

## 4.2 AIR QUALITY

This section describes existing air quality and potential air quality impacts of the proposed project and identifies mitigation measures to reduce or eliminate potentially significant air quality impacts. This chapter has been prepared by Donald Ballanti, a certified meteorologist, using methodologies and assumptions recommended in the air quality impact assessment guidelines of the Bay Area Air Quality Management District (BAAQMD). The air quality assessment is included as Appendix B of this EIR.

### A. Existing Setting

This section describes the regulatory setting, climate and existing conditions of air quality in Oakland.

#### 1. Regulatory Setting

Both the U. S. Environmental Protection Agency and the California Air Resources Board have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants which represent safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called “criteria” pollutants because the health and other effects of each pollutant are described in criteria documents. These criteria pollutants include carbon monoxide (CO), ozone, nitrogen dioxide (NO<sub>2</sub>), inhalable particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), sulfur dioxide and lead.<sup>1</sup>

The federal and State ambient air quality standards for important pollutants 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 state

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<sup>1</sup> This chapter discusses both nitrogen oxides (NO<sub>x</sub>) and nitrogen dioxide (NO<sub>2</sub>). NO<sub>x</sub> is a group that includes both nitrogen oxide (NO) and NO<sub>2</sub>. Emissions of NO<sub>x</sub> (both NO and NO<sub>2</sub>) result from the reaction of nitrogen and oxygen during fossil fuel combustion.

standards are more stringent. This is particularly true for ozone and inhalable particles, or PM<sub>10</sub>. Federal and State standards are shown in Table 3.

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation and monitoring of TACs is relatively recent compared to that for criteria pollutants.

## 2. Climate

The climate of an area plays a very important role in its air quality. The amount of a given pollutant in the atmosphere is determined by the atmosphere's ability to transport and dilute the pollutant as well as by the amount of pollutant released. The major determinants of transport and dilution are wind, atmospheric stability, terrain, and for photochemical pollutants, sunshine.

Oakland is within the San Francisco Bay Area Air Basin, a large, shallow air basin ringed by hills, with a number of sheltered valleys around the perimeter. Summers are warm and relatively dry while winters are mild and wet. Most of the rainfall is associated with Pacific storms that occur between the months of November and April.

Two primary sea level gaps in the hills around Oakland exist: the Golden Gate and the Carquinez Straits. These two gaps are important sources of ventilation for the Bay Area. Oakland, being located almost directly across from the Golden Gate, generally has good ventilation, particularly in the spring and summer months. During the winter months winds are generally lighter and more variable. The Bay Area is subject to inversion conditions when vertical mixing of pollutants is severely diminished. Rapid build up of pollutant concentrations is possible during periods of calm winds and inversion conditions.

TABLE 3 FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	0.12 PPM	0.09 PPM
	8-Hour	0.08 PPM	--
Carbon Monoxide	8-Hour	9.0 PPM	9.0 PPM
	1-Hour	35.0 PPM	20.0 PPM
Nitrogen Dioxide	Annual Average	0.05 PPM	--
	1-Hour	--	0.25 PPM
Sulfur Dioxide	Annual Average	0.03 PPM	--
	24-Hour	0.14 PPM	0.05 PPM
	1-Hour	--	0.25 PPM
PM <sub>10</sub>	Annual Average	50 µg/m <sup>3</sup>	20 µg/m <sup>3</sup>
	24-Hour	150 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>
PM <sub>25</sub>	Annual Average	15 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>
	24-Hour	65 µg/m <sup>3</sup>	--

PPM = Parts per Million

µg/m<sup>3</sup> = Micrograms per Cubic Meter

### 3. Existing Air Quality Conditions

The Bay Area Air Quality Management District (BAAQMD) monitors air quality at several locations within the San Francisco Bay Air Basin. The closest multi-pollutant monitoring site to the project site is located in Oakland on Alice Street. A second monitoring site is located in Oakland at 6701 International Boulevard. Contaminants monitored at these sites are ozone, carbon

monoxide, nitrogen dioxide and sulfur oxide. During the period from 2001 to 2003 no exceedances of any State or federal standard were recorded at these locations in the vicinity of the project site. However, exceedances of the State/federal ozone standards and State PM<sub>10</sub> standard were recorded at other monitoring locations within the Oakland air basin.

#### **4. Attainment Status**

The federal Clean Air Act and the California Clean Air Act of 1988 require that the State Air Resources Board, based on air quality monitoring data, designate portions of the state where the federal or State ambient air quality standards are not met as “nonattainment areas”. Because of the differences between the national and State standards, the designation of nonattainment areas is different under the federal and State legislation.

