3.3 Air Quality

Environmental Setting

PHYSICAL SETTING

Climate and Meteorology

While the primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted from those sources, meteorological conditions and topography are also important factors. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. Unique geographic features throughout the state define fifteen air basins with distinctive regional climates. The air quality study area for the proposed Plan is located in the Livermore Valley area of eastern Alameda County within the San Francisco Bay Area Air Basin (SFBAAB).

The Livermore Valley is a sheltered inland valley near the eastern border of SFBAAB. The western side of the valley is bordered by 1,000- to 1,500-foot hills with two gaps connecting the valley to the central SFBAAB, the Hayward Pass and Niles Canyon. The eastern side of the valley is also bordered by 1,000- to 1,500-foot hills with one major passage to the San Joaquin Valley called the Altamont Pass and several secondary passages. To the north lie the Black Hills and Mount Diablo. A northwest to southeast channel connects the Diablo Valley to the Livermore Valley. The south side of the Livermore Valley is bordered by mountains approximately 3,000 to 3,500 feet high.

During the summer months, when there is a strong inversion with a low ceiling, air movement is weak and pollutants become trapped and concentrated. Maximum summer temperatures in the Livermore Valley range from the high-80s to the low-90s, with extremes in the 100s. At other times in the summer, a strong Pacific high pressure cell from the west, coupled with hot inland temperatures causes a strong onshore pressure gradient which produces a strong, afternoon wind. With a weak temperature inversion, air moves over the hills with ease, dispersing pollutants.

In the winter, with the exception of an occasional storm moving through the area, air movement is often dictated by local conditions. At night and early morning, especially under clear, calm, and cold conditions, gravity drives cold air downward. The cold air drains off the hills and moves into the gaps and passes. On the eastern side of the Livermore Valley, the prevailing winds blow from north, northeast and east out of the Altamont Pass. Winds are light during the late night and early morning hours. Winter daytime winds sometimes flow from the south through the Altamont Pass

to the San Joaquin Valley. Average winter maximum temperatures range from the high-50s to the low-60s, while minimum temperatures are from the mid-to-high-30s, with extremes in the high teens and low-20s.

Air pollution potential is high in the Livermore Valley, especially for photochemical pollutants in the summer and fall. High temperatures increase the potential for ozone to build up. The valley not only traps locally generated pollutants but can be the receptor of ozone and ozone precursors from San Francisco, Alameda, Contra Costa, and Santa Clara counties. On northeasterly wind flow days, most common in the early fall, ozone may be carried west from the San Joaquin Valley to the Livermore Valley.

During the winter, the sheltering effect of the Livermore Valley, its distance from moderating water bodies, and the presence of a strong high pressure system contribute to the development of strong, surface-based temperature inversions. Pollutants such as carbon monoxide and particulate matter, generated by motor vehicles, fireplaces, and agricultural burning, can become concentrated. Air pollution problems could intensify because of population growth and increased commuting to and through the subregion (Bay Area Air Quality Management District, 2017).

Pollutants of Concern

Criteria Air Pollutants

Concentrations of ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and particulate matter (PM) are commonly used as indicators of ambient air quality conditions. These pollutants are known as "criteria pollutants" and are regulated by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (ARB) through national and California ambient air quality standards (NAAQS and CAAQS), respectively. Ozone and NO_2 are considered regional pollutants because they (or their precursors) affect air quality on a regional scale. Pollutants such as CO, SO_2, and lead are considered local pollutants that tend to accumulate in the air locally. PM10 and PM2.5 are both regional and local pollutants.

The primary criteria pollutants of concern in the plan area are ozone (including its precursors, nitrogen oxides [NO_X] and reactive organic gases [ROG][1]), CO, and PM. Principal characteristics surrounding these pollutants are discussed below.

- **Ozone**, or smog, is a photochemical oxidant that is formed when ROG and NO_X (both by-products of the internal combustion engine) react with sunlight. Ozone poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Additionally, ozone has been tied to crop damage, typically in the form of stunted growth and premature death. Ozone can also act as a corrosive, resulting in property damage such as the degradation of rubber products.

