

4.8 AIR QUALITY

Introduction

This section of the EIR, which focuses on the project's potential air quality impacts, is based on a review of air quality data for the general area and regulatory requirements. Given the type of project proposed, the main issue of concern relates to the potential for construction-related emissions, especially particulate matter.

Environmental Setting

Regulatory Setting. Arana Gulch is located within the jurisdiction of the Monterey Bay Unified Air Pollution Control District (MBUAPCD). The MBUAPCD's *CEQA Air Quality Guidelines*¹ recommend analytical methodologies and provide evaluation criteria for determining the level of significance for project impacts within its jurisdiction. The MBUAPCD's evaluation criteria for determining air quality impacts provide defined screening thresholds for pollutant emissions. Projects that would generate emissions below the defined thresholds are considered to have a less-than-significant impact on air quality; projects that exceed the screening thresholds must provide further analysis such as MBUAPCD-approved air dispersion modeling to refute (or validate) a determination of significance or must acknowledge and attempt to mitigate a potentially significant air quality impact. The screening thresholds for air quality impacts from the *CEQA Air Quality Guidelines* are presented in the section entitled "Significance Criteria" below.

Arana Gulch is located within the North Central Coast Air Basin (Basin) which is comprised of Santa Cruz, Monterey, and San Benito Counties and covers 5,159 square miles. The federal, State, regional, and local government agencies responsible for improving the air quality within the Basin are discussed below, along with their individual responsibilities.

The Environmental Protection Agency (EPA) is the federal agency charged with administering the federal Clean Air Act Amendments (CAAA) of 1990, which established a number of requirements, including new deadlines for achieving the federal ambient air quality standards. The CAAA require the EPA to approve State Implementation Plans (SIPs) to meet and/or maintain the national ambient standards.

The federal ambient air quality standards are shown in Table 4.8-1. Under the CAAA, the North Central Coast Air Basin, which includes Santa Cruz County, is designated a maintenance area for the federal 1-hour ozone standard (i.e., the average amount of particulate matter over a 1-hour period). The Basin was re-designated from a moderate non-attainment area to a maintenance area in 1997 after meeting the federal 1-hour standard in 1990. The Basin is designated as an attainment area for the federal 8-hour ozone standard.

¹ Monterey Bay Unified Air Pollution Control District, 2002. *CEQA Air Quality Guidelines*. September 2002.

The California Air Resources Board (CARB) is the State agency responsible for coordinating both State and federal air pollution control programs in California. In 1988, the State legislature adopted the California Clean Air Act (CCAA), which established a statewide air pollution control program. The CCAA's requirements include annual emission reductions, increased development and use of low emission vehicles, and submittal of air quality attainment plans by air districts.

The CARB has established State ambient air quality standards, shown in Table 4.8-1. Additionally, the CARB has established State standards for pollutants that have no federal ambient air quality standard, including sulfate, visibility, hydrogen sulfide, and vinyl chloride (not shown).

Under the CCAA, Santa Cruz County is a moderate non-attainment area for the State 1-hour ozone standard. The North Central Coast Air Basin is also designated non-attainment for the State PM₁₀ standard.

Table 4.8-1: 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	0.05 ppm	--
	1-Hour	--	0.25 ppm
Sulfur Dioxide	Annual	0.03 ppm	--
	24-Hour	0.14 ppm	0.05 ppm
	1-Hour	--	0.25 ppm
PM ₁₀	Annual	50 ug/m ³	20 ug/m ³
	24-Hour	150 ug/m ³	50 ug/m ³
PM _{2.5}	Annual	15 ug/m ³	12 ug/m ³
	24-Hour	65 ug/m ³	--
Lead	30-Day Avg.	--	1.5 ug/m ³
	3-Month Avg.	1.5 ug/m ³	--

Notes: ppm = parts per million
ug/m³ = Micrograms per Cubic Meter

Source: California Air Resources Board

The MBUAPCD shares responsibility with the CARB for ensuring that the State and federal ambient air quality standards are met within Santa Cruz County and the North Central Coast Air Basin. As required by the CCAA, the MBUAPCD adopted the 1991 AQMP. The AQMP addressed attainment of the State ambient air quality standard for ozone. In 1994, 1997 and 2000, the MBUAPCD adopted updates to the AQMP. The 2000 *Air Quality Management Plan for the Monterey Bay Region*² is the current regional air quality plan. The goal of the AQMP is to improve air quality through tighter industry controls, cleaner cars and trucks, cleaner fuels, and increased commute alternatives.