The Bay Area has attained all federal standards with the exception of ozone. In June of 1998 the U.S. Environmental Protection Agency reclassified the Bay Area from “maintenance area” to nonattainment for ozone based on violations of the federal standards at several locations in the air basin. This reversed the air basin’s reclassification to maintenance area for ozone in 1995. Reclassification required an update to the region’s federal air quality plan.

Under the California Clean Air Act Alameda County is a nonattainment area for both ozone and PM<sub>10</sub>. The county is either in attainment or unclassified for other pollutants. The California Clean Air Act requires local air pollution control districts to prepare air quality attainment plans. These plans must provide for district-wide emission reductions of 5 percent per year averaged over consecutive three-year periods or, if not, must provide for adoption of “all feasible measures on an expeditious schedule.”

#### **5. Sensitive Receptors**

The BAAQMD defines sensitive receptors as facilities where sensitive population groups (children, elderly, acutely and/or chronically ill) are likely to be located. These land uses include residences, schools, playgrounds, childcare centers, retirement homes, convalescent homes, hospitals, and medical clinics.

The site is bounded by residences on all sides, which would be considered sensitive receptors. In addition, the proposed project is residential, and would therefore also be considered to include sensitive receptors.

### *B. Standards of Significance*

The proposed project would be considered to have a significant adverse air quality impact if it would:

- ◆ Conflict with or obstruct implementation of the applicable air quality plan;
- ◆ Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- ◆ Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- ◆ Expose sensitive receptors to substantial pollutant concentrations;
- ◆ Frequently create substantial objectionable odors affecting a substantial number of people;
- ◆ Contribute to CO concentrations exceeding the State AAQS of 9 ppm averaged over 8 hours and 20 ppm for 1 hour;
- ◆ Result in total emissions of ROG, NO<sub>x</sub>, or PM<sub>10</sub> of 15 tons per year or greater, or 80 pounds (36 kilograms) per day or greater;
- ◆ Result in potential to expose persons to substantial levels of Toxic Air Contaminants (TAC), such that the probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds 10 in one million; or
- ◆ Result in ground level concentrations of non-carcinogenic TACs such that the Hazard Index would be greater than 1 for the MEI.

### *C. Impacts and Mitigation Measures*

This section discusses potential impacts on air quality from the proposed project during construction and operation. The proposed project is relatively small, typical of existing residential development, and would not conflict with any applicable air quality plans. In addition, the operation of the proposed project would not result in any new sources TACs and the project land uses would not be located near any existing major sources of TACs.

#### **1. Local Air Quality Impacts**

##### **Impact AQ-1: Project-related traffic would contribute to an increase in levels of local CO concentration. (Less than Significant)**

For local air quality impacts, carbon monoxide is the pollutant of primary concern. Elevated carbon monoxide concentrations are generally associated with congested roadways and heavy traffic volumes. The *BAAQMD CEQA Guidelines* provide that no quantified air quality analysis is required for projects generating less than 2,000 vehicle trips per day, unless warranted by the specific nature of the project or project setting. As discussed in Chapter 4.9 of this EIR, project trip generation would be 306 trips per day, well below 2,000 trips per day. Moreover, the project is located in an area with relatively low background levels of carbon monoxide. While project traffic would add to existing levels of carbon monoxide along streets providing access to the site, there is no reason to expect that concentrations would be increased such that the State or federal ambient standards would be exceeded. Because new project traffic would not cause any new violations of the eight hour standards for carbon monoxide, nor contribute substantially to an existing or projected violation, project impacts on local carbon monoxide concentrations are considered to be less-than-significant.

**Mitigation:** None required.

## 2. Regional Air Quality Impacts

### **Impact AQ-2: Project construction would contribute to an increase in levels of ROG, NO<sub>x</sub> and/or PM<sub>10</sub>. (Potentially Significant)**

The proposed project would require substantial excavation and earthmoving. The movement of earth on the site and removal of soil from the site by truck are construction activities with a high potential for creating air pollutants. Therefore, construction dust could affect local air quality during implementation of the project. The dry, windy climate of the area during the summer months creates a high potential for dust generation when and if underlying soils are exposed to the atmosphere. After grading of the site, dust would continue to affect local air quality during construction of the project.