[1] ROG is synonymous with volatile organic compounds (VOC), which is commonly used to describe compound limits for architectural coatings such as paint.

- **Reactive Organic Gases** are compounds made up primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROG are emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Negative effects on human health are not caused directly by ROG, but rather by reactions of ROG to form secondary pollutants such as ozone.
- **Nitrogen Oxides** serve as integral participants in the process of photochemical smog production. The two major forms of NO_X are nitric oxide (NO) and NO_2. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen (O_2) when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown gas formed by the combination of NO and oxygen. NO_X acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.
- **Carbon Monoxide** is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. The primary negative health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.
- **Particulate Matter** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two categories of fine particulates are regularly measured – inhalable coarse particulate matter less than 10 microns in diameter, or PM10, and inhalable fine particulate matter less than 2.5 microns diameter, or PM2.5. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind on arid landscapes also contributes substantially to local particulate loading. Both PM10 and PM2.5 may negatively affect the human respiratory system, especially for those people who are naturally sensitive or susceptible to breathing problems. Diesel Particulate Matter (DPM) is the solid particulate matter in diesel exhaust emitted by the combustion of diesel fuel; more than 90 percent of DPM is less than one micron in diameter and so DPM is a subset of PM2.5.

Toxic Air Contaminants

Although NAAQS and CAAQS have been established for criteria pollutants, no ambient standards exist for toxic air contaminants (TACs). Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, the ARB has consistently found no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. The California Office of Environmental Health Hazard Assessment (OEHHA) identifies TACs and studies their toxicity.

Air toxics are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, auto body shops, and combustion sources; mobile sources, such as motor vehicles, diesel trucks, ships, and trains; and area sources, such as farms, landfills, and construction sites. Negative health effects of TACs can be carcinogenic (cancer-causing), short-term (acute) noncarcinogenic, and long-term (chronic) noncarcinogenic. Direct exposure to these pollutants

has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders.

The primary TACs of concern associated with the proposed Plan are fine particulate matter (PM2.5) and DPM. Exposure to these pollutants is strongly associated with mortality, respiratory diseases, and lung development in children, and other endpoints such as hospitalization for cardiopulmonary disease (San Francisco Department of Public Health, 2008). ARB identified DPM as a TAC based on evidence demonstrating cancer effects in humans (ARB, 1998). The estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other TAC routinely measured in the Planning Area, especially in the areas within a half-mile radius of the future BART Station located in the I-580 median at Isabel Avenue.

Asbestos is also a TAC of concern, particularly in association with demolition of older buildings and structures. Asbestos is a fibrous mineral, which is both naturally occurring in ultramafic rock (a rock type commonly found in California) and used as a processed component of building materials. Because asbestos has been proven to cause serious adverse health effects, including asbestosis and lung cancer, it is strictly regulated based on its natural widespread occurrence and its former use as a building material. Geological mapping in California does not indicate the presence of naturally occurring asbestos in the City of Livermore (California Department of Conservation, 2000).

Existing Air Quality Conditions

Local Criteria Pollutant Monitoring Data

A number of ambient air quality monitoring stations are located in SFBAAB to monitor progress toward air quality standards attainment of NAAQS and CAAQS. There are two monitoring stations in the City of Livermore: the Rincon Avenue and Patterson Pass monitoring stations. The Rincon Avenue monitoring station is located at 793 Rincon Avenue and is less than one mile from the southeastern boundary of the Planning Area. Recent air quality monitoring results from the Rincon Avenue station are summarized in Table 3.3-1. The data represent air quality monitoring for the last 3 years for which a complete dataset is available (2014 to 2016).