The MBUAPCD has developed *CEQA Air Quality Guidelines* to facilitate air quality review and evaluation of projects that are subject to the California Environmental Quality Act. It is an advisory document that provides the MBUAPCD's recommended procedures for analyzing air quality impacts of projects in the North Central Coast Air Basin.

² Monterey Bay Unified Air Pollution Control District, 2000 *Air Quality Management Plan for the Monterey Bay Region*, May 2001.

Regional Climate and Topography. The project site is located within the North Central Coast Air Basin. In late spring and summer, the high pressure system is dominant and causes persistent west and northwesterly winds over the entire California coast. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. Warmer air aloft creates elevated inversions that restrict dilution of pollutants vertically, and mountains forming the valleys restrict dilution horizontally.

In the fall, the surface winds become weak and the marine layer grows shallow, dissipating altogether on some days. The air flow is occasionally reversed in a weak offshore movement, and the relatively stagnant conditions allow pollutants to accumulate over a period of days. It is during this season that the north or east winds develop and transport pollutants from either the San Francisco Bay Area or the Central Valley into the Basin.

During winter and early spring, wind direction is more variable, but northwest winds still dominate. The general absence of deep, persistent inversions and occasional storm passages usually result in good air quality for the Basin as a whole.

Santa Cruz is located at the northern edge of the Monterey Bay on a narrow coastal plain at the foot of the Santa Cruz Mountains. Santa Cruz is generally well-ventilated by persistent sea breezes, is not downwind of any other urbanized areas, and has generally very good air quality. Emissions released in the Santa Cruz area are transported further inland where they can contribute to the formation of photochemical pollutants.

Regional Air Quality. The MBUAPCD operates a network of monitoring sites throughout its jurisdiction. Monitoring sites in Santa Cruz County are located at Davenport, Santa Cruz, Scotts Valley, and Watsonville. Pollutants monitored vary by site.

The closest monitoring site to the project sites is located in Santa Cruz at 2544 Soquel Avenue. Table 4.8-2 summarizes exceedances of the State and federal ambient air quality standards at this monitoring site for the five-year period from 1998 to 2002. Ozone, PM₁₀, and PM_{2.5} are monitored at this site.

Table 4.8-2: Summary of 1998-2003 Air Quality Data, Santa Cruz

Pollutant	Standard	Days Above Standard During:				
		2000	2001	2002	2003	2004
Ozone	State 1-Hour	0	0	0	0	0
Ozone	Fed. 1-Hour	0	0	0	0	0
Ozone	Fed. 8-Hour	0	0	0	0	0
PM ₁₀	State 24-Hour	0	0	0	0	0
PM ₁₀	Fed. 24-Hour	0	0	0	0	0
PM _{2.5}	Fed. 24-Hour	0	0	0	0	0

Source: Website: <http://www.ucsc.edu/lrdp/draft2005eir/2005deir-4.3-airquality.pdf>.

Table 4.8-2 shows that ozone, PM₁₀, and PM_{2.5} concentrations met the federal and State ambient air quality standards during the five-year period 2000 to 2004 at the Soquel Avenue (Santa Cruz) monitoring station.

Impacts and Mitigation Measures

Significance Criteria. For the purposes of this Draft EIR, development of the project site would present a significant impact of the project 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 air pollutant for which the project region is in 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.
- Create objectionable odors affecting a substantial number of people.
- Exceed the probability of 10 in one million of a maximally exposed individual contracting cancer.
- Have ground level concentrations of non-carcinogenic toxic air contaminants which would result in a Hazard Index greater than one for the maximally exposed individual.

Construction Emissions. MBUAPCD guidelines indicate that construction activities that directly generate 82 pounds per day (ppd) of fine particulate matter (PM₁₀) should be presumed to have a significant impact on local air quality when they are located nearby and upwind of sensitive receptors.³ According to MBUAPCD guidelines, projects requiring minimal earthmoving on 8.1 or more acres per day or grading and excavation on 2.2 or more acres per day are likely to exceed this threshold; such projects must provide further analysis to refute (or validate) a determination of significance or must acknowledge a potentially significant air quality impact. (Other, non-PM₁₀ construction emissions are accommodated in the emissions inventories of State- and federally-required air plans and are presumed to have a less-than-significant adverse effect on air quality.)

