anticipated construction timeline including start date and name and phone number of the project manager and on-site foreman.

*Timing/Implementation:* Plan shall be submitted to SMAQMD for review and approval prior to approval of improvement plans and shall be implemented during all grading and construction phases of the project.

*Enforcement/Monitoring:* City of Elk Grove Development Services and SMAQMD

**MM 4.2.1d**

The project applicant shall ensure that emissions from all off-road diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately, and SMAQMD shall be notified within 48 hours of identification of non-compliant equipment. A visual survey of all in-operation equipment shall be made at least weekly, and a monthly summary of the visual survey results shall be submitted throughout the duration of the project, except that the monthly summary shall not be required for any 30-day period in which no construction activity occurs. The monthly summary shall include the quantity and type of vehicles surveyed as well as the dates of each survey. The SMAQMD and/or other officials may conduct periodic site inspections to determine compliance. Nothing in this section shall supersede other SMAQMD or state rules or regulations.

*Timing/Implementation:* During all grading and construction phases of the project.

*Enforcement/Monitoring:* City of Elk Grove Development Services and SMAQM.

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### Short-term Exposure to Toxic Air Contaminants

**Impact 4.2.2** Implementation of subsequent development associated with the proposed project would result in short-term exposure to toxic air contaminants. This impact is considered **less than significant**.

The EIR prepared for the Laguna Ridge Specific Plan (SCH #2000082139) determined that only a few uses that could be developed within the Specific Plan area would require emitting toxic pollutants as a byproduct. It was further determined that any uses of toxic substances that could involve an air release would be subject to regulatory control under the permitting authority of SMAQMD and based on this requirement to obtain permits, impacts were considered to be less than significant.

Construction of the uses accommodated by the proposed project would result in construction-generated diesel-exhaust emissions. Particulate-exhaust emissions from diesel-fueled engines (diesel-exhaust PM) were identified as a TAC by the ARB in 1998. Implementation of the proposed project would result in the generation of diesel PM emissions during construction from the use of off-road diesel equipment for site grading and excavation, paving, demolition, and other construction activities.

Health-related risks associated with diesel-exhaust emissions are primarily connected to long-term exposure and the potential risk of contracting cancer. For residential land uses, the calculation of cancer risk associated with exposure to TACs are typically calculated based on a 70-year period of exposure. The use of diesel-powered construction equipment, however, would be temporary and episodic and would occur over a relatively large area. In addition, measures required by the SMAQMD for the control of particulate emissions from onsite construction equipment would substantially reduce emissions of diesel-exhaust PM. For these reasons, diesel-exhaust PM generated by project construction, in and of itself, would not be expected to create conditions where the probability of contracting cancer is greater than 10 in 1 million for nearby receptors. Long-term health risks associated with short-term construction activities would therefore be considered **less than significant**.

#### Mitigation Measures

None required.

### Long-term Increases of Criteria Air Pollutants

**Impact 4.2.3** Implementation of conceptual development associated with the proposed General Plan Amendment, Specific Plan Amendment, and Rezone would result in long-term increases in criteria air pollutants. This impact is considered **potentially significant**.

The EIR prepared for the Laguna Ridge Specific Plan (SCH #2000082139) determined that the long-term increase of criteria air pollutants resulting from implementation of the Laguna Ridge Specific Plan is a significant and unavoidable impact. This was concluded despite implementation an air quality plan (AQ-15 Management Plan) that helps to reduce operational air quality impacts in the Specific Plan area through the requirements of mixed-use development, enhanced bicycle and pedestrian access to popular uses, and the design of internal circulation systems to preclude major traffic from passing through the neighborhoods, to list a few examples.

An URBEMIS 2007 (version 9.2.2) analysis was completed to illustrate the effect the proposed land use changes would have compared to existing conditions. **Table 4.2-10** indicates the potential increase in air pollutant emissions of the proposed project compared to the current conditions at the project site.

**TABLE 4.2-10  
AREA AND OPERATIONAL AIR POLLUTANT EMISSIONS – CURRENT AND PROPOSED LAND USE**

Source	Estimated Emissions (lbs/day)				
	ROG	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>
<b>Existing Land Use Configuration</b>					
Summer Emissions	787.84	925.54	10,567.02	7.47	1,194.15
Winter Emissions	840.97	1,378.18	9,178.29	5.99	1,194.15
<b>Changes Associated with Proposed Land Use Configuration</b>					
Summer Emissions	690.27	647.42	7,178.03	4.74	748.62
Winter Emissions	781.51	950.17	6,899.69	4.88	801.10
SMAQMD Significance Threshold:	65	65	None	None	None

*Emissions were estimated using the URBEMIS 2007 (v9.2.2) computer program, based on default model settings recommended by the SMAQMD.*

As depicted in **Table 4.2-10**, during the summer months, long-term operation of the uses identified for the project site under the proposed land use reconfiguration would generate emissions of approximately 690.27 lbs/day of ROG, 647.42 lbs/day NO<sub>x</sub>, and 748.62 lbs/day of PM<sub>10</sub>. During the winter months, operational emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> would increase to approximately 781.51 lbs/day, 950.17 lbs/day, and 801.10 lbs/day respectively. Increased emissions during the winter months resulting from development of the project are primarily associated with changes in emissions rates from mobile sources under cooler operating temperatures. As noted previously, SMAQMD has not adopted a significance threshold for emissions of CO, SO<sub>x</sub>, or PM<sub>10</sub>.

Emissions of ROG and NO<sub>x</sub> are of particular concern during the summer ozone season, which extends from the beginning of May through the end of October. Emissions during these warmer months of the year resulting from conceptual development would be anticipated to exceed SMAQMD's recommended significance threshold of 65 lbs/day, as would winter emissions exceed SMAQMD's threshold.

The proposed land use reconfiguration, coupled with mitigation measure MM 4.2.3 described below and Laguna Ridge Specific Plan mitigation measure MM 4.3.2 of the Laguna Ridge Specific Plan EIR, would result in a reduction of long-term operational emissions when compared with the current land use configuration of the site (see **Table 4.2-10**).

The air quality impacts associated with the Laguna Ridge Specific Plan would remain significant and unavoidable as a result of the proposed General Plan Amendment, Specific Plan Amendment, and Rezone. However, the proposed project would not increase the severity of

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long-term increases of criteria air pollutants with implementation of mitigation measure MM 4.3.2 of the Laguna Ridge Specific Plan EIR as well as MM 4.2.3 below, and is therefore considered to be **less than significant**.

### Mitigation Measures

Implementation of mitigation measure **MM 4.3.2** of the Laguna Ridge Specific Plan EIR, as well as **MM 4.2.3** below, is required in order to maintain project operational emissions.

**MM 4.2.3** The project developer and all successors shall implement the following mitigation measures as part of project design:

- Use of energy-efficient lighting (includes controls) and process systems such as water heaters, furnaces, and boiler units for all buildings and lighting.
- Use of energy-efficient and automated controls for air conditioning in all buildings.
- Only natural gas/LPG fireplaces, pellet stoves, or EPA-certified Phase II wood-burning fireplaces or stoves shall be allowed within the project. Conventional open-hearth fireplaces shall not be permitted.

*Timing/Implementation:* Prior to issuance of building permits.

*Enforcement/Monitoring:* City of Elk Grove Development Services and SMAQMD

## 4.2.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

### CUMULATIVE SETTING

The cumulative setting for air quality is the Sacramento Valley Air Basin (SVAB). This includes the five counties of Sacramento, Solano, Yolo, Placer, and Sutter. The projects identified in **Table 4.0-1** in Section 4.0 as well as existing and reasonably foreseeable projects in the greater SVAB are included in the cumulative setting for air quality. The climate and geography of the lower SVAB severely limits the dilution and transportation of any air pollutants that released to the atmosphere. At current levels of development (residential, commercial, industrial, etc.) and activity, the air basin exceeds the state/federal ambient standards for particulates and ozone. Cumulative growth in population, vehicle use and industrial activity could inhibit efforts to improve regional air quality and attain the ambient air quality standards.

In addition to cumulative air pollutant issues, the cumulative setting and impact analysis considers the on-going research and concerns regarding greenhouse gas emissions and their associated effect on global climate change. The "Climate Change and California Water Resources: A Survey and Summary of the Literature" (prepared by the Pacific Institute for Studies in Development, Environment and Security) noted the following general effects from climate change:

- Snowpack higher in elevation in the Sierra Nevada Mountains;
- Alterations in current precipitation and runoff conditions;
- Greater number of extreme flood and drought events.

Other effects from climate change include:

- Diminishing certainty of water supply;
- Increased severity of forest fires;
- Sea-level rise and coastal flooding;
- Increased ranges of disease-spreading insects.

The proposed project's potential effects on global warming and climate change are discussed further in Section 5.0 of this SEIR.

## CUMULATIVE IMPACTS, AND MITIGATION MEASURES

### Regional Air Plan Impacts

**Impact 4.2.4** Implementation of the proposed project in combination with growth throughout the air basin would exacerbate existing regional problems with ozone and particulate matter. This is considered a significant impact. While implementation of mitigation measures **MM 4.2.1a** through **MM 4.2.1d** and **MM 4.2.3** would reduce the project's air pollution emissions, implementation of the proposed project would have a significant adverse incremental effect on the region's ability to attain state and federal air quality standards. The project would have a **cumulatively considerable** contribution to this **significant and unavoidable** impact.

The proposed project includes a General Plan Amendment, Specific Plan Amendment, and Rezone to increase the amount of commercial land in the Laguna Ridge Specific Plan area. The land uses would be reconfigured, and sites that are currently designated RD-20, RD-15, and RD-10 would be redesignated to a mix of RD-20 and SC.

Sacramento County is classified a severe non-attainment area for the federal ozone standards. In order to improve air quality and attain the health-based standards, reductions in emissions are necessary within the non-attainment area. The growth in population, vehicle usage, and business activity within the non-attainment area, when considered with growth proposed under the Elk Grove General Plan, would contribute to cumulative regional air quality impacts. Implementation of the proposed project, along with other growth in the area, may either delay attainment of the standards or require the adoption of additional controls on existing and future air pollution sources to offset project-related emission increases.

The City Council adopted a Statement of Overriding Considerations for significant and unavoidable cumulative air quality impacts anticipated with implementation of the Laguna Ridge Specific Plan (where the proposed project site is located). While the proposed project does not include the actual construction of dwellings, the land use reconfiguration would result in a reduction of construction and operational related air quality impacts compared with emissions anticipated for the current land use designations of the project site (see **Tables 4.2-8, 4.2-9, and 4.2-10** above). Nevertheless, implementation of the proposed project along with development anticipated under cumulative conditions, would have a **cumulatively considerable** contribution to the significant adverse effect associated with the region's ability to attain state and federal air quality standards for ROG, NO<sub>x</sub> and PM<sub>10</sub>.

## 4.2 AIR QUALITY

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### Mitigation Measures

Implementation of mitigation measures **MM 4.2.1a** through **MM 4.2.1d**, **MM 4.2.3**, as well as MM 4.3.1a through 4.3.1g and MM 4.3.2 of the Laguna Ridge Specific Plan EIR would reduce the air pollution emissions associated with implementation of the proposed project. Nevertheless, implementation of the proposed project would have a significant adverse incremental effect on the region's ability to attain state and federal air quality standards. The project would have a **cumulatively considerable** contribution to **significant and unavoidable** cumulative air quality impacts.

### REFERENCES

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