Table 3.3-1. Ambient Air Quality Monitoring Data from Livermore 793 Rincon Avenue Monitoring Station[a]

Pollutant Standards	*2014*	*2015*	*2016*
Ozone (O_3)			
Maximum 1-hour concentration (ppm)	0.093	0.105	0.102
Maximum 8-hour concentration (ppm)	0.080	0.081	0.085
Number of days standard exceeded[b]			
CAAQS 1-hour (>0.09 ppm)	0	1	2
CAAQS 8-hour (>0.070 ppm)	7	7	6
NAAQS 8-hour (>0.070 ppm)	6	7	4
Carbon Monoxide (CO)			
Maximum 8-hour concentration (ppm)	1.1	1.3	1.0
Maximum 1-hour concentration (ppm)	1.4	1.4	1.2
Number of days standard exceeded[b]			
NAAQS 8-hour (≥9 ppm)	0	0	0
CAAQS 8-hour (≥9.0 ppm)	-	-	-
NAAQS 1-hour (≥35 ppm)	0	0	0
CAAQS 1-hour (≥20 ppm)	-	-	-
Nitrogen Dioxide (NO_2)			
State maximum 1-hour concentration (ppb)	48	49	41
State second-highest 1-hour concentration (ppb)	48	45	37
Annual average concentration (ppb)	10	10	8
Number of days standard exceeded[b]			
CAAQS 1-hour (180 ppb)	0	0	0
Particulate Matter (PM10)			
National[c] maximum 24-hour concentration (μg/m^3)	40.8	22.5	18.7
National[c] second-highest 24-hour concentration (μg/m^3)	29.4	21.9	18.6
State[d] maximum 24-hour concentration (μg/m^3)	42.5	24.0	19.0
State[d] second-highest 24-hour concentration (μg/m^3)	31.0	23.0	19.0
National annual average concentration (μg/m^3)	7.3	6.7	6.2
State annual average concentration (μg/m^3)[e]	14.1	13.1	11.5
Measured number of days standard exceeded[b,f]			
NAAQS 24-hour (>150 μg/m^3)	0	0	0
CAAQS 24-hour (>50 μg/m^3)	0	0	0
Particulate Matter (PM2.5)			
National[g] maximum 24-hour concentration (μg/m^3)	42.9	31.1	22.3
National[g] second-highest 24-hour concentration (μg/m^3)	33.2	31.0	19.6
State[h] maximum 24-hour concentration (μg/m^3)	42.9	31.1	22.3
State[h] second-highest 24-hour concentration (μg/m^3)	33.2	31.0	19.6
National annual average concentration (μg/m^3)	7.6	8.8	7.4
State annual average concentration (μg/m^3)	*	8.8	7.5

Table 3.3-1. Ambient Air Quality Monitoring Data from Livermore 793 Rincon Avenue Monitoring Station[a]

Pollutant Standards	*2014*	*2015*	*2016*
Measured number of days standard exceeded[b]			
NAAQS 24-hour (>35 μg/m^3)	1	0	0

Notes:

Ppm = parts per million

NAAQS = National Ambient Air Quality Standards

CAAQS = California Ambient Air Quality Standards

μg/m^3 = micrograms per cubic meter

mg/m^3 = milligrams per cubic meter

- = data not available

* = insufficient data available to determine the value

a Data for Carbon Monoxide (CO) and Particulate Matter (PM10) were unavailable from the Rincon Avenue Monitoring Station. Consequently, CO and PM10 monitored data presented are taken from the Concord Monitoring Station at 2956-A Treat Boulevard, which is the next nearest monitoring station located (approximately 20 miles north of the Planning Area in Contra Costa County) that monitors these two pollutants.

b An exceedance is not necessarily related to a violation of the standard.

c National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

d State statistics are based on approved local samplers and local conditions data.

e State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

f Measurements usually are collected every 6 days.

g National statistics are based on samplers using federal reference or equivalent methods.

h State statistics are based on local approved samplers.

Source: California Air Resources Board 2016a U.S. Environmental Protection Agency 2017a.

As indicated in Table 3.3-1, the Rincon Avenue monitoring station has experienced occasional violations of State and federal air quality standards during this time period. In particular, the 1-hour and 8-hour CAAQS for ozone were exceeded a total of 3 and 20 days, respectively, from 2015 to 2016, while the 8-hour NAAQS for ozone was exceeded a total of 17 days during this period. For PM10, both the 24-hour CAAQS and NAAQS were not exceeded from 2014 to 2016. Also during this time period, the 24-hour NAAQS for PM2.5 was exceeded a total of one day, and the 1-hour CAAQS for NO2 was not exceeded.