Operational Emissions of Criteria Pollutants. MBUAPCD guidelines indicate that individual projects with direct (stationary) and/or indirect (mobile) operational emissions of criteria pollutants that exceed any of the following thresholds should be presumed to have a significant impact on local or regional air quality:

- 550 pounds per day (ppd) of carbon monoxide (CO) (direct)
- 137 ppd of volatile organic compounds (VOC) (direct + indirect)
- 137 ppd of oxides of nitrogen (NO_x) (direct + indirect)

³ Projects that exceed this threshold may use MBUAPCD-approved PM₁₀ dispersion modeling to refute or validate the initial determination. If modeling demonstrates that direct emissions under individual or cumulative conditions would not cause the exceedance of the State PM₁₀ ambient air quality standard (AAQS) (50 micrograms per cubic meter) at existing receptors as averaged over 24 hours, the impact would not be considered significant.

- 150 ppd of sulfur dioxide (SO_x) (direct)
- 82 ppd of PM₁₀ (on-site)

Such projects must provide further analysis to refute (or validate) a determination of significance or must acknowledge a potentially significant air quality impact.

Local Carbon Monoxide Concentrations. Projects that would generate traffic that would affect Levels of Service at intersections or road segments could indirectly cause or contribute to violations of the State or federal ambient air quality standard (AAQS) for CO.

MBUAPCD guidelines indicate that individual projects that exceed specific intersection thresholds should be presumed to have a significant impact on local or regional air quality. Such projects must provide further analysis (CO modeling) to refute (or validate) a determination of significance or must acknowledge a potentially significant air quality impact.⁴

Toxic Air Contaminants. A project would be considered to have a significant impact if it results in a probability of more than 10 persons in 1 million contracting cancer.⁵

Odors. Projects that would emit pollutants associated with objectionable odors in substantial concentrations could result in significant impacts if odors would cause injury, nuisance, or annoyance to a considerable number of persons or would endanger the comfort, health, or safety of the public.

Less-Than-Significant Impacts. The project would not conflict with or obstruct implementation of the applicable air quality plan. No change in population would be associated with the project and the local air quality plan accounts for projected growth within the County.

The project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. As shown in Table 4.8-2, no exceedances of air standards for PM 10, PM 2.5, or ozone have been identified at the nearby monitoring station. The area of construction for the proposed on-site trail improvements would be less than 8 acres per day (see standards discussed above), and no major excavation at the site would be required.

The project would not result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). No traffic increase would be associated with the project. The project may actually reduce traffic in the vicinity if local drivers choose to bicycle on the

⁴ If CO modeling demonstrates that the source would not cause a violation of State or federal standards (9 parts per million (ppm) average over 8 hours or 20 ppm average over 1 hour) at existing or reasonably foreseeable receptors, the project would not have a significant impact on local air quality.

⁵ Monterey Bay Unified Air Pollution Control District, *CEQA Air Quality Guidelines*, September 2002, page 9-4.

proposed multi-use trails within Arana Gulch rather than drive between Downtown and unincorporated Santa Cruz County.

The Arana Gulch Master Plan would not expose sensitive receptors to substantial pollutant concentrations or create objectionable odors affecting a substantial number of people. The project would also not result in toxic air emissions that would increase health hazards as related to air toxins.

Potentially Significant Impacts. The project would have the following potentially significant impact.

Impact AIR-1: Construction of new pedestrian and multi-use trails could generate dust emissions during construction. (PS)

While the proposed project would not result in any potentially significant air quality impacts as related to violation of air standards, some emissions could occur during construction due to site grading and earth movement.

Mitigation Measure AIR-1: The following controls shall be implemented during construction:

- *Water all active construction areas at least twice daily;*
- *Cover all trucks hauling soil, sand, and other loose materials 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) nearby paved access roads, parking areas and staging areas at construction sites; and*
- *Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent streets. (LTS)*

Cumulative Impacts. Projects consistent with the MBUAPCD *Air Quality Management Plan*⁶ (AQMP) are not considered cumulatively significant because the AQMP addresses attainment of the State ozone ambient air quality standards and maintenance of the federal standards. For institutional projects, consistency is determined by comparing current population in the county in which the project is to be located with the applicable population forecast in the AQMP. If the estimated current population does not exceed the forecast, indirect emissions associated with the project are deemed to be consistent with the AQMP.⁷ No increase in population would be associated with the Arana Gulch Master Plan.

⁶ Monterey Bay Unified Air Pollution Control District, 2000 *Air Quality Management Plan*.

⁷ While the project is a park/recreational project, the institutional standard is identified here for discussion purposes.

The project would not contribute to the exceedance of air quality standards and thus, would not contribute to cumulative air quality impacts.

References

Website for UCSC LRDP EIR (Draft), 2005. <http://www.ucsc.edu/lrdp/draft2005eir/2005deir-4.3-airquality.pdf>.