Construction activities would generate exhaust emissions from vehicles and equipment, fugitive particulate matter emissions and organic gas emissions that would affect local air quality. Solvents in adhesives, non-waterbase paints, thinners, some insulating materials and caulking materials would evaporate into the atmosphere and would participate in the photochemical reaction that creates urban ozone. Asphalt used in paving is also a source of organic gases for a short time after its application.

The URBEMIS-2002 program was applied to the project site to estimate total construction emissions from site grading, export of soil from the site, equipment exhaust, construction worker vehicle trips and other construction activities. The URBEMIS-2002 model output is included in Appendix B. Maximum daily emissions were 13.3 pounds per day of ROG, 116.0 pounds per day of NO<sub>x</sub> and 39.1 pounds per day of PM<sub>10</sub>.

According to the BAAQMD CEQA Guidelines, emissions of ROG, NO<sub>x</sub> and carbon monoxide related to construction equipment are already included in the emission inventory that is the basis for regional air quality plans, and thus are not expected to impede attainment or maintenance of ozone and carbon monoxide standards in the Bay Area. However, the project's construc-

tion-period emissions of 116.0 pounds per day of NO<sub>x</sub> would exceed the City's standard of significance, and construction dust could have the potential for creating a nuisance at nearby properties. Therefore, construction-related air quality impacts would be potentially significant.

**Mitigation Measure AQ-2: The applicant shall implement a construction dust abatement program.**

BAAQMD suggests a range of best management practices (BMPs) for minimizing construction dust. The project shall incorporate the following BMPs:

- ◆ Water all active construction areas at least twice daily and more often during windy periods. Active construction areas would be considered to be those under excavation at a given time, storage piles and internal roadways. Watering methods may include water trucks for roadways and hoses or sprinklers for storage piles and active excavation.
- ◆ Cover all trucks hauling soil, sand, and other loose materials offsite, or require all trucks to maintain at least 2 feet of freeboard.
- ◆ Pave, apply water three times daily, or apply non toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites;
- ◆ Sweep daily with water sweepers all paved access roads, parking areas, and staging areas at construction sites;
- ◆ Sweep streets daily with water sweepers if visible soil material is carried onto adjacent public streets;
- ◆ Hydroseed or apply non-toxic soil stabilizers to inactive construction areas;
- ◆ Enclose, cover, water twice daily, or apply non toxic soil binders to exposed stockpiles (dirt, sand, etc.);
- ◆ Limit traffic speeds on unpaved roads to 15 mph;
- ◆ Install sandbags or other erosion control measures to prevent silt runoff to public roadways;

- ◆ Replant vegetation in disturbed areas as quickly as possible.
- ◆ Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site; and
- ◆ Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.

**Significance after Mitigation:** Less than Significant.

**Impact AQ-3: Project-related traffic would contribute to an increase in levels of ROG, NO<sub>x</sub> and/or PM<sub>10</sub>. (Less than Significant)**

The URBEMIS-2002<sup>2</sup> program estimates that the operation of the proposed project would generate new regional emissions 4.5 pounds/day of ROG, 4.6 pounds/day of NO<sub>x</sub> and 3.6 pounds per day of PM<sub>10</sub>. These emissions would be well below the City of Oakland significance thresholds of 80 pounds per day, so project-related regional emissions would have a less-than-significant impact.

**Mitigation:** None required.

### 3. Odor Impacts

**Impact AQ-4: The proposed project may create some objectionable odors during construction. (Less than Significant)**

The project may create some objectionable odors during construction due to the use of the solvents, adhesives, paints, thinners, and asphalt mentioned above, but these impacts would be temporary and less-than-significant. The residential uses of the project would not contain any major sources of odor, would not be located in an area with existing odors, and would not expose

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<sup>2</sup> Jones and Stokes Associates, May 2003, *Software User's Guide: URBE-MIS2002 for Windows with Enhanced Construction Module*, Version 7.4.

members of the public to objectionable odors. Therefore, odor-related impacts would be less than significant.

**Mitigation:** None required.

#### 4. Sensitive Receptors and Toxic Air Contaminant Sources

**Impact AQ-5:** The project would expose sensitive receptors to increased concentrations of PM<sub>10</sub> during construction. (Significant)

The proposed project would include sensitive receptors and would be surrounded by existing sensitive receptors. Therefore, the increased dust generated during construction, and the corresponding increase in PM<sub>10</sub> levels, could have a significant impact.

**Mitigation AQ-5:** This impact would be reduced to a less-than-significant level by implementation of Mitigation Measure AQ-2.

**Significance After Mitigation:** Less than Significant.