TAC Inventory

The Bay Area Air Quality Management District (BAAQMD) maintains an inventory of health risks associated with all permitted stationary sources within the SFBAAB. The inventory was last updated in 2012 and is publicly available in Google Earth format. Table 3.3-2 and Figure 3.3-1 summarize the stationary sources located in and within 1,000 feet of Planning Area boundary. Risk values presented in the table are measured from the source fenceline and would dissipate as a function of

distance from the source.[2] Some of the sources may be removed or relocated as a result of development supported by the proposed Plan.

Aside from stationary sources, emissions of TACs in and around the Planning Area are also generated from mobile sources. BAAQMD considers roadways with greater than 10,000 average daily traffic (ADT) as "high volume roadways" and recommends they be included in the analysis of health risks. Currently, roadways that traverse the Planning Area that have ADT greater than 10,000 vehicles include I-580, Isabel Avenue, Airway Boulevard, Portola Avenue, and North Canyons Parkway. Of these roadways, the segment of Interstate 580 (I-580) that runs through the Planning Area represents the greatest mobile source of TACs (primarily DPM from diesel-powered vehicles) due to the high volume of vehicles that travel on the freeway on a daily basis. Within the Planning Area, the segments of I-580 located west and east of Junction Route 84 have annual average daily traffic volumes of 192,000 and 205,000, respectively (California Department of Transportation, 2015). According to BAAQMD's screening tools, lifetime cancer risk 10 feet north of the segment of I-580 that traverses the Planning Area may exceed 389 cases per million (Bay Area Air Quality Management District, 2011; Lau pers. comm.).

[2] BAAQMD updated their risk assessment guidelines in 2016 to use more conservative exposure parameters and age sensitivity factors, as recommended by OEHHA. BAAQMD has not updated their Google Earth inventory to account for these updated parameters. Modeling indicates that the new parameters increase health risks by a factor of about 1.3, relative to risks modeled using previous guidance (Lau pers. comm.). Accordingly, the values presented in Table 3.3-2 have been adjusted to reflect OEHHA's and BAAQMD's updated health risk assessment guidelines.

Table 3.3-2. Health Risk Inventory for Stationary Sources in and within 1,000 Feet of the Planning Area

Source Name	*Location*	*Cancer Risk*[a]	*Hazard Index*	*PM2.5 Concentration (ug/m^3)*
Pearl Investment Co, LLC	Within Planning Area	17.5	<0.1	<0.1
Bernard's Shell	Within Planning Area	53.8	0.1	NA
Costco Wholesale	Within Planning Area	184.3	0.2	NA
Zone 7 Water Agency	Within Planning Area	<0.1	<0.1	<0.1
Comcast Cable	Within Planning Area	<0.1	<0.1	<0.1
Operating Engineers Federal Credit Union #3	Within Planning Area	<0.1	<0.1	<0.1
Las Positas College	Within Planning Area	ND	ND	ND
Chabot Las Positas Community College District	Within Planning Area	<0.1	<0.1	<0.1
Livermore Municipal Water – Airway Pump Station	Within Planning Area	<0.1	<0.1	<0.1
Livermore Auto Group	Within Planning Area	ND	ND	ND
Lam Research	Within Planning Area	<0.1	<0.1	<0.1
Las Positas Golf Course	Within 1,000 feet of Planning Area	ND	ND	ND
Portola Food and Liquor	Within 1,000 feet of Planning Area	7.5	<0.1	NA

Notes:
NA = Not Applicable
ND = No Data
a Risks have been adjusted by a factor of 1.3744 to reflect OEHHA's and BAAQMD's updated health risk assessment guidelines (Lau pers. comm.).

Source: Bay Area Air Quality Management District 2012a, Kirk, pers. comm.

Attainment Status

Local monitoring data collected by the ambient air quality monitoring stations, such as the aforementioned Rincon Avenue station (Table 3.3-1), are used to designate areas as nonattainment, maintenance, attainment, or unclassified for NAAQS and CAAQS. The four designations are further defined as:

- **Nonattainment.** Assigned to areas where monitored pollutant concentrations violate the standard in question.
- **Maintenance.** Assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- **Attainment.** Assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- **Unclassified.** Assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 3.3-3 summarizes the attainment status for Alameda County with regard to NAAQS and CAAQS.

Table 3.3-3. Federal and State Attainment Status for Alameda County

Criteria Pollutant	*Federal Designation*	*State Designation*
O_3 (8-hour)	Marginal Nonattainment	Nonattainment
CO	Maintenance (P)	Attainment
PM10	Attainment	Nonattainment
PM2.5	Attainment	Nonattainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(No Federal Standard)	Attainment
Hydrogen Sulfide	(No Federal Standard)	Unclassified
Visibility Reducing Particles	(No Federal Standard)	Unclassified

Notes:
CO = carbon monoxide
PM10 = particulate matter less than or equal to 10 microns
PM2.5 = particulate matter less than or equal to 2.5 microns
NO_2 = nitrogen dioxide
SO_2 = sulfur dioxide
(P) = designation applies to a portion of the county (the Livermore-portion of the County is considered a Maintenance area)

Source: California Air Resources Board, 2017; U.S. Environmental Protection Agency 2017b.

Sensitive Receptors

The NAAQS and CAAQS apply at publicly accessible areas, regardless of whether those areas are populated. For the purposes of air quality analysis, sensitive land uses are defined as locations where human populations, especially children, seniors, and sick persons, are located, and where there is reasonable expectation of continuous human exposure according to the averaging period for the air quality standards (e.g., 24-hour, 8-hour, and 1-hour). Typical sensitive receptors include residences, hospitals, and schools. Currently, the Planning Area is developed primarily with industrial and commercial uses, with the main existing sensitive uses consisting of the multi-family residential uses located in the northern portion of the Planning Area, north of Portola Avenue and west of Campus Hill Drive. The proposed Plan would add additional sensitive receptors into the Planning Area, including 4,095 housing units. Of these housing units, approximately 86 percent would be located within a half-mile radius of the future BART Station located in the I-580 median at Isabel Avenue.

State law restricts the siting of new schools within 500 feet of a freeway, urban roadways with 100,000 vehicles/day, or rural roadways with 50,000 vehicles/day, unless dispersion modeling is performed that shows students will not be exposed to significant short- or long-term health risks. ARB has published advisory recommendations on siting new sensitive land uses, with the same guidelines as the State school limitation (California Air Resources Board, 2005).

REGULATORY SETTING

Air quality regulation in the United States is governed by the federal Clean Air Act (CAA). In addition to being subject to requirements of the CAA, air quality in California is also governed by more stringent regulations under the California Clean Air Act (CCAA). At the federal level, the CAA is administered by the EPA. In California, the CCAA is administered by the ARB and by air districts at regional and local levels. The CAA and CCAA set overall air quality standards that are achieved by various rules and regulations at the regional and local level. This section describes relevant federal, State, and local regulations applicable to the proposed Plan.

Federal Regulations

Clean Air Act

The CAA, first enacted in 1963, has been amended numerous times (1965, 1967, 1970, 1977, and 1990). The CAA establishes federal air quality standards, known as NAAQS, and specifies future dates for achieving compliance. The CAA also mandates that the State submit and implement a State Implementation Plan (SIP) for local areas not meeting those standards. The SIPs must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA identify specific emission-reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. The sections of the CAA most applicable to the proposed Plan are Title I (Nonattainment Provisions) and Title II (Mobile-Source Provisions).

Table 3.3-4 shows the NAAQS currently in effect for each criteria pollutant. The CAAQS (discussed below) are included for reference.

Table 3.3-4. Federal and State Ambient Air Quality Standards

			National Standards[a]	
Criteria Pollutant	*Average Time*	*California Standards*	*Primary*	*Secondary*
Ozone	1-hour	0.09 ppm	None[b]	None[b]
	8–hour	0.070 ppm	0.070 ppm	0.070 ppm
Particulate matter (PM10)	24-hour	50 μg/m^3	150 μg/m^3	150 μg/m^3
	Annual mean	20 μg/m^3	None	None
Fine particulate matter (PM2.5)	24-hour	None	35 μg/m^3	35 μg/m^3
	Annual mean	12 μg/m^3	12.0 μg/m^3	15 μg/m^3
Carbon monoxide	8-hour	9.0 ppm	9 ppm	None
	1-hour	20 ppm	35 ppm	None
Nitrogen dioxide	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm
	1-hour	0.18 ppm	0.100 ppm	None
Sulfur dioxide[c]	Annual mean	None	0.030 ppm	None
	24-hour	0.04 ppm	0.014 ppm	None
	3-hour	None	None	0.5 ppm
	1-hour	0.25 ppm	0.075 ppm	None
Lead	30-day Average	1.5 μg/m^3	None	None
	Calendar quarter	None	1.5 μg/m^3	1.5 μg/m^3
	3-month average	None	0.15 μg/m^3	0.15 μg/m^3
Sulfates	24-hour	25 μg/m^3	None	None
Visibility reducing particles	8-hour	–[d]	None	None
Hydrogen sulfide	1-hour	0.03 ppm	None	None
Vinyl chloride	24-hour	0.01 ppm	None	None

Notes:

Ppm = parts per million.
μg/m^3 = micrograms per cubic meter.

a National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

b The federal 1-hour standard of 12 parts per hundred million was in effect from 1979 through June 15, 2005. The revoked standard is referenced because it was employed for such a long period and is a benchmark for State Implementation Plans.

c The annual and 24-hour NAAQS for SO_2 only apply for 1 year after designation of the new 1-hour standard to those areas that were previously in nonattainment for 24-hour and annual NAAQS.

d CAAQS for visibility-reducing particles is defined by an extinction coefficient of 0.23 per kilometer—visibility of 10 miles or more due to particles when relative humidity is less than 70 percent.

Source: California Air Resources Board 2016b.

State Regulations

California Clean Air Act

In 1988, the State legislature adopted the CCAA, which established a statewide air pollution control program. The CCAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the federal CAA, the CCAA does not set precise attainment deadlines. Instead, the CCAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. CAAQS are generally more stringent than the NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. The CAAQS and NAAQS standards are listed together in Table 3.3-4.

ARB and the local air districts bear responsibility for achieving California's air quality standards, which are to be achieved through district-level air quality management plans that would be incorporated into the SIP. In California, EPA has delegated authority to prepare SIPs to ARB, which, in turn, has delegated that authority to individual air districts. ARB has traditionally established State air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs.

The CCAA substantially adds to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA also emphasizes the control of "indirect and area-wide sources" of air pollutant emissions. The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures (TCMs).

State Tailpipe Emission Standards

ARB established a series of increasingly strict emission standards for new off-road diesel equipment, on-road diesel trucks, and harbor craft. New construction equipment used for future development under the proposed Plan, including heavy duty trucks and off-road construction equipment, would be required to comply with the standards.

Toxic Air Contaminant Regulations

California regulates TACs (equivalent to hazardous air pollutants at the federal level) primarily through the Toxic Air Contaminant Identification and Control Act (Tanner Act) and the Air Toxics "Hot Spots" Information and Assessment Act of 1987 ("Hot Spots" Act). In the early 1980s, ARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Tanner Act created California's program to reduce exposure to air toxics. The "Hot Spots" Act supplements the Tanner Act by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

In August 1998, ARB identified DPM from diesel-fueled engines as TACs. In September 2000, ARB approved a comprehensive Diesel Risk Reduction Plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce DPM (respirable particulate matter) emissions and the associated health risk by 75 percent in 2010 and by 85 percent by 2020. The plan identifies 14 measures that ARB will implement over the next several years.

Future development under the proposed Plan would be required to comply with applicable diesel control measures.

Local Regulations

Air quality districts have local responsibility in overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required by CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and State air quality laws and for ensuring that NAAQS and CAAQS are met.

The air quality study area falls under the jurisdiction of the BAAQMD. Under the CCAA, BAAQMD is required to develop an air quality plan for nonattainment criteria pollutants in the air district. The 2001 San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard was prepared to address ROG and NO_X emissions following the region's nonattainment designation for the 1-hour ozone NAAQS. The Bay Area 2017 Clean Air Plan, adopted by BAAQMD on April 19, 2017, provides an integrated control strategy to reduce ozone, PM, TACs, and greenhouse gas (GHG) emissions in a manner that is consistent with federal and State air quality programs and regulations. BAAQMD also adopted a redesignation plan for CO in 1994. The redesignation plan includes strategies to ensure the continuing attainment of NAAQS for CO in SFBAAB.

The BAAQMD's CEQA Guidelines document provides guidance to assist lead agencies in determining the level of significance of project-related emissions, and contain thresholds of significance for ozone, CO, PM10, PM2.5, TACs, and odors (BAAQMD, 2017). According to BAAQMD's CEQA Guidelines, project emissions that exceed the recommended threshold levels are considered potentially significant and should be mitigated where feasible. BAAQMD guidance also indicates that the potential air quality effects of long range plans, including general and specific plans, should be evaluated based on the plan's consistency with the District's most current air quality plan, which is the recently adopted 2017 Bay Area Clean Air Plan. The analysis should consider whether the long range plan supports the primary goals of the applicable air quality plan, including applicable control measures from the air quality plan, or hinders attainment of any of the air quality plan's control measures (BAAQMD, 2017). Although BAAQMD's CEQA Guidelines are intended to help lead agencies navigate through the CEQA process, the BAAQMD indicates that the guidelines for implementation of its significance thresholds are advisory only and should be followed by local governments at their own discretion. Nonetheless, BAAQMD's proposed thresholds are supported by substantial evidence and are well-grounded in air quality regulations, scientific evidence, and scientific reasoning concerning air quality and GHG emissions. BAAQMD's 2010 Justification Report, found in Appendix D of BAAQMD's May 2017 CEQA Guidelines, explains the agency's reasoning and provides substantial evidence for developing and adopting their thresholds.

Future development under the proposed Plan may be subject to one or more of the following district rules, depending on the specific components of the individual project. These rules have been adopted by BAAQMD to reduce emissions throughout the area.

- **Regulation 2, Rule 2 (New Source Review).** This regulation contains requirements for Best Available Control Technology and emission offsets.
- **Regulation 2, Rule 5 (New Source Review of Toxic Air Contaminants).** This regulation outlines guidance for evaluating TAC emissions and their potential health risks.
- **Regulation 6, Rule 1 (Particulate Matter).** This regulation restricts emissions of PM darker than No. 1 on the Ringlemann Chart to less than 3 minutes in any 1 hour.
- **Regulation 6, Rule 3 (Wood Burning Devices).** This regulation restricts wood burning devices in all new development constructed after November 1, 2016.
- **Regulation 7 (Odorous Substances).** This regulation establishes general odor limitations on odorous substances and specific emission limitations on certain odorous compounds.
- **Regulation 8 (Organic Compounds).** This regulation limits the quantity of organic compounds (e.g., ROG) from various applications and process, including in architectural coatings and commercial cooking equipment and at gasoline dispensing facilities. The regulation outlines 53 rules based on the source type.
- **Regulation 9 (Inorganic Gaseous Pollutants).** This regulation limits emissions of inorganic gaseous pollutants (e.g., NO_X) generated by various sources, including natural gas-fired boilers and stationary internal combustion engines. The regulation outlines 14 rules based on the source type.
- **Regulation 11, Rule 2 (Asbestos Demolition, Renovation and Manufacturing).** This rule controls emissions of asbestos to the atmosphere during demolition, renovation, milling and manufacturing and establishes appropriate waste disposal procedures.

City of Livermore General Plan

The Open Space and Conservation Element of the City of Livermore General Plan addresses air quality as a natural resource and identifies policies to protect and improve this resource (City of Livermore, 2004). It includes a goal and accompanying objective and policies to protect and improve Livermore's air quality by minimizing air pollutant emissions through controlling construction-period air pollution, prohibiting the location of sensitive receptors in the vicinity of toxic emissions generators and vice versa, reducing commuting rates, and promoting mass transit.

3.3.2 Impact Analysis

SIGNIFICANCE CRITERIA

Implementation of the proposed Plan would have a potentially significant adverse impact if it would:

Criterion 1: Conflict with or obstruct implementation of the applicable air quality plan.

Criterion 2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Criterion 3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).

Criterion 4: Expose sensitive receptors to substantial pollutant concentrations.

Criterion 5: Create objectionable odors affecting a substantial number of people.

Supplemental Criteria Pollutant Guidance

As discussed above, BAAQMD has provided guidance to assist lead agencies in determining the significance of criteria pollutant emissions. This analysis evaluates the impacts of the proposed Plan using a two-tiered approach that considers both project- and plan-level guidance recommended by BAAQMD in their CEQA Guidelines (2017).

First, this analysis considers whether the proposed Plan would conflict with the most recent air quality plan (2017 Clean Air Plan), consistent with BAAQMD Guidance (2017). The analysis evaluates whether the proposed Plan supports the primary goals of the 2017 Clean Air Plan, include applicable control measures from the 2017 Clean Air Plan, and whether it would disrupt or hinder implementation of any 2017 Clean Air Plan control measure.

Second, calculated criteria pollutant emissions are compared to BAAQMD's project-level thresholds. The ROG, NO_X, and PM thresholds are based on emissions levels identified under the New Source Review (NSR) program. The NSR program is a permitting program that was established by Congress as part of the CAA Amendments to ensure that air quality is not significantly degraded by new sources of emissions. The NSR program requires stationary sources receive permits before starting construction or use of the equipment. By permitting large stationary sources, the NSR program assures that new emissions would not slow regional progress toward attaining NAAQS. BAAQMD has concluded that the stationary pollutants described under the NSR program are equally significant to those pollutants generated with land use projects. BAAQMD's thresholds identified in Table 3.3-5 were set as the total emission thresholds associated within the NSR program to help attain NAAQS. (Bay Area Air Quality Management District, 2017).

Table 3.3-5. Project-Level Emission Thresholds

Analysis	*BAAQMD*
Regional Criteria Pollutants (Construction)	ROG: 54 lbs/day NO_X: 54 lbs/day PM10: 82 lbs/day (exhaust only) PM2.5: 54 lbs/day (exhaust only)
Regional Criteria Pollutants (Operations)	ROG: Same as construction NO_X: Same as construction PM10: 82 lbs/day PM2.5: 54 lbs/day

Notes:
ROG = reactive organic gases
Lbs = pounds

Table 3.3-5. Project-Level Emission Thresholds

Analysis	*BAAQMD*
NO_X = nitrogen oxide	
PM10 = particulate matter that is 10 microns in diameter and smaller	
PM2.5 = particulate matter that is 2.5 microns in diameter and smaller	

Sources: Bay Area Air Quality Management District, 2017

According to the BAAQMD, projects with emissions in excess of the thresholds shown in Table 3.3-5 would be expected to have a significant impact on air quality because an exceedance of the thresholds is anticipated to contribute to CAAQS and NAAQS violations.

It should be noted that the BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project, and thus do not lend well to an evaluation of emissions from a land use plan being evaluated at a programmatic level. Large-scale land use plans that consist of numerous individual projects will, by their nature, produce more criteria pollutants than single projects, even if the plans include efficiency measures to reduce future emissions. Use of the project-level thresholds to evaluate land use plans may therefore unfairly penalize the plans, yielding a significant and unavoidable conclusion simply due to scale. However, because a comparison to the project-level thresholds is informative to the analysis of the proposed Plan's impacts to air quality, this analysis accounts for both sets of thresholds.

Supplemental Health Risk Guidance

As discussed in the Environmental Setting section above, all criteria pollutants are associated with some form of health risk (e.g., asthma, asphyxiation). Negative health effects associated with criteria pollutant emissions are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender]). Moreover, ozone precursors (ROG and NO_X) affect air quality on a regional scale. Health effects related to ozone, therefore, are the product of emissions generated by numerous sources throughout a region. Existing models have limited sensitivity to small changes in criteria pollutant concentrations, and as such, translating project-generated criteria pollutants to specific health effects would produce meaningless results. In other words, minor increases in regional air pollution from project-generated ROG and NO_X would have nominal or negligible impacts on human health.

Because localized pollutants generated by a project that could result from implementation of the proposed Plan can directly affect adjacent sensitive receptors, the analysis of impacts to human health focuses only on those localized pollutants with the greