D. AIR QUALITY

This section has been prepared using the methodologies and assumptions recommended by the Bay Area Air Quality Management District (BAAQMD)[1] and the *CEQA Air Quality Guidelines* (CEQA Guidelines). In keeping with these guidelines, this section describes existing air quality and the potential effects of the project on air quality, including impacts of traffic on local carbon monoxide and regional pollutant levels. Mitigation measures to reduce potentially significant air quality impacts are identified, where appropriate.

1. Setting

This section describes existing air quality conditions in the County of Napa, beginning with a discussion of typical air pollutant types and sources, health effects, and climatology relating to air quality.

(1) Air Pollutants and Health Effects. Both State and federal governments have established health-based Ambient Air Quality Standards for six criteria air pollutants:[2] carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and suspended particulate matter (PM). In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. Long-term exposure to elevated levels of criteria pollutants may result in adverse health effects. However, emission thresholds established by an air district are used to manage total regional emissions within an air basin based on the air basin's attainment status for criteria pollutants. These emission thresholds were established for individual projects that would contribute to regional emissions and pollutant concentrations and may adversely affect or delay the projected attainment target year for certain criteria pollutants.

Air pollutants and their health effects, and other air pollution-related considerations are summarized in Table IV.D-1 and are described in more detail below.

Ozone. Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving ROG and NO_x. The main sources of ROG and NO_x, often referred to as ozone precursors, are combustion processes (including combustion in motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the Bay Area, automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide. CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles. While CO transport is limited, it disperses with distance from the source under normal meteorological conditions. However, under certain extreme meteorological conditions, CO concentrations near congested roadways or intersections may reach unhealthful levels that adversely affect local sensitive receptors (e.g., residents, schoolchildren, the elderly, and hospital patients). Typically, high CO concentrations are associated with roadways or intersections operating at unacceptable levels of service (LOS) or with

[1] Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines.* May.

[2] Criteria pollutants are defined as those pollutants for which the federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health.

extremely high traffic volumes. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue, impair central nervous system function, and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal.

Table IV.D-1: Sources and Health Effects of Air Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood functions and nerve construction. • Behavioral and hearing problems in children.
Suspended Particulate Matter ($PM_{2.5}$ and PM_{10})	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardiorespiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board (ARB), 2008.

Particulate Matter. Particulate matter is a class of air pollutants that consists of heterogeneous solid and liquid airborne particles from manmade and natural sources. Particulate matter is categorized in two size ranges: PM_{10} for particles less than 10 microns in diameter and $PM_{2.5}$ for particles less than 2.5 microns in diameter. In the Bay Area, motor vehicles generate about half of the air basin's particulates, through tailpipe emissions as well as brake pad and tire wear. Wood burning in fireplaces and stoves, industrial facilities, and ground-disturbing activities such as construction are

other sources of such fine particulates. These fine particulates are small enough to be inhaled into the deepest parts of the human lung and can cause adverse health effects. According to the California Air Resources Board (ARB), studies in the United States and elsewhere have demonstrated a strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks, and studies of children's health in California have demonstrated that particle pollution may significantly reduce lung function growth in children. The ARB also reports that Statewide attainment of particulate matter standards could prevent thousands of premature deaths, lower hospital admissions for cardiovascular and respiratory disease and asthma-related emergency room visits, and avoid hundreds of thousands of episodes of respiratory illness in California.[3]

Nitrogen Dioxide. NO_2 is a reddish brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation, NO_2 also contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO_2 may be visible as a coloring component on high pollution days, especially in conjunction with high ozone levels. NO_2 decreases lung function and may reduce resistance to infection. On January 22, 2010, the U.S. Environmental Protection Agency (U.S. EPA) strengthened the health-based National Ambient Air Quality Standards (NAAQS) for NO_2.

Sulfur Dioxide. SO_2 is a colorless acidic gas with a strong odor. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. SO_2 has the potential to damage materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease.[4] SO_2 also reduces visibility and the level of sunlight at the ground surface.

Lead. Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery factories.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, the U.S. EPA established national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. The U.S. EPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of the U.S. EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically.

Toxic Air Contaminants. In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. Some examples of TACs include: benzene, butadiene, formaldehyde, and hydrogen sulfide. Potential human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they

[3] California Air Resources Board, 2004. *Recent Research Findings: Health Effects of Particulate Matter and Ozone Air Pollution*. Website: www.arb.ca.gov/research/health/fs/PM-03fs.pdf. January.

[4] Bay Area Air Quality Management District, 2011, op. cit.

present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

TACs do not have ambient air quality standards, but are regulated by the U.S. EPA and ARB. In 1998, ARB identified particulate matter from diesel-fueled engines as a TAC. ARB has completed a risk management process that identified potential cancer risks for a range of activities and land uses that are characterized by use of diesel-fueled engines.[5] High volume freeways, stationary diesel engines, and facilities attracting heavy and constant diesel vehicle traffic (distribution centers, truck stops) were identified as posing the highest risk to adjacent receptors. Other facilities associated with increased risk include warehouse distribution centers, large retail or industrial facilities, high volume transit centers, and schools with a high volume of bus traffic. Health risks from TACs are a function of both concentration and duration of exposure.

The BAAQMD regulates TACs using a risk-based approach. This approach uses a health risk assessment to determine what sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis in which human health exposure to toxic substances is estimated, and considered together with information regarding the toxic potency of the substances, in order to provide a quantitative estimate of health risks.[6] As part of ongoing efforts to identify and assess potential health risks to the public, the BAAQMD has collected and compiled air toxics emissions data from industrial and commercial sources of air pollution throughout the Bay Area. Monitoring data and emissions inventories of TACs help the BAAQMD determine health risks to Bay Area residents.

Ambient monitoring concentrations of TACs indicate that pollutants emitted primarily from motor vehicles (1,3-butadiene and benzene) account for slightly over 50 percent of the average calculated cancer risk from ambient air in the Bay Area.[7] According to the BAAQMD, ambient benzene levels declined dramatically in 1996 with the advent of Phase 2 reformulated gasoline. Due to this reduction, the calculated average cancer risk based on monitoring results has been reduced to 143 in 1,000,000; however, this risk does not include the risk resulting from exposure to diesel particulate matter or other compounds not monitored.

Unlike TACs emitted from industrial and other stationary sources noted above, most diesel particulate matter is emitted from mobile sources – primarily "off-road" sources such as construction and mining equipment, agricultural equipment, and truck-mounted refrigeration units, as well as trucks and buses traveling on freeways and local roadways. Agricultural and mining equipment is not commonly used in urban parts of the Bay Area, while construction equipment typically operates for a limited time at various locations. As a result, the readily identifiable locations where diesel particulate matter is emitted in the County of Napa include high-traffic roadways and other areas with substantial truck traffic.

[5] California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.

[6] In general, a health risk assessment is required if the BAAQMD concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggests a potential public health risk. Such an assessment generally evaluates chronic, long term effects, including the increased risk of cancer as a result of exposure to one or more TACs.

[7] Bay Area Air Quality Management District, 2007. *Toxic Air Contaminant Control Program Annual Report 2003 Volume 1*. August.

Although not specifically monitored, recent studies indicate that exposure to diesel particulate matter may contribute significantly to a cancer risk (a risk of approximately 500 to 700 in 1,000,000) that is greater than all other measured TACs combined.[8] The ARB's Diesel Risk Reduction Plan is intended to substantially reduce diesel particulate matter emissions and associated health risks through introduction of ultra-low-sulfur diesel fuel – a step already implemented – and cleaner-burning diesel engines. The technology for reducing diesel particulate matter emissions from heavy-duty trucks is well established, and both State and federal agencies are moving aggressively to regulate engines and emission control systems to reduce and remediate diesel emissions. ARB anticipates that by 2020 average Statewide diesel particulate matter concentrations will decrease by 85 percent from levels in 2000 with full implementation of the Diesel Risk Reduction Plan, meaning that the Statewide health risk from diesel particulate matter is expected to decrease from 540 cancer cases in 1,000,000 to 21.5 cancer cases in 1,000,000. It is likely that the Bay Area cancer risk from diesel particulate matter will decrease by a similar factor by 2020.

Odors. Odors are also an important element of local air quality conditions. Specific activities allowed within various land use categories can raise concerns related to odors on the part of nearby neighbors. Major sources of odors include restaurants and manufacturing plants. Other odor producers include the industrial facilities within the region. BAAQMD Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds. This regulation limits the "discharge of any odorous substance which causes the ambient air at or beyond the property line … to be odorous and to remain odorous after dilution with four parts of odor-free air." The BAAQMD must receive odor complaints from 10 or more complainants within a 90-day period in order for the limitations of this regulation to go into effect. If this criterion has been met, an odor violation can be issued by the BAAQMD if a test panel of people can detect an odor in samples collected periodically from the source. While sources that generate objectionable odors must comply with air quality regulations, the public's sensitivity to locally-produced odors often exceeds regulatory thresholds.

Sensitive Receptors. Occupants of facilities such as schools, day care centers, parks and playgrounds, hospitals, and nursing and convalescent homes are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory disease. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. Residential areas are considered more sensitive to air quality conditions, compared to commercial and industrial areas, because people generally spend longer periods of time at their residences, with greater associated exposure to ambient air quality conditions. Recreational uses are also considered sensitive compared to commercial and industrial uses due to greater exposure to ambient air quality conditions associated with exercise.

High Volume Roadways. Air pollutant exposures and their associated health burdens vary considerably within places in relation to sources of air pollution. Motor vehicle traffic is perhaps the most important source of intra-urban spatial variation in air pollution concentrations. Air quality research consistently demonstrates that pollutant levels are substantially higher near freeways and busy roadways, and human health studies have consistently demonstrated that children living within 100 to 200 meters of freeways or busy roadways have reduced lung function and higher rates of

[8] Ibid.

respiratory disease.[9] At present, it is not possible to attribute the effects of roadway proximity on non-cancer health effects to one or more specific vehicle types or vehicle pollutants. Engine exhaust, from diesel, gasoline, and other combustion engines, is a complex mixture of particles and gases, with collective and individual toxicological characteristics. Four epidemiological studies on roadways and health impacts conducted in California populations are described below.

- In Oakland, California, children at schools in proximity to high volume roadways experienced more asthma and bronchitis symptoms.[10]
- In a low-income population of children in San Diego, children with asthma living within 550 feet of roadways with high traffic volumes were more likely than those residing near roadways with lower traffic volumes to have more medical care visits for asthma.[11]
- In a study of Southern California school children, residence location within 75 meters (246 feet) of a major road was associated with an increased risk of asthma.[12]
- In a study conducted in 12 Southern California communities, children who lived within 500 feet of a freeway had reduced growth in lung capacity compared to those living greater than 1,500 feet from a freeway.[13]

Federal and State regulations control air pollutants at the regional level by limiting vehicle and stationary source emissions. However, air quality regulations have not limited the use of vehicles and generally have not protected sensitive land uses from air pollution "hot spots" associated with proximity to transportation facilities. Because of the robust evidence relating proximity to roadways and a range of non-cancer and cancer health effects, the ARB created guidance for avoiding air quality conflicts in land use planning in its Air Quality and Land Use Handbook: A Community Health Perspective.[14] In its guidance, the ARB advises that new sensitive uses (e.g. residences, schools, day care centers, playgrounds, and hospitals) not be located within 500 feet of a freeway or urban roads carrying 100,000 vehicles per day, or within 1,000 feet of a distribution center (warehouse) that accommodates more than 100 trucks or more than 90 refrigerator trucks per day.

ARB guidance suggests that the use of these guidelines should be customized for individual land use decisions, and take into account the context of development projects. The Air Quality and Land Use Handbook specifically states that these recommendations are advisory and acknowledges that land use agencies must balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

[9] Delfino, R.J., 2002. Epidemiologic Evidence for Asthma and Exposure to Air Toxics: Linkages Between Occupational, Indoor, and Community Air Pollution Research. *Environmental Health Perspectives.*

[10] Kim, J., et al., 2004. Traffic-Related Air Pollution and Respiratory Health: East Bay Children's Respiratory Health Study. *American Journal of Respiratory and Critical Care Medicine.*

[11] English, P., et al., 1999. Examining Associations Between Childhood Asthma and Traffic Flow Using a Geographic Information System. *Environmental Health Perspectives.*

[12] McConnell, R., et al., 2006. Traffic, Susceptibility, and Childhood Asthma. *Environmental Health Perspectives.*

[13] Gauderman, W. J. The Effect of Air Pollution on Lung Development From 10 to 18 Years of Age. *New England Journal of Medicine.* September 2004 and March 2005.

[14] California Environmental Protection Agency and Air Resources Board, 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*. Website: www.arb.ca.gov/ch/landuse.htm (accessed July 7, 2012).

b. Existing Climate and Air Quality. Regional air quality, local climate, and air quality in the Santa Clara Valley region, and air pollution climatology are described below.

(1) Local Climate and Topography. The County of Napa is located in the San Francisco Bay Area, a large shallow air basin ringed by hills that taper into a number of sheltered valleys around the perimeter. Two primary atmospheric outlets exist. One is through the strait known as the Golden Gate, a direct outlet to the Pacific Ocean. The second extends to the northeast, along the west delta region of the Sacramento and San Joaquin Rivers.

Air quality is a function of both local climate and local sources of air pollution. Air quality is the balance of the natural dispersal capacity of the atmosphere and emissions of air pollutants from human uses of the environment. The prevailing winds flow northwest through northeasterly approximately 53 percent of the time in Napa, the result of air flowing through the San Pablo Bay. These prevailing winds can transport non-local and locally generated ozone precursors northward, particularly during the summer months. Winds are lightest on average in the fall and winter at which time local pollutants tend to build up in the atmosphere.

Pollutants can be diluted by mixing in the atmosphere both vertically and horizontally. Vertical mixing and dilution of pollutants are often suppressed by inversion conditions, when a warm layer of air traps cooler air close to the surface. During the summer, inversions are generally elevated above ground level, but are present over 90 percent of both the morning and afternoon hours. In winter, surface-based inversions dominate in the morning hours, but frequently dissipate by afternoon.

Topography can restrict horizontal dilution and mixing of pollutants by creating a barrier to air movement. The Napa Valley has significant terrain features that affect air quality. The Mayacamas Mountains and Vaca Mountains, to the west and the east respectively, restrict horizontal dilution. This channels winds through the Valley's wider, southern end where it becomes bottled in the narrower, northern end.

The combined effects of moderate ventilation, frequent inversions that restrict vertical dilution, and terrain that restricts horizontal dilution give Napa a relatively high atmospheric potential for air pollution compared to other parts of the San Francisco Bay Air Basin.

(2) Air Monitoring Data. The County of Napa is within the jurisdiction of the BAAQMD, which has seen air quality conditions improve significantly since the BAAQMD was created in 1955. Ambient concentrations of air pollutants and the number of days during which the region exceeds air quality standards have fallen dramatically. Exceedances of air quality standards occur primarily during meteorological conditions conducive to high pollution levels, such as cold, windless winter nights or hot, sunny summer afternoons. Pollutant monitoring results for the years 2009 to 2011 at the 2552 Jefferson Avenue (Napa) ambient air quality monitoring station (the closest monitoring station to the project site), are shown in Table IV.D-2.

Pollutant monitoring results shown in Table IV.D-2 indicate that air quality in the project area has generally been good. No exceedances of the State or federal CO standards have been recorded at any of the region's monitoring stations since 1991. The Bay Area is currently considered a maintenance area for State and federal CO standards.

Table IV.D-2: Ambient Air Quality at the 2552 Jefferson Ave., Napa, Monitoring Station

Pollutant	Standard	2009	2010	2011
Carbon Monoxide (CO)				
Maximum 1-hour concentration (ppm)		2.4	2.3	2.4
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		1.39	1.37	1.80
Number of days exceeded:	State: > 9 ppm	0	0	0
	Federal: > 9 ppm	0	0	0
Ozone (O_3)				
Maximum 1-hour concentration (ppm)		0.100	0.106	0.083
Number of days exceeded:	State: > 0.09 ppm	1	1	0
Maximum 8-hour concentration (ppm)		0.078	0.089	0.070
Number of days exceeded:	State: > 0.07 ppm	3	2	0
	Federal: > 0.08 ppm	1	2	0
Coarse Particulates (PM_{10})				
Maximum 24-hour concentration ($\mu g/m^3$)		55.4	36.6	55.3
Number of days exceeded:	State: > 50 $\mu g/m^3$	1	0	1
	Federal: > 150 $\mu g/m^3$	0	0	0
Annual arithmetic average concentration ($\mu g/m^3$)		18.5	17.4	20.2
Exceeded for the year:	State: > 20 $\mu g/m^3$	No	No	No
	Federal: > 50 $\mu g/m^3$	No	No	No
Fine Particulates ($PM_{2.5}$)				
Maximum 24-hour concentration ($\mu g/m^3$)		39.5	26.2	43.2
Number of days exceeded:	Federal: > 35 $\mu g/m^3$	ND	ND	ND
Annual arithmetic average concentration ($\mu g/m^3$)		9.99	8.72	11.0
Exceeded for the year:	State: > 12 $\mu g/m^3$	No	No	No
	Federal: > 15 $\mu g/m^3$	No	No	No
Nitrogen Dioxide (NO_2)				
Maximum 1-hour concentration (ppm)		0.041	0.056	0.045
Number of days exceeded:	State: > 0.25 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.019	0.017	0.018
Exceeded for the year:	Federal: > 0.053 ppm	0	0	0
Sulfur Dioxide (SO_2)				
Maximum 1-hour concentration (ppm)		0.028	0.016	0.053
Number of days exceeded:	State: > 0.25 ppm	0	0	0
Maximum 3-hour concentration (ppm)		0.015	0.016	0.053
Number of days exceeded:	Federal: > 0.5 ppm	0	0	0
Maximum 24-hour concentration (ppm)		0.007	0.004	0.007
Number of days exceeded:	State: > 0.04 ppm	0	0	0
	Federal: > 0.14 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.001	0.001	0.001
Exceeded for the year:	Federal: > 0.030 ppm	0	0	0

ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter
ND = No data. There was insufficient (or no) data to determine the value.

Source: ARB and EPA, 2012.

Ozone levels, measured by peak concentrations and the number of days over the State 1-hour standard, have declined substantially as a result of aggressive programs by the BAAQMD and other regional, State, and federal agencies. The reduction of peak concentrations represents progress in improving public health. However, levels of ozone have exceeded the State's 1-hour standard in 2009 and 2010; in addition, both the State and federal 8-hour standards were exceeded in 2009 and 2010.

As indicated in the monitoring results, violations of the State PM_{10} daily standard were recorded in 2009 and 2011 on a single day each year. In 2010, no violations occurred. No violations of the federal PM_{10} standards were recorded from 2009 to 2011. The area is considered a nonattainment area for this pollutant relative to the State standards. The Bay Area is an unclassified area for the federal PM_{10} standard.

No violations of the State's $PM_{2.5}$ standard were recorded during the 3-year period. $PM_{2.5}$ violation data related to the federal 24-hour standard was not available; however, data for the San Francisco Bay Area Air Basin indicates that the region exceeded the federal 24-hour standard on five days in 2009 and three days in 2010 and 2011.

SO_2 and NO_2 standards were not exceeded in this area during the 3-year period.

c. Regulatory Framework. Air quality standards, the regulatory framework, and State and federal attainment status are discussed below.

The BAAQMD is primarily responsible for regulating air pollution emissions from stationary sources (e.g., factories) and indirect sources (e.g., traffic associated with new development), as well as for monitoring ambient pollutant concentrations. The BAAQMD's jurisdiction encompasses seven counties – Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa – and portions of Solano and Sonoma counties. The ARB and the U.S. EPA regulate direct emissions from motor vehicles.

(1) United States Environmental Protection Agency. At the federal level, the U.S. EPA has been charged with implementing national air quality programs. U.S. EPA's air quality mandates are drawn primarily from the Federal Clean Air Act (FCAA), which was enacted in 1963. The FCAA was amended in 1970, 1977, and 1990.

The FCAA required U.S. EPA to establish primary and secondary NAAQS and required each state to prepare an air quality control plan referred to as a State Implement Plan (SIP). The Federal Clean Air Act Amendments of 1990 (FCAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. U.S. EPA has responsibility to review all state SIPs to determine conformity with the mandates of the FCAAA and determine if implementation will achieve air quality goals. If the U.S. EPA determines a SIP to be inadequate, a Federal Implementation Plan (FIP) may be prepared for the nonattainment area which imposes additional control measures. Failure to submit an approvable SIP or to implement the plan within the mandated timeframe may result in sanctions on transportation funding and stationary air pollution sources in the air basin.

(2) California Air Resources Board. In 1992 and 1993, the ARB requested delegation of authority for the implementation and enforcement of specified New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants to the BAAQMD. U.S. EPA's review of the State of California's laws, rules, and regulations showed them to be adequate for the implementation and enforcement of federal standards, and the U.S. EPA granted the delegations as requested.

The ARB is the agency responsible for the coordination and oversight of State and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA), adopted in 1988. The CCAA requires that all air districts in the State achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. The CCAA specifies that districts should focus on reducing the emissions from transportation and air-wide emission sources, and provides districts with the authority to regulate indirect sources.

ARB is also primarily responsible for developing and implementing air pollution control plans to achieve and maintain the NAAQS. ARB is primarily responsible for Statewide pollution sources and produces a major part of the SIP. Local air districts provide additional strategies for sources under their jurisdiction. ARB combines this data and submits the completed SIP to U.S. EPA.

Other ARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control and air quality management districts), establishing CAAQS (which in many cases are more stringent than the NAAQS), determining and updating area designations and maps, and setting emissions standards for new mobile sources, consumer products, small utility engines, and off-road vehicles.

(3) National and State Ambient Air Quality Standards. Pursuant to the FCAA of 1970, the U.S. EPA established NAAQS. The NAAQS were established for major pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health.

Both the U.S. EPA and the ARB have established ambient air quality standards for the following common pollutants: CO, O_3, NO_2, SO_2, Pb, and PM. In addition, the State has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. These ambient air quality standards are levels of contaminants that avoid specific adverse health effects associated with each pollutant.

Federal standards include both primary and secondary standards. Primary standards establish limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, and damage to animals, crops, vegetation, and buildings.[15] State and federal standards for the criteria air pollutants are listed in Table IV.D-3.

(4) Bay Area Air Quality Management District. The BAAQMD seeks to attain and maintain air quality conditions in the San Francisco Bay Area Air Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and education. The clean air strategy includes the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations, and issuance of permits for stationary sources. The BAAQMD also inspects stationary sources and responds to citizen complaints, monitors ambient air quality and meteorological conditions, and implements programs and regulations required by law.

[15] U.S. Environmental Protection Agency, 2007. Website: www.epa.gov/air/criteria.html (accessed July 7, 2012). January.

Table IV.D-3: Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]		Federal Standards[b]		
		Concentration[c]	Method[d]	Primary[c,e]	Secondary[c,f]	Method[g]
Ozone (O_3)	1-Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	No Federal Standard	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.07 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM_{10})	24-Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		–		
Fine Particulate Matter ($PM_{2.5}$)	24-Hour	No Separate State Standard		35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3		
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1-Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8-Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		–	–	
Nitrogen Dioxide (NO_2)[h]	Annual Arithmetic Mean	0.03 ppm (57 µg/m^3)	Gas Phase Chemiluminescence	53 ppb (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminesc-ence
	1-Hour	0.18 ppm (339 µg/m^3)		100 ppb (188 µg/m^3)	None	
Lead (Pb)[j,k]	30-Day Average	1.5 µg/m^3	Atomic Absorption	–	–	High-Volume Sampler and Atomic Absorption
	Calendar Quarter	–		1.5 µg/m^3 (for certain areas)[k]	Same as Primary Standard	
	Rolling 3-Month Average[i]	–		0.15 µg/m^3		
Sulfur Dioxide (SO_2)[i]	24-Hour	0.04 ppm (105 µg/m^3)	Ultraviolet Fluorescence	0.14 ppm (for certain areas)[i]	–	Ultraviolet Flourescence; Spectrophoto-metry (Pararosaniline Method)
	3-Hour	–		–	0.5 ppm (1300 µg/m^3)	
	1-Hour	0.25 ppm (655 µg/m^3)		75 ppb (196 µg/m^3)	–	
	Annual Arithmetic Mean	–		0.030 ppm (for certain areas)[i]	–	
Visibility-Reducing Particles[l]	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 relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24-Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[j]	24-Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

Table notes are provided on the following page.

[a] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, suspended particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact EPA for further clarification and current federal policies.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] Any equivalent procedure which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.

[e] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[f] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[g] Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.

[h] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.

[i] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved. Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standards to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

[j] The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

[l] In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

°C = degrees Celsius
CARB = California Air Resources Board
EPA = United States Environmental Protection Agency
ppb = parts per billion
ppm = parts per million
mg/m^3 = milligrams per cubic meter
$\mu g/m^3$ = micrograms per cubic meter

Source: California Air Resources Board, February 7, 2012.

Clean Air Plan. The BAAQMD is responsible for developing a Clean Air Plan which guides the region's air quality planning efforts to attain the CAAQS. The BAAQMD's 2010 Clean Air Plan is the latest Clean Air Plan which contains district-wide control measures to reduce ozone precursor emissions (i.e., ROG and NO_x), particulate matter, and greenhouse gas emissions.

The Bay Area 2010 Clean Air Plan, which was adopted on September 15, 2010, by the BAAQMD's board of directors:

- Updates the Bay Area 2005 Ozone Strategy in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone;
- Provides a control strategy to reduce ozone, PM, TACs, and greenhouse gases in a single, integrated plan;
- Reviews progress in improving air quality in recent years; and
- Establishes emission control measures to be adopted or implemented in the 2010 to 2012 timeframe.

BAAQMD CARE Program. The Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area. The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The technical analysis portion of the CARE program is being implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TACs, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and a high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. The BAAQMD has identified six affected communities. The County of Napa and the City of Napa have not been included as an affected community.

BAAQMD CEQA Air Quality Guidelines. The BAAQMD *CEQA Air Quality Guidelines* were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of the *CEQA Air Quality Guidelines*. In May 2011, the updated BAAQMD guidelines were amended to include a risk and hazards threshold for new receptors and modified procedures for assessing impacts related to risk and hazard impacts.

On March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the BAAQMD *CEQA Air Quality Guidelines*. The court did not determine whether the thresholds of significance were valid on their merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD complied with CEQA.

In view of the court's order, the BAAQMD is no longer recommending that the thresholds of significance be used as a generally applicable measure of a project's significant air quality impacts. Lead agencies will need to determine appropriate air quality thresholds of significance based on substantial

evidence in the record. Although lead agencies may rely on the 2011 BAAQMD *CEQA Air Quality Guidelines* for assistance in calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, the BAAQMD has been ordered to set aside the thresholds and is no longer recommending that they be used as a general measure of a project's significant air quality impacts.[16]

(5) Attainment Status Designations. The ARB is required to designate areas of the State as attainment, nonattainment, or unclassified for each State standard. An "attainment" designation for an area signifies that pollutant concentrations did not violate pollutant standards. A "nonattainment" designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. An "unclassified" designation signifies that data do not support either an attainment or nonattainment status. The law divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The U.S. EPA designates areas for ozone, CO, and NO_2 as "does not meet the primary standards," "cannot be classified," or "is better than national standards." For SO_2, areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified" or "is better than national standards." In 1991, new nonattainment designations were assigned to areas for PM_{10} based on the likelihood that they would violate national PM_{10} standards. All other areas are designated "unclassified." Table IV.D-4 provides a summary of the attainment status for the San Francisco Bay Area with respect to national and State ambient air quality standards.

Table IV.D-4: San Francisco Bay Area Attainment Status

Pollutant	Averaging Time	California Standards [a]		National Standards [b]	
		Concentration	Attainment Status	Concentration[c]	Attainment Status
Carbon Monoxide (CO)	8-Hour	9 ppm (10 mg/m^3)	Attainment	9 ppm (10 mg/m^3)	Attainment [f]
	1-Hour	20 ppm (23 mg/m^3)	Attainment	35 ppm (40 mg/m^3)	Attainment
Nitrogen Dioxide (NO_2)	Annual Mean	0.030 ppm (57 mg/m^3)	Attainment	0.053 ppm (100 µg/m^3)	Attainment
	1-Hour	0.18 ppm (338 µg/m^3)	Attainment	0.100 ppm [j]	Unclassified
Ozone (O_3)	8-Hour	0.07 ppm (137 µg/m^3)	Nonattainment [h]	0.075 ppm	Nonattainment [d]
	1-Hour	0.09 ppm (180 µg/m^3)	Nonattainment	Not Applicable	Not Applicable [e]
Suspended Particulate Matter (PM_{10})	Annual Mean	20 µg/m^3	Nonattainment [g]	Not Applicable	Not Applicable
	24-Hour	50 µg/m^3	Nonattainment	150 µg/m^3	Unclassified
Suspended Particulate Matter ($PM_{2.5}$)	Annual Mean	12 µg/m^3	Nonattainment[g]	15 µg/m^3	Attainment
	24-Hour	Not Applicable	Not Applicable	35 µg/m^3 See footnote [i]	Nonattainment
Sulfur Dioxide (SO_2)[k]	Annual Mean	Not Applicable	Not Applicable	80 µg/m^3 (0.03 ppm)	Attainment
	24-Hour	0.04 ppm (105 µg/m^3)	Attainment	365 µg/m^3 (0.14 ppm)	Attainment
	1-Hour	0.25 ppm (655 µg/m^3)	Attainment	0.075 ppm (196 µg/m^3)	Attainment

Table notes are provided on the following page.

[16] Bay Area Air Quality Management District, 2012. *CEQA Guidelines*. Website: www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx (accessed July 7, 2012). April 13.

[a] California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM_{10} annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the State standard.

[b] National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.075 ppm (75 ppb) or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 $\mu g/m^3$. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 $\mu g/m^3$.

Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.

[c] National air quality standards are set by EPA at levels determined to be protective of public health with an adequate margin of safety.

[d] On September 22, 2011, the EPA announced it will implement the current 8-hour ozone standard of 75 ppb. The EPA finalized area designations for the 2008 8-hour ozone standard in April 2012 and has classified the Bay Area as "marginal" nonattainment.

[e] The national 1-hour ozone standard was revoked by EPA on June 15, 2005.

[f] In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.

[g] In June 2002, CARB established new annual standards for $PM_{2.5}$ and PM_{10}. Statewide VRP Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

[h] The 8-hour California ozone standard was approved by the CARB on April 28, 2005 and became effective on May 17, 2006.

[i] EPA lowered the 24-hour $PM_{2.5}$ standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ in 2006. EPA designated the Bay Area as nonattainment of the $PM_{2.5}$ standard on October 8, 2009. The effective date of the designation is December 14, 2009, and the Air District has three years to develop a SIP that demonstrates the Bay Area will achieve the revised standard by December 14, 2014. The SIP for the new $PM_{2.5}$ standard must be submitted to the EPA by December 14, 2012.

[j] To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100ppm (effective January 22, 2010).

[k] On June 2, 2010, the EPA established a new 1-hour SO_2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO_2 NAAQS however must continue to be used until one year following EPA initial designations of the new 1-hour SO_2 NAAQS. EPA expects to designate areas by June 2012.

Lead (Pb) is not listed in the above table because it has been in attainment since the 1980s.
ppm = parts per million
mg/m^3 = milligrams per cubic meter
$\mu g/m^3$ = micrograms per cubic meter

Source: Bay Area Air Quality Management District, 2012.

(6) County of Napa General Plan. The Conservation Element of the Napa General Plan includes the following policies related to air quality.[17]

[17] Napa, County of, 2009. *Napa County General Plan (Amended)*. June.

Goal CON-14. Promote policies to ensure the long term sustainability of Napa County, including its environment, economy, and social equity.

Goal CON-17. Reduce air pollution and reduce local contributions to regional air quality problems, achieving and maintaining air quality in Napa County which meets or exceeds state and federal standards.

- Policy CON-75: The County shall work to implement all applicable local, state, and federal air pollution standards, including those related to reductions in GHG emissions.
- Policy CON-76: The County shall minimize air pollutant emissions from all County facilities and operations to the extent feasible, consistent with the County's desire to provide a high level of public service.
- Policy CON-77: All new discretionary projects shall be evaluated to determine potential significant project-specific air quality impacts and shall be required to incorporate appropriate design, construction, and operational features to reduce emissions of criteria pollutants regulated by the state and federal governments below the applicable significance standard(s) or implement alternate and equally effective mitigation strategies consistent with BAAQMD's air quality improvement programs to reduce emissions.

In addition to these policies, the County's land use policies discourage scattered development which contributes to continued dependence on the private automobile as the only means of convenient transportation. The County's land use policies also contribute to efforts to reduce air pollution.

- Policy CON-78: The County shall support intergovernmental efforts directed at stringent tailpipe emission standards and inspection and maintenance programs for all feasible vehicle classes, and revisions to BAAQMD's Ozone Attainment Plan to accelerate and strengthen market-based strategies consistent with the General Plan.
- Policy CON-79: The County shall ensure that all County vehicles conform with applicable emission standards at the time of purchase and throughout their use. To the extent feasible, the County shall purchase the lowest emitting vehicles commercially available to meet County vehicle needs.
- Policy CON-80: The County shall seek to reduce particulate emissions and avoid exceedences of state particulate matter (PM) standards by:
    a) Providing information regarding low emitting fireplaces to property owners who are constructing or remodeling homes.
    b) Fireplaces or wood stoves for new development shall comply with current local and state emission standards for wood-burning stoves or shall be fueled by natural gas.
    c) Disseminating information in support of the BAAQMD's "Spare the Air Tonight" program (and other related programs) when PM exceedences are projected to occur.
    d) Disseminating information regarding agricultural burn requirements established by the BAAQMD.
    e) Requiring implementation of dust control measures during construction and grading activities and enforcing winter grading deadlines.
- Policy CON-81: The County shall require dust control measures to be applied to construction projects consistent with measures recommended for use by the BAAQMD.
- Policy CON-82: The County shall require applicants seeking demolition permits to demonstrate compliance with any applicable BAAQMD requirements, particularly those related to asbestos-containing materials (ACMs) and exposure to lead paint.
- Policy CON-84: The County shall require the establishment and maintenance of adequate buffer distances or filters or other equipment modifications for new sources of toxic air contaminants (TACs) and odors near proposed or existing sensitive receptors consistent with local and state regulatory requirements and guidelines.

- Policy CON-85: The County shall utilize construction emission control measures required by CARB or BAAQMD that are appropriate for the specifics of the project (e.g., length of time of construction and distance from sensitive receptors). These measures shall be made conditions of approval and/or adopted as mitigation to ensure implementation.

2. Impacts and Mitigation Measures

This section provides an assessment of the potential adverse impacts related to air quality associated with the proposed project. It begins with the criteria of significance, which establish the thresholds for determining whether an impact is significant. The latter part of this section identifies potential impacts. Where potentially significant impacts are identified, mitigation measures are recommended.

a. Significance Criteria. Consistent with guidance from the BAAQMD,[18] the proposed project would have a significant impact on the environment related to air quality if it would:

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation by:
  - Contributing to CO concentrations exceeding the State ambient air quality standards;
  - Generate construction emissions of ROG, NO_x or $PM_{2.5}$ greater than 54 pounds per day or PM_{10} exhaust emissions greater than 82 pounds per day; or
  - Generate operation emissions of ROG, NO_x or $PM_{2.5}$ of greater than 10 tons per year or 54 pounds per day, or PM_{10} emissions greater than 15 tons per year or 82 pounds per day.
- 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 or the general public to substantial pollutant concentrations by:
  - Individually exposing sensitive receptors (such as residential areas) or the general public to toxic air contaminants in excess of the following thresholds:
    - Increased cancer risk greater than 10.0 in one million;
    - Increased non-cancer risk of greater than 1.0 on the non-hazard index (chronic or acute); or
    - Ambient $PM_{2.5}$ increase greater than 0.3 $\mu g/m^3$ annual average;
  - Cumulatively exposing sensitive receptors or the general public to toxic air contaminants in excess of the following thresholds:
    - Increased cancer risk greater than 100.0 in one million;

[18] As discussed in the Setting section, on March 5, 2012, the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds of significance in the 2011 BAAQMD *CEQA Air Quality Guidelines*. In view of the court's order, the BAAQMD is no longer recommending that the thresholds of significance be used as a generally applicable measure of a project's significant air quality impacts. However, the County of Napa is using these thresholds in the evaluation of project impacts in order to protectively evaluate the potential effects of the project on air quality and related health issues. The County believes these protective thresholds are appropriate in the context of the size, scale, and location of the project in close proximity to sensitive residential uses.

  - Increased non-cancer risk of greater than 10.0 on the non-hazard index (chronic or acute); or
  - Ambient $PM_{2.5}$ increase greater than 0.8 $\mu g/m^3$ annual average;
- Conflict with or obstruct implementation of the current Air Quality Plan; or
- Create objectionable odors affecting a substantial number of people.

It should be noted that the emission thresholds were established based on the attainment status of the air basin for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety according to the U.S. EPA, these emission thresholds are regarded as protective and would tend to overstate an individual project's contribution to health risks.

In regard to indoor air quality, operations at the HHSA campus do not typically involve chemicals or hazardous materials that would pose risks to employees, clients, or the public at large when used as directed. In addition, relevant thresholds or standards for indoor air quality for a project like this one have not been established by regional, State, or federal air quality agencies. Indoor air quality is under the jurisdiction of the Occupational Safety and Health Administration (OSHA). OSHA standards and oversight would ensure that indoor air quality does not pose a significant adverse impact.

b. Project Impacts. This section describes potential air quality impacts which could occur as a result of implementation of the proposed project, identifies which impacts would actually occur, and what measures would be required to reduce significant impacts to a less-than-significant level.

(1) Air Quality Standards and Existing or Projected Air Quality Violations. According to the BAAQMD *CEQA Air Quality Guidelines*, to prevent the possibility of violating air quality standards, project related operational-related criteria air pollutant and air precursor emissions must meet the numeric thresholds identified in the significance criteria. The following analysis evaluates the impacts of the project on localized CO impacts and criteria pollutant emissions generated by project construction and operation.

Localized CO Impacts. The BAAQMD has established a screening methodology that provides a conservative indication of whether the implementation of a proposed project would result in CO emissions that would violate State and federal CO standards. According to the BAAQMD's *CEQA Air Quality Guidelines*, a proposed project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, and the regional transportation plan and local congestion management agency plans.
- Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project would not increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, or below-grade roadway).

The proposed project would not conflict with the Napa County Transportation Planning Agency Congestion Management Program for designated roads or highways, a regional transportation plan, or other agency plans. In addition, the project site is not located in an area where vertical or horizontal mixing of air is substantially limited. In addition, traffic volumes on roadways in the vicinity of the project site are less than 44,000 vehicles per hour.[19] Therefore, the proposed project would not result in localized CO concentrations that exceed State or federal standards.

Construction Emissions. During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, ROG, directly-emitted particulate matter ($PM_{2.5}$ and PM_{10}), and TACs such as diesel exhaust particulate matter.

Site preparation and project construction would involve demolition of existing structures on the project site, as well as portions of the other structures, clearing, cut-and-fill activities, grading, and building activities. Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils on the site. Sources of fugitive dust would include disturbed soils at the construction sites and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction sites.

Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. The BAAQMD has established standard measures for reducing fugitive dust emissions (PM_{10}). With the implementation of standard construction measures such as frequent watering (e.g., two times per day at a minimum), fugitive dust emissions from construction activities would not result in adverse air quality impacts.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_x, VOCs and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction sites.

Construction emissions were estimated for the project using the California Emissions Estimator Model (CalEEMod 2011 v. 1.1), which combines widely accepted emission factors from the ARB and the U.S. EPA with appropriate default data and site-specific information. The proposed project would be developed in phases occurring over the next 3 to 16 years with Phase I fully developed and occupied by 2018 and total build-out occurring by 2028. However, project funding would determine the ultimate construction phasing and the site build-out timeline. The precise construction schedule is

[19] Fehr and Peers, 2012. *Napa Health and Human Services Campus Project: Transportation Impact Analysis.* August.

not known at this time. Therefore, for the purposes of this analysis, it is assumed the total project would be constructed over a 19-month period. Since emissions are more severe for shorter construction durations, this provides a more conservative assessment of the project's impacts.

Construction-related emissions for both the Existing Site and Expanded Site Options are presented in Table IV.D-5 and model output data is included in Appendix E. The Existing Site Option would result in slightly higher emissions than the Expanded Site Option. As shown in the results, average daily construction emissions would not exceed the BAAQMD's numeric threshold for ROG, NO_x or particulate matter exhaust emissions. However, in order to ensure that fugitive dust emissions are reduced to a less-than-significant level, the BAAQMD's Best Management Practices must be implemented.

Table IV.D-5: Project Construction Emissions in Pounds Per Day

Project Construction	ROG	CO	NO_x	Exhaust $PM_{2.5}$	Fugitive Dust $PM_{2.5}$	Total $PM_{2.5}$	Exhaust PM_{10}	Fugitive Dust PM_{10}	Total PM_{10}
Average Daily Emissions (Existing Site Option)	28.35	38.70	41.00	2.20	0.65	2.85	2.20	3.35	5.50
Average Daily Emissions (Expanded Site Option)	28.30	38.65	40.95	2.20	0.65	2.85	2.20	3.25	5.45
BAAQMD Thresholds	54.0	NA	54.0	54.0	BMP	NA	82.0	BMP	NA
Exceed Threshold?	**No**	**NA**	**No**	**No**	**NA**	**NA**	**No**	**NA**	**NA**

Notes:
NA = Not Applicable, the BAAQMD does not have threshold.
BMP = Best Management Practices

Source: LSA Associates, Inc., 2012.

Impact AIR-1: Demolition and construction-period activities occurring under the Existing Site Option and Expanded Site Option would generate dust, exhaust, and organic emissions. (S)

Although project construction emissions shown in Table IV.D-5 indicate that the proposed project itself would not violate air quality standards, without implementation of the BAAQMD's Best Management Practices, construction of both project options could generate air pollutant emissions that could substantially contribute to an existing or projected air quality violation. The BAAQMD requires the implementation of Best Management Practices to reduce construction impacts to a less-than-significant level. Implementation of Mitigation Measure AIR-1 would require implementation of the BAAQMD's Best Management Practices and reduce diesel PM exhaust emissions as well as construction PM_{10} impacts.

> Mitigation Measure AIR-1: Consistent with the Best Management Practices required by the BAAQMD, the following actions shall be incorporated into construction contracts and specifications for the project:
>
> - All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
> - All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

- All visible mud or dirt tracked-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and contact information for the designated on-site construction manager available to receive and respond to dust complaints. This person shall report all complaints to Napa County and take immediate corrective action as soon as practical but not more than 48 hours after the complaint is received. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations. (LTS)

According to the BAAQMD, implementation of Mitigation Measure AIR-1 would reduce construction-period dust, exhaust and organic emissions to the maximum extent feasible. These measures are consistent with the BAAQMD's Best Management Practices and will be effective at reducing generation of air pollutant emissions that could substantially contribute to an existing or projected air quality violation.

Operational Emissions – Regional Emissions Analysis. Land use developments generate two types of emissions: short-term construction emissions, which are discussed above, and long-term operation air emissions, which are associated with changes in permanent use of the project site. Because these emissions could contribute substantially to an existing air quality violation, the BAAQMD requires quantification, disclosure and, if significant, mitigation of a project's operational emissions. Additionally, if a proposed project involves the removal of existing emission sources, the BAAQMD recommends deducting the existing emissions (which constitute the baseline) from the emissions estimated for the new proposed project.

As with construction emissions, the CalEEMod computer program was used. CalEEMod output sheets are included in Appendix E of this EIR. Table IV.D-6 shows the operational emissions associated with the existing uses and the project. Note that because operational emissions are determined based on project trip generation and type of development (e.g., building use and square footage), the Existing Site Option and Expanded Site Option result in equivalent emissions rates. The majority of the emissions for both existing uses and the project are mobile source emissions that would result

from vehicle trips associated with the proposed project. According to the Transportation Impact Analysis prepared by Fehr and Peers and summarized in Section IV.C, Transportation, Circulation and Parking, the existing uses and proposed project generates approximately 2,707 daily trips and the project would generate approximately 5,132 daily trips.[20] Area sources, such as natural gas heaters, landscape equipment, and use of consumer products would also result in pollutant emissions.

Table IV.D-6: Total Regional Emissions for Existing On-Site Uses and the Proposed Project

	Reactive Organic Gases		Nitrogen Oxides		PM_{10}		$PM_{2.5}$	
	Existing On-Site Uses	**Proposed Project**	**Existing On-Site Uses**	**Proposed Project**	**Existing On-Site Uses**	**Proposed Project**	**Existing On-Site Uses**	**Proposed Project**
Emissions in Pounds Per Day								
Area Source Emissions	4.98	10.52	0.00	0.00	0.00	0.00	0.00	0.00
Energy Source Emissions	0.04	0.08	0.40	0.76	0.00	0.00	0.00	0.00
Mobile Source Emissions	16.32	20.06	24.24	28.02	0.68	1.18	0.68	1.00
Total Emissions	**21.34**	**30.66**	**26.64**	**28.78**	**0.68**	**1.18**	**0.68**	**1.00**
Emissions in Tons Per Year								
Area Source Emissions	0.91	1.92	0.00	0.00	0.00	0.00	0.00	0.00
Energy Source Emissions	0.01	0.02	0.07	0.14	0.00	0.00	0.00	0.00
Mobile Source Emissions	1.89	2.28	3.07	3.57	0.09	0.15	0.09	0.13
Total Emissions	**2.81**	**4.22**	**3.14**	**3.71**	**0.09**	**0.15**	**0.09**	**0.13**

Note: Proposed Project emission rates are the same for the Existing Site Option and Expanded Site Option.

Source: LSA Associates, Inc., 2012.

Additionally, the primary emissions associated with the project are regional in nature, meaning that air pollutants are rapidly dispersed on emission or, in the case of vehicle emissions associated with the project, emissions are released in other areas of the Air Basin. Because the resulting emissions are dispersed rapidly and contribute only a small fraction of the region's air pollution, air quality in the immediate vicinity of the project site would not substantially change compared to existing conditions or the air quality monitoring data reported in Table IV.D-2.

The net emissions associated with project are identified in Table IV.D-7 for ROG, NO_x, PM_{10}, and $PM_{2.5}$. The results indicate the project would not exceed the criteria for regional emissions types; therefore the proposed project would not have a significant effect on regional air quality and would not be expected to violate air quality standards.

[20] Ibid.

Table IV.D-7: Proposed Project Net New Regional Emissions

	Reactive Organic Gases	Nitrogen Oxides	PM_{10}	$PM_{2.5}$
Emissions in Pounds Per Day				
Area Source Emissions	5.54	0.00	0.00	0.00
Energy Source Emissions	0.04	0.36	0.00	0.00
Mobile Source Emissions	3.74	3.78	0.50	0.32
Total Emissions	**9.32**	**4.14**	**0.50**	**0.32**
BAAQMD Significance Threshold	**54.00**	**54.00**	**82.00**	**54.00**
Exceed?	**No**	**No**	**No**	**No**
Emissions in Tons Per Year				
Area Source Emissions	1.01	0.00	0.00	0.00
Energy Source Emissions	0.01	0.07	0.00	0.00
Mobile Source Emissions	0.39	0.50	0.06	0.04
Total Emissions	1.41	0.57	0.06	0.04
BAAQMD Significance Threshold	**10.00**	**10.00**	**15.00**	**10.00**
Exceed?	**No**	**No**	**No**	**No**

Note: Proposed Project emission rates are the same for the Existing Site Option and Expanded Site Option.

Source: LSA Associates, Inc., 2012.

(2) Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region Is Non-Attainment. CEQA defines a cumulative impact as two or more individual effects, which when considered together, are considerable or which compound or increase other environmental impacts. According to the BAAQMD, air pollution is largely a cumulative impact and no single project is sufficient in size to itself result in nonattainment of ambient air quality standards. In developing the thresholds of significance for air pollutants used in the analysis above, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. The BAAQMD *CEQA Air Quality Guidelines* indicate that if a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. If daily average or annual emissions of operational-related criteria air pollutants exceed any applicable threshold established by the BAAQMD, the proposed project would result in a cumulatively significant impact.

As shown in Table IV.D-5 and Table IV.D-7, above, implementation of the proposed project, with implementation of Mitigation Measure AIR-1, would generate less-than-significant regional emissions. Additionally, other proposed projects within the Air Basin would also be required to implement the BAAQMD's Best Management Construction Practices as outlined in Mitigation Measure AIR-1. As shown in the project-specific air quality impacts discussion above, the proposed project would not result in individually significant impacts and therefore would also not make a cumulatively considerable contribution to regional air quality impacts.

(3) Expose Sensitive Receptors to Substantial Pollutant Concentrations. According to the BAAQMD, a project would result in a significant impact if it would: individually expose sensitive receptors to toxic air contaminants resulting in an increased cancer risk greater than 10.0 in one million, increased non-cancer risk of greater than 1.0 on the non-hazard index (chronic or acute), or an annual average ambient $PM_{2.5}$ increase greater than 0.3 $\mu g/m^3$. A significant cumulative impact would occur if the project in combination with other projects located within a 1,000 foot radius of the project site would expose sensitive receptors to toxic air contaminants resulting in an increased cancer risk greater than 100.0 in one million, an increased non-cancer risk of greater than 10.0 on the non-

hazard index (chronic or acute), or an ambient $PM_{2.5}$ increase greater than 0.8 µg/m^3 on an annual average basis. This section describes the potential impact on sensitive receptors from construction and operation of the proposed project.

Project Construction – Toxic Air Contaminants. During construction, various diesel-powered vehicles and equipment would be in use. In 1998, the ARB identified particulate matter from diesel-fueled engines as a TAC. The ARB has completed a risk management process that identifies potential cancer risks for a range of activities using diesel-fueled engines.[21] High volume freeways, stationary diesel engines and facilities attracting heavy and constant diesel vehicle traffic (e.g., distribution centers and 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 emissions occur within the project site.

Construction projects can create an increased health risk to nearby sensitive receptors when construction activity occurs continuously for multiple years in one location. As described in the project description, the proposed project would be phased-in over a 16 year period depending on funding and programmatic needs.

The project site is surrounded by residential uses and public facilities. The Existing Site Option would redevelop the existing site with the majority of the construction activity occurring in the center of the site away from the surrounding residential areas. The parking garage however, would be constructed within approximately 100 feet of the residences located north of the project boundary. However, this phase of construction would not be conducted under Phase 1 of development. The anticipated timeframe for construction would be between 2018 and 2025. Given construction of the parking structure would not result in emissions in conjunction with other construction activities on the project site, construction of the parking structure, which is proposed under the Existing Site Option, is not expected to result in a significant health risk impact.

The Expanded Site Option would also place building construction areas within the center of the project site away from sensitive receptors, with the exception of Building 4 which would be constructed sometime between 2018 and 2025. Construction of Building 1 on the Expanded Site Option would be approximately 150 feet from the school buildings and approximately 200 feet from residences located west of the project site. Under the Expanded Site Option, Building 1 would be constructed beginning in 2014 over a 20 month period.

To determine the carcinogenic and chronic health risk associated with construction of the total project for the maximum exposed individual (MEI), a screening level modeling assessment was performed using the EPA's AIRSCREEN model. The Existing Site Option would result in higher emissions of the two options. Therefore, emission rates from this option were used in the analysis. Results of the screening analysis are conservative in that the screening methodology assumes all equipment would operate at the border of the project site closest to the receptor and that all emissions would be directly blown by the wind onto the receptor site. This analysis provides a worst case scenario because, in

[21] California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*, October.

reality, equipment would be operating at various locations within the site and the wind would disperse emissions in different directions. Additionally, the health risk results are based on a 7-year construction period, while actual health risk would be much lower as the construction duration is expected to be much longer resulting lower average emission concentrations.

Details related to the screening health risk assessment are included in Appendix E. As shown in Table IV.D-8, results of the analysis indicate that health risk levels and $PM_{2.5}$ concentrations would be below the significance level identified by the BAAQMD.

Table IV.D-8: Health Risks from Construction Emissions

Location	Carcinogenic Inhalation Health Risk with CRAF[a]	Chronic Inhalation Health Index	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Maximum Exposed Individual	8.63	0.01	0.053
Threshold	**10 in 1 million**	**1.0**	**0.3**
Exceed?	**No**	**No**	**No**

[a] CRAF = Cancer Risk Adjustment Factor

Source: LSA Associates, Inc., July 2012.

Based on the results of the AIRSCREEN 3 analysis, significant health risk impact is not anticipated. Additionally, with implementation of Mitigation Measure AIR-1, which is consistent with BAAQMD guidelines, health risks from construction emissions of diesel particulate would be less than significant.

Project Operation – Toxic Air Contaminants. In addition to the two generators that currently exist on-site, the proposed project would include a two additional back-up emergency generators which would be phased in as building square footage is added. Although the precise location is not known at this time, the generators would be located as far away as possible from residential areas. All generators would require permits issued by the BAAQMD and would require intermittent use as part of testing, thereby emitting diesel particulate matter. Based upon screening emissions data from the BAAQMD for the project's existing generators, in order for emissions to be below the significance threshold of 10 in 1 million, generators must be located more than 200 feet from any residential dwelling.

Impact AIR-2: Operation of emergency generators could result in an increased health risk for sensitive receptors in the project vicinity. (S)

To ensure that generators are located an appropriate distance from sensitive receptors, the following measure shall be implemented:

> Mitigation Measure AIR-2: All future generator installations shall be located a minimum of 200 feet from any residential dwelling units or a health risk assessment shall be conducted for the proposed generators with results indicating any future generator installations and test schedules would not result in a carcinogenic health risk of more than 10 in 1 million. (LTS)

Implementation of Mitigation Measure AIR-2 would ensure that generators are located an appropriate distance from sensitive receptors in order to ensure that potential health risks for sensitive receptors in the project vicinity are less than significant. In the event that generators are proposed for locations within 200 feet of any residential uses, a health risk assessment would be required to demonstrate that

carcinogenic health risks would be less than significant, or the generator would need to be relocated to meet the 200-foot distance standard.

Cumulative Operational Health Risk Impacts. Additional sources of toxic air pollutants in the project vicinity were surveyed using the BAAQMD's stationary source permitting tool and roadway screening tool. Results of the generator health risk analysis, in addition to the cumulative health risk associated with roadways and stationary sources in the vicinity, are shown in Table IV.D-9.

As shown in Table IV.D-9, the cumulative health risk of all stationary sources and mobile sources would be less than the BAAQMD's cumulative health and hazard thresholds. Therefore, residents in the vicinity of the project site would not be exposed to significant cumulative health risk impacts during operation of the project.

Table IV.D-9: Stationary Sources and Roadways within 1,000 feet of the Project Site

Emission Source	Risk (in one million)	Hazard Index	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Napa County (proposed generator)	9.02	0.008	0.039
Napa County (proposed generator)	9.02	0.008	0.039
Napa County (existing generator)[a]	1.66	0.007	0.005
Napa County (existing generator)[a]	4.84	0.008	0.039
Limpic's Custom Woodworks	0.00	0.000	0.000
State Route 29	14.83	0.131	0.150
Cumulative Source Totals	**39.37**	**0.162**	**0.272**
BAAQMD Cumulative Threshold	**100.00**	**10.000**	**0.800**
Exceed (Yes/No)	**No**	**No**	**No**

[a] Per BAAQMD guidance, risk levels were adjusted using the BAAQMD's Cancer Risk and Chronic Hazard Index Distance Adjustment Multiplier for Diesel IC Engines to account for the dispersion of pollutants from the source to the maximum exposed individual receptor.

Source: BAAQMD and LSA Associates, Inc., 2012.

(4) Conflict With or Obstruct Implementation of the Current Air Quality Plan. The applicable air quality plan is BAAQMD's 2010 Clean Air Plan, which was adopted on September 15, 2010. The Clean Air Plan is a comprehensive plan to improve Bay Area air quality and protect public health. The Clean Air Plan defines a control Strategy to reduce emissions and ambient concentrations of air pollutants; safeguard public health by reducing exposure to air pollutants that pose the greatest heath risk, with an emphasis on protecting the communities most heavily affected by air pollution; and reduce greenhouse gas emissions to protect the climate. Consistency with the Clean Air Plan can be determined if the project does the following: 1) supports the goals of the Clean Air Plan; 2) includes applicable control measures from the Clean Air Plan; and 3) would not disrupt or hinder implementation of any control measures from the Clean Air Plan. The following discusses the project's consistency with the Clean Air Plan, under both the Existing Site Option and Expanded Site Option.

1) Does the project support the goals of the Clean Air Plan?

The primary goals of the 2010 Bay Area Clean Air Plan are to: attain air quality standards; reduce population exposure to air pollutants and protect public health in the Bay Area; and reduce greenhouse gas emissions and protect the climate. As indicated in the analysis above and in Section IV.E, the proposed project would not exceed the BAAQMD's significance criteria for air pollutants or green-

house gas emissions. The proposed project would not hinder the region from attainment of the goals outlined in the 2010 Clean Air Plan.

2) Does the project include applicable control measures from the Clean Air Plan?

Transportation and Mobile Source Control Measures. The BAAQMD identifies control measures as part of the Clean Air Plan to reduce ozone precursor emissions from stationary, area, mobile, and transportation sources. The transportation control measures are designed to reduce emissions from motor vehicles by reducing vehicle trips and vehicle miles traveled (VMT) in addition to vehicle idling and traffic congestion. The proposed project would not conflict with the identified transportation and mobile source control measures of the Clean Air Plan. Moreover, the proposed project is an infill project likely to encourage alternatives to single-occupancy vehicles. The project site has access to transit service (Route 1A, 1B, 5A, and 5B) and is slated for several Class II Bike Lanes per the Napa County Bicycle Plan.[22] Bicycle parking is provided on site and will remain so under the proposed project.

Additionally, Napa County's Health and Human Services Agency offers several incentives to employees. To encourage the formation of vanpools, the County offers cash incentives for new vanpool drivers and new backup vanpool drivers. The County also runs an Emergency Ride Home Program. The County's Emergency Ride Home Program provides a free taxi or rental car ride home in emergencies.[23]

Land Use and Local Impact Measures. The BAAQMD's 2010 Clean Air Plan includes Land Use and Local Impacts Measures (LUMs) to achieve the following: promote mixed-use, compact development to reduce motor vehicle travel and emissions; and ensure that planned growth is focused in a way that protects people from exposure to air pollution from stationary and mobile sources of emissions. The LUMs identified by the BAAQMD are not specifically applicable to the proposed project as they relate to actions the BAAQMD will take to reduce impacts from goods movement and health risks in affected communities. The measures also detail new regulatory actions the BAAQMD will undertake related to land use, including the updated *CEQA Air Quality Guidelines* for which this project will comply and indirect source review, which is still under development by the BAAQMD. However, the project is an infill development with access to transit, bicycle facilities and car sharing incentives and would thus reduce motor vehicle use compared to similar development. While the project would not be "mixed-use," in the traditional sense of having retail below residential. The project would contain complementary uses to the office development such as a child care center and commercial kitchen. These would likely reduce the need for vehicle travel, as employees and visitors could obtain services on site. Additionally, the project would be close to its intended service population, who could access transit or walk as opposed to a personal vehicle. The project would not conflict with any of the Land Use and Local Impact Measures of the Bay Area 2010 Clean Air Plan.

Energy Measures. The BAAQMD's 2010 Clean Air Plan also includes Energy and Climate Control Measures (ECM), which are designed to reduce ambient concentrations of criteria pollutants and reduce emissions of CO_2. Implementation of these measures is intended to promote energy conservation and efficiency in buildings throughout the community, promote renewable forms of

[22] Napa County Transportation Authority, 2012. *Countywide Bicycle Plan*.

[23] Metropolitan Transportation Commission, 2012. *511 SF Bay: Commute Rewards-County Rewards*. Website: rideshare.511.org/rewards/county_benefits.aspx (accessed June 18, 2012).

energy production, reduce the "urban heat island" effect by increasing reflectivity of roofs and parking lots, and promote the planting of (low-VOC-emitting) trees to reduce biogenic emissions, lower air temperatures, provide shade, and absorb air pollutants. The energy measures of the Clean Air Plan are not specifically applicable to the proposed project. However the project would implement energy measures as the BAAQMD and local governments (i.e., the County of Napa) adopt the BAAQMD's energy measures as regulations. The project would incorporate green measures such as day-lighting and shading strategies, natural ventilation, energy efficient mechanical systems, use of recycled materials, and water saving plumbing fixtures.

3) Would the project disrupt or hinder implementation of any control measures from the Clean Air Plan?

The project would develop uses on an in-fill site which is consistent with the vision of the CAP. Control measures included in the plan include stationary source measures, transportation control measures, mobile source measures, land use and local impact measures, and energy and climate measures. The stationary source measures are not applicable to the proposed project as the measures are related to activities such as metal-melting facilities, open burning, livestock waste, and refineries which are not included as part of the project. Therefore, the project would not hinder implementation of these measures. As discussed above, the project would implement the applicable transportation, mobile source, land use and local impact, and energy control measures and would not hinder implementation of these measures. Therefore, the proposed project would not hinder or disrupt implementation of any control measures from the Clean Air Plan.

(5) Objectionable Odors. During construction, the various diesel powered vehicles and equipment in use on-site would create localized odors. These odors would be temporary and are not likely to be noticeable for extended periods of time beyond the project site. The potential for diesel odor impacts is therefore considered less than significant. Odors from existing uses are not generally noticeable beyond the site boundary. The proposed uses that would be developed within the project site would be similar to existing uses with the addition of open space and are not expected to produce any offensive odors that would result in frequent odor complaints.