

## 5.6 AIR QUALITY

The following section analyzes the potential impacts on air quality resulting from the proposed project. The air quality analysis was prepared by Don Ballanti Certified Consulting Meteorologist (refer to **Appendix D**) using methodologies and assumptions recommended by 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.

### 5.6.1 EXISTING SETTING

#### CLIMATE AND METEOROLOGY

The primary factors that determine air quality are the locations of air pollutant sources and the amounts of pollutants emitted. However, meteorological and topographical conditions are also important.

The project is located in the southern portion of the Sacramento Valley, a broad, flat valley bounded by the coastal ranges to the west and the Sierra Nevada mountain range to the east. A sea level gap in the Coast Range, the Carquinez Strait, is located about 50 miles southwest and the intervening terrain is very flat. The prevailing wind direction is southwesterly, which is the wind direction when marine breezes flow through the Carquinez strait. Marine breezes dominate during the spring and summer months and show a strong daily variation. Highest average wind speeds occur in the afternoon and evening hours; lightest winds occur in the night and morning hours. During fall and winter, when the sea breeze diminishes, northerly winds occur more frequently, but southwesterly winds still predominate.

The project is located within the Sacramento Metropolitan Air Quality Management District, which is part of the Sacramento Valley Air Basin. The San Francisco Bay Area Air Basin lies to the west, and the San Joaquin Valley Air Basin is located to the south. Considerable transport of pollutants occurs between these air basins, so that air quality in Sacramento County is partially determined by the release of pollutants elsewhere.

The project area experiences episodes of poor atmospheric mixing caused by inversion layers. Inversion layers form when temperature increases with elevation above ground or when a mass of warm dry air settles over a mass of cooler air near the ground. Surface inversions (0-500 feet) occur mostly during the winter, and subsidence inversions (1,000-2,000 feet) occur mostly during the summer. Inversion layers limit the vertical mixing of the atmosphere, thus trapping pollutants near the surface.

#### AIR POLLUTANTS AND AMBIENT AIR QUALITY STANDARDS

The Sacramento Valley Air Basin is not in compliance with standards set forth in either the Federal or State Clean Air Acts. In 2003, Sacramento County was a non-attainment area for State ozone, PM<sub>10</sub>, and PM<sub>2.5</sub> standards. In 2004, the County was non-attainment for the federal particulate matter, 1-hour ozone, and 8-hour ozone standards. The Sacramento region must meet Federal standards for ozone air pollution by 2013. Internal combustion engines in mobile sources such as cars, light-duty and heavy-duty trucks, and off-road vehicles are a major source of ozone (O<sub>3</sub>) precursors, which include nitrogen oxides (NO<sub>x</sub>).

Both the U. S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants that represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover "criteria" pollutants.

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The Federal and California ambient air quality standards are summarized in **Table 5.6-1** for important pollutants. The Federal and State ambient standards were developed independently with differing purposes and methods, although both processes attempted to avoid health-related effects. As a result, the Federal and State standards differ in some cases. In general, the California standards are more stringent. This is particularly true for ozone and Particulate Matter (PM)<sub>10</sub>.

The most problematic pollutants in Sacramento County are ozone and PM. The health effects and major sources of these pollutants are described below.

**TABLE 5.6-1  
FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	California Standards	Federal Primary Standards
Ozone	1-Hour	0.09 ppm	–
	8-Hour	0.070 ppm	0.08 ppm
Carbon Monoxide	1-Hour	20.0 ppm	35.0 ppm
	8-Hour	9.0 ppm	9.0 ppm
Nitrogen Dioxide	Annual Average	–	0.053 ppm
	1-Hour	0.25 ppm	–
Sulfur Dioxide	Annual Average	–	0.030 ppm
	24-Hour	0.04 ppm	0.14 ppm
	1-Hour	0.25 ppm	–
PM <sub>10</sub>	Annual Average	20 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>
	24-Hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
PM <sub>2.5</sub>	Annual	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-Hour	–	65 µg/m <sup>3</sup>
Lead	Calendar Quarter	–	1.5 µg/m <sup>3</sup>
	30 Day Average	1.5 µg/m <sup>3</sup>	–
Sulfates	24-Hour	25 µg/m <sup>3</sup>	–
Hydrogen Sulfide	1-Hour	0.03 ppm	–
Vinyl Chloride	24-Hour	0.01 ppm	–

Source: *California Air Resources Board, Ambient Air Quality Standards* (<http://www.arb.ca.gov/aqs/aaqs2.pdf>)

Note:

ppm = parts per million and ug/m<sup>3</sup> = Micrograms per Cubic Meter

## Existing Ambient Air Quality

The Sacramento Metropolitan Air Quality Management District (SMAQMD) and California Air Resources Board (CARB) maintain several air quality monitoring sites in the Sacramento area, including one in Elk Grove. The Elk Grove monitoring site measures two pollutants: ozone and nitrogen dioxide (NO<sub>2</sub>). The nearest monitoring site for carbon monoxide (CO) is at T Street in downtown Sacramento. The nearest monitoring site for PM<sub>10</sub> is the Sacramento Branch Center Road site, located near Bradshaw Road south of U.S. 50. **Table 5.6-2** shows historical occurrences of pollutant levels exceeding the state/federal ambient air quality standards for monitoring stations in Elk Grove, or the nearest monitoring station for carbon monoxide and nitrogen dioxide which are not monitored in Elk Grove. The number of days that each standard was exceeded is shown. All federal ambient air quality standards are met in the Elk Grove area, with the exception of ozone. The state standards for carbon monoxide, nitrogen dioxide, and PM<sub>2.5</sub> are also met. However, the state ambient standards of ozone and PM<sub>10</sub> are regularly exceeded.

**TABLE 5.6-2**  
**DAYS EXCEEDING AMBIENT AIR QUALITY STANDARDS, 2000 – 2005**

Pollutant	Standard	2000	2001	2002	2003	2004	2005
Ozone (Elk Grove)	1 -Hour State	3	10	1	10	1	7
	1 -Hour Federal	0	0	0	0	0	0
	8-Hour Federal	1	3	0	5	1	2
Carbon Monoxide (T Street)	8-Hour St/Fed.	0	0	0	0	0	0
	1 -Hour State	0	0	0	0	0	0
Nitrogen Dioxide (Elk Grove)	1 -Hour State	0	0	0	0	0	0
PM <sub>10</sub> (Branch Center Road)	24-Hour State	2	3	8	4	0	2
	24-Hour Federal	0	0	0	0	0	0
PM <sub>2.5</sub> (Elk Grove)	24-Hour State	NA	NA	NA	0	0	0

Source: California Air Resources Board ([www.arb.ca.gov](http://www.arb.ca.gov))

## Criteria Pollutants

### Ozone (O<sub>3</sub>)

Ozone (O<sub>3</sub>) is the most prevalent of a class of photochemical oxidants formed in the urban atmosphere. The creation of ozone is a result of complex chemical reactions between hydrocarbons and oxides of nitrogen in the presence of sunshine. Unlike other pollutants, ozone is not released directly into the atmosphere from any sources. The major sources of oxides of nitrogen and reactive hydrocarbons, known as ozone precursors, are combustion sources such as factories and automobiles, and evaporation of solvents and fuels. The health effects of ozone are eye irritation and damage to lung tissues. Ozone also damages some materials such as rubber, and may damage plants and crops.

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### Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>)

Particulate matter can be divided into several size fractions. Coarse particles are between 1.5 and 10 microns in diameter, and arise primarily from natural processes, such as wind-blown dust or soil. Fine particles are less than 2.5 microns in diameter and are produced mostly from combustion, or burning activities. Fuel burned in cars and trucks, power plants, factories, fireplaces and wood stoves produces fine particles.

The level of fine particulate matter in the air is a public health concern because it can bypass the body's natural filtration system more easily than larger particles, and can lodge deep in the lungs. The health effects vary depending on a variety of factors, including the type and size of particles. Research has demonstrated a correlation between high PM concentrations and increased mortality rates. Elevated PM concentrations can also aggravate chronic respiratory illnesses such as bronchitis and asthma.

### Carbon Monoxide (CO)

Carbon Monoxide (CO) is an odorless, colorless gas that is formed by the incomplete combustion of fuels. Unlike ozone, CO is a directly emitted pollutant. Motor vehicle emissions are the dominant source of CO in the Sacramento region. At high concentrations, CO reduces the oxygen-carrying capacity of the blood and can cause dizziness, headaches, unconsciousness, and even death. CO can also aggravate cardiovascular disease.

### Nitrogen Dioxide (NO<sub>2</sub>)

Nitrogen Dioxide (NO<sub>2</sub>) is a reddish brown gas that is a by-product of fuel combustion, mostly from motor vehicle and industrial sources. NO<sub>2</sub> can increase the risk of acute and chronic respiratory disease and reduce visibility.

### Sulfur Dioxide (SO<sub>2</sub>)

Sulfur Dioxide (SO<sub>2</sub>) is produced by the combustion of sulfur-containing fuels, such as oil, coal and diesel. SO<sub>2</sub> is a colorless acid gas with a strong odor, and can irritate lung tissue and increase the risk of acute and chronic respiratory disease.

### Lead (Pb)

Automotive sources used to be the major contributor of lead emissions to the atmosphere until regulatory efforts reduced the content of lead in gasoline. Metal processing is now the major source of lead emissions. Lead accumulates in the blood, bones, and soft tissues. The health effects associated with lead include adverse affects to the kidneys, liver, nervous system, and other organs.

### 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. Residential areas are considered sensitive to poor air quality because people in residential areas are often at home for extended periods. Existing homes are located on the east side of Franklin Boulevard south of Elk Grove Boulevard and both sides of Franklin Boulevard north of Elk Grove Boulevard. All these residences have substantial setbacks from the roadway edge. Project alternative AB would

involve widening Franklin Boulevard south of Laguna South Channel to the east approximately 38 feet closer to residential housing. Project alternative AC would involve widening Franklin Boulevard south of the Laguna South Channel to the east approximately 18 feet closer to residential housing. Under AB, residential houses would be approximately 58 feet to the east of the widened Franklin Boulevard. Moving the area of project construction and operation 38 feet closer to residences would not significantly increase air quality impacts under AB due to the dispersal of traffic emissions.

## 5.6.2 REGULATORY FRAMEWORK

### FEDERAL

The 1977 Federal Clean Air Act (CAA) required the U. S. Environmental Protection Agency (EPA) to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for the six criteria air pollutants. EPA publishes criteria documents to justify the choice of standards. Standards for these pollutants are listed in **Table 5.6-1**.

In June of 1997, the EPA adopted new ozone and PM<sub>10</sub> standards. The EPA intends to phase out the 1-hour ozone standard of 0.12 ppm and replace it with an 8-hour standard of 0.08 ppm. The EPA also adopted an additional standard for particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>). Although currently in effect, the planning process to determine compliance with these new standards and the development of control programs to meet these standards, if needed, will not be completed for some time.

Pursuant to the 1990 amendments to the Federal CAA, the EPA has classified air basins (or portions thereof) as either 'attainment' or 'non-attainment' for each criteria air pollutant, based on whether or not the NAAQS have been achieved. Under the Federal Clean Air Act, Sacramento County is a non-attainment area for ozone (both 1-hour and 8-hour standards) and is moderate non-attainment for particulate matter. Sacramento County is either attainment or unclassified for other federal standards.

### STATE

The California Clean Air Act (CCAA), patterned after the Federal CAA, requires the adoption of California Ambient Air Quality Standards (CAAQS). California has adopted standards that are more stringent than the Federal standards for criteria air pollutants (see **Table 5.6-1**). Also, the CCAA establishes more criteria pollutants than the Federal CAA. Like its Federal counterpart, the CCAA designates areas as in 'attainment' or in 'non-attainment' status with respect to the CAAQS.

In July of 2002 the state of California adopted new state ambient standards for PM<sub>10</sub> and PM<sub>2.5</sub>. The annual-averaged standard PM<sub>10</sub> was reduced from 30 micrograms per cubic meter to 20 micrograms per cubic meter, and a new annual average standard of 12 micrograms per cubic meter was established for PM<sub>2.5</sub>.

Under the State standards, Sacramento County is in 'Non-Attainment' status for 8-hour ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>. The county has attained the State and Federal CO standard. All federal ambient air quality standards are met in the Elk Grove area, with the exception of ozone. Additionally, the state ambient standards of ozone and PM<sub>10</sub> are regularly exceeded (City of Elk Grove, 2004).

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### LOCAL

The SMAQMD is the local air quality agency and is responsible for preparing regional air quality plans under the state and federal Clean Air Acts. The current regional plan addresses ozone and identifies strategies for progressive reduction in emissions of ozone precursors. In addition to planning responsibilities, SMAQMD has permitting authority over stationary sources of pollutants. Authority over mobile sources of pollutants is given to the CARB.

### CITY OF ELK GROVE GENERAL PLAN

**Table 5.6-3** identifies General Plan objectives and policies for air quality that are relevant to the proposed project and summarizes the project's consistency with the General Plan. The following analysis is required by the CEQA Guidelines §15125(d), Environmental Setting. While this EIR analyzes the project's consistency with the General Plan pursuant to CEQA Section 15125(d), the Elk Grove City Council determines the project's consistency with the General Plan.

**TABLE 5.6-3  
PROJECT CONSISTENCY WITH GENERAL PLAN AIR QUALITY OBJECTIVES AND POLICIES**

General Plan Policies	Consistency With General Plan	Analysis
<p><b>Policy CAQ-29</b></p> <p>The City shall seek to ensure that public transit is a viable and attractive alternative to the use of private motor vehicles.</p>	Yes	Two bus turnouts along Franklin Boulevard are included as part of the design of the proposed project and all alternatives except AA.
<p><b>Policy CAQ-32:</b></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 5.6, 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><b>Policy CAQ-33</b></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 shall be required to submit a list of construction equipment for the City's approval prior to the start of construction as required by mitigation measures identified in this section.</p> <p>Compliance with the City's emissions standards would result in consistency with this policy.</p>

### 5.6.3 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).
- 4) Expose sensitive receptors to substantial pollutant concentrations.
- 5) Create objectionable odors affecting a substantial number of people.

SMAQMD has established thresholds for certain pollutants. For localized pollutants, such as CO, an increase in concentrations that would result in a predicted violation of the most stringent State or Federal standard [20.0 parts per million (PPM) for 1-hour or 9.0 PPM for 8 hours] is considered to represent a significant impact. For regional pollutants, such as ozone precursors (NO<sub>x</sub> and ROG), SMAQMD establishes thresholds for project-related operational pollutant increases and NO<sub>x</sub> for construction-related increases (reference **Table 5.6-4** and **Table 5.6-5**).

**TABLE 5.6-4**  
**SMAQMD SIGNIFICANCE CRITERIA**  
**OPERATIONAL EMISSION THRESHOLDS**

Ozone Precursor Emissions	Emission Thresholds lbs./day
NO <sub>x</sub>	65
ROG	65

*Source: Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment in Sacramento County, July 2004.*

**TABLE 5.6-5**  
**SMAQMD SIGNIFICANCE CRITERIA**  
**CONSTRUCTION-RELATED EMISSION THRESHOLDS**

Ozone Precursor Emissions	Emission Thresholds (lbs./day)
NO <sub>x</sub>	85
ROG	None

*Source: Sacramento Metropolitan Air Quality Management District Guide to Air Quality Assessment in Sacramento County, July 2004.*

The SMAQMD adopted these additional significance criteria/thresholds to be used to determine project significance under CEQA:

- Emission Concentration Threshold: The CAAQS significance criteria are applied to all phases of a project in addition to the above mass emission thresholds.

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- Substantial Contribution Threshold: A project is considered to contribute substantially to an existing or projected violation of a CAAQS if it emits pollutants at a level equal to or greater than five (5) percent of the CAAQS.

### METHODOLOGY

#### Construction Emissions

Emissions from construction activities were quantified based on the SMAQMD recommended methodology. The SMAQMD's Road Construction Emissions Model (Version 5.1) was used to estimate emissions from construction. The model is a spreadsheet that estimates emissions based on numerous parameters regarding the type of construction, area to be disturbed, the period of construction and year of construction. Inputs were the length of the improvement, the type of improvement (new roadway or road widening), the year of construction and area of construction. The roadway construction emissions model estimates emissions from vehicle and equipment exhausts, fugitive dust, and off-gassing emissions during all phases of construction. Model inputs would not change for any of the project alternatives. The modeling output is included in **Appendix D**.

#### Carbon Monoxide Modeling/Operational Emissions

Project-specific data from the *Traffic Operations Analysis Franklin Boulevard Widening – from Elk Grove Boulevard through Poppy Ridge Road* (Wood Rodgers, 2005) was used to determine impacts related to trips generated by the project. The modeling output is included in **Appendix D**.

The SMAQMD is currently in attainment for CO. Despite the success in achieving CO standards, an analysis of localized CO concentrations is warranted to ensure that standards are maintained. Also, analysis is required to ensure that localized concentrations don't reach potentially unhealthful levels that could affect sensitive receptors. Typically, high CO concentrations are associated with roadways or intersections operating at an unacceptable level of service (LOS).

A screening procedure for estimating carbon monoxide concentrations was applied to signalized intersections under existing and future traffic conditions. The screening procedure contained in *Transportation Project-Level Carbon Monoxide Protocol* was utilized.<sup>1</sup> The methodology uses estimates of the contributions to carbon monoxide concentrations for a "base case" characterized by a specific intersection configuration, meteorology, traffic volume, and indicators of intersection performance. A series of correction factors are then applied to adjust the initial estimates of carbon monoxide concentrations for the specific conditions of the intersection under study.

The following assumptions were made as input to the screening procedure as appropriate for a project in Sacramento County and based on project surroundings:

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<sup>1</sup> Garza, Vincente J.; Peter Granly; Daniel Sperling, *Transportation Project-Level Carbon Monoxide Protocol*. Institute of Transportation Studies, University of California, Davis, Report UCD-ITS-RR-97-21, 1997.

- Geographical Location: Central Valley
- Average Cruise Speed: 35 MPH (away from intersections)
- Percentage of Vehicle Operating in Cold Start Mode: 30 percent
- Distance to Closet Receptor: 20 feet (7 meters)

The screening procedure provides a worst-case estimate of 1-hour and 8-hour concentrations of carbon monoxide generated by vehicles impacting an intersection. The other contribution to the total concentration is the background level attributed to more distant traffic. The 1-hour background level was assumed to be 3.8 parts per million, calculated using maps of background levels and rollback factors developed by the Sacramento Metropolitan Air Quality Management District.<sup>2</sup>

The analysis was conducted for the Franklin Boulevard/Elk Grove Boulevard and Franklin Boulevard/Poppy Ridge intersections; which, based on total traffic volume and levels of congestion, are the worst-case intersections that should have the highest levels of carbon monoxide in the project vicinity. Model input factors would be the same for all project alternatives, including the conservative 20 feet distance to the nearest sensitive receptor, which is less than the actual distance to any sensitive receptor.

Cumulative impacts were based on the *City of Elk Grove General Plan Environmental Impact Report* (City of Elk Grove, 2003) and the *City of Elk Grove General Plan Amendment Supplemental Environmental Impact Report* (City of Elk Grove, 2004).

### PROJECT IMPACTS AND MITIGATION MEASURES

#### Impact 5.6.1 Construction Related Air Quality Impacts

PP, AB, AC, AD Construction activities associated with the development of the proposed project may emit pollutants and PM<sub>10</sub> that exceed the thresholds set by the SMAQMD. This would result in a **less than significant** impact.

AA Under the No Project alternative, there would be no construction; hence, there would be **no impact** from construction emissions.

### DISCUSSION

The PP, AB, AC and AD would not require demolition of any structures; however, they would require equipment for various construction activities, such as the use of heavy equipment that generate dust, exhaust, and tire-wear emissions and from paints and coatings. 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 temporarily 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.

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<sup>2</sup> Sacramento Air Quality Management District, [Guide to Air Quality Assessment in Sacramento County](#), July 2004.

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The SMAQMD's Road Construction Emissions Model (Version 5.1) was used to estimate emissions from construction, and are shown in **Table 5.6-6**. Emissions would not exceed the SMAQMD significance criterion of 85 pounds per day of NO<sub>x</sub>. Construction impacts on regional ozone air quality would therefore be less than significant.

During construction, various diesel-powered vehicles and equipment would be in use on the project site. In 1998 the California Air Resources Board identified particulate matter from diesel-fueled engines as a toxic air contaminant (TAC). CARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines.<sup>3</sup> High volume freeways, stationary diesel engines and facilities attracting heavy and constant diesel vehicle traffic (distribution centers, truck stops) were identified as having the highest associated risk. Health risks from TACs are a function of both concentration and duration of exposure. Unlike the above types of sources, construction diesel emissions are temporary, affecting an area for a period of days or perhaps weeks. Additionally, construction related sources are mobile and transient in nature, and the bulk of the emission would occur at a substantial distance from nearby receptors. Because of its short duration, health risks from construction emissions of diesel particulate would be less than significant.

Construction activities are considered to have a potential to create a local nuisance from fugitive dust (PM<sub>10</sub>). However, construction activities are subject to all applicable SMAQMD rules and regulations, specifically Rule 403 regarding fugitive dust and Rule 453 regarding asphalt paving. This would reduce nuisance PM<sub>10</sub> emissions to a less than significant level.

**TABLE 5.6-6**  
**CONSTRUCTION EMISSIONS (POUNDS PER DAY)**

Activity	ROG	NO <sub>x</sub>	PM <sub>10</sub>
Grubbing / Land Clearing	9	59	8
Grading / Excavation	10	61	8
Drainage / Utilities / Sub-Grade	10	61	9
Paving	4	30	2
<b>Maximum (lbs/day)</b>	<b>10</b>	<b>61</b>	<b>9</b>
Sacramento Metropolitan AQMD Threshold	N/A	85	N/A

Source: Donald Ballanti, 2005; SMAQMD Thresholds, 2005

### Mitigation Measures

None required.

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<sup>3</sup> California Air Resources Board, *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October 2000.

**Impact 5.6.2 Impacts to Sensitive Receptors/Objectionable Odors**

- PP, AB, AC, AD The project may subject sensitive receptors to short-term, temporary construction emissions. However, no odor producing uses are proposed on the project site. Therefore, impacts to sensitive receptors are considered **less than significant**.
- AA Under the No Project alternative, no construction would occur, thus there would be **no impacts** to sensitive receptors from construction emissions or odors.

## DISCUSSION

The Elk Grove General Plan considers residences, churches, and schools to be "sensitive receptors" in relation to air quality issues. There are residential developments approximately 96 feet from the project site; the nearest school is approximately one-quarter mile from the project site.

During construction the various diesel-powered vehicles and equipment used at the project site would create odors. These odors would be temporary and not likely to be noticeable much beyond the project boundaries. Area residents may be subject to dust and diesel generated during construction. However, the duration of exposure to air emissions and dust would be limited and exhaust from construction equipment dissipates rapidly. Furthermore, implementation of all applicable SMAQMD rules and regulations, specifically Rule 403 regarding fugitive dust and Rule 453 regarding asphalt paving would reduce impacts associated with construction emissions. Also, existing eight feet high solid concrete sound walls between all residences and the roadway segments may help to decrease low-elevation dust from project construction activities. Therefore, impacts to sensitive receptors and nuisance odor impacts are considered less than significant.

Mitigation Measures

None required.

**Impact 5.6.3 Violate Air Quality Standard: Carbon Monoxide**

- PP, AA, AB, AC, AD Increased volumes of traffic to the project area could result in elevated concentrations of carbon monoxide. However, the increases in carbon monoxide concentrations would not result in violations of any state or federal ambient air quality standard for this pollutant. This impact is considered **less than significant**.

## DISCUSSION

The SMAQMD is currently in attainment for Carbon Monoxide (CO). Despite attainment of CO standards, analysis of localized CO concentrations is warranted to ensure that standards are maintained. Also, an analysis is required to ensure that localized concentrations don't reach potentially unhealthy levels that could affect sensitive receptors.

Typically, high CO concentrations are associated with roadways or intersections operating at an unacceptable level of service (LOS). Results of the screening procedure contained in the Transportation Project-Level Carbon Monoxide Protocol, as described under methodology, are

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shown in **Table 5.6-7**. The analysis was conducted for the Elk Grove Boulevard/Franklin Boulevard and Franklin Boulevard/Poppy Ridge Road intersections that, based on total traffic volume and levels of congestion, are the worst-case intersections that should have the highest levels of carbon monoxide associated with the project. Existing (no project) concentrations meet the state/federal ambient air quality standards and predicted future concentrations (with project) would remain below the state/federal standards after construction of the project. As the project would not cause a violation of either an ambient air quality standard, nor contribute substantially to an existing violation, the impact of the project on local carbon monoxide concentrations is considered to be less than significant.

**TABLE 5.6-7  
LOCAL ROADWAY CO AIR QUALITY ANALYSIS**

Intersection	Existing		Project	
	1-Hour	8-Hour	1-Hour	8-Hour
Franklin/Elk Grove	11.0	6.6	9.6	5.8
Franklin/Poppy Ridge	5.4	3.3	5.5	3.3
Most Stringent Standard	20.0	9.0	20.0	9.0

Source: Donald Ballanti, 2005.

\* Predicted worst case carbon monoxide concentrations at worst case intersections.

### Mitigation Measures

None required.

## 5.6.4 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

### CUMULATIVE SETTING

The proposed project area and the City of Elk Grove General Plan area are included in the Greater Sacramento Ozone non-attainment area as delineated by the EPA. Therefore, the cumulative setting considers the cumulative effect of increased emissions in the air basin. Regional buildout of land uses and development planned and proposed in the Sacramento Valley Air Basin, including the development anticipated under the Elk Grove General Plan, would contribute to cumulative impacts on local and regional air quality.

### Cumulative Standards of Significance

According to SMAQMD's *Guide to Air Quality Assessment* guidance document, development projects are considered cumulatively significant if:

- The project requires a change in the existing land use designation of the site (i.e., a general plan amendment or zoning change); and
- The projected emissions (ROG, NO<sub>x</sub>, or PM<sub>10</sub>) of the proposed project are greater than the emissions anticipated for the site if developed under the existing land use designation.

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 CUMULATIVE IMPACTS, AND MITIGATION MEASURES
**Impact 5.6.4 Cumulatively Considerable Net Increase of Criteria Pollutants: Ozone and PM<sub>10</sub>**

PP, AA, AB, AC, AD Implementation of the proposed project along with expected growth in the area could exacerbate existing regional problems with ozone and particulate matter. This is considered a **less than significant cumulative** impact.

## DISCUSSION

While the project would generate short-term air quality impacts as a result of construction activities, the project, in and of itself, would be considered growth accommodating rather than growth inducing. The proposed project would help to relieve congestion and reduce delay; therefore, the project would have less than significant contributions to cumulative pollutant increases in the region.

Under the No Project alternative, traffic volumes on the project study intersections and roadway segments would be the same, although congestion and delays would increase, resulting in overall lower average vehicle speeds.

A change in average vehicle speed would have a subtle effect on vehicle emissions for regional pollutants such as Reactive Organic Gases (ROG), Nitrogen Oxides (NO<sub>x</sub>) and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>). An increase in average vehicle speed generally reduces slightly emissions of ROG, increases slightly emissions of NO<sub>x</sub>, and has no effect on emissions of particulate matter. This effect on emissions would generally only occur during peak traffic hours. The likely magnitude of these changes would be a few pounds per day. The impact of this project-related change to regional pollutant emissions would be less than significant when compared to the SMAQMD ozone precursor threshold of 65 pounds per day.

Mitigation Measures

None Required

## REFERENCES

- City of Elk Grove, 2005. *City of Elk Grove General Plan*. Elk Grove, CA. Adopted November 2003; amended January 2005.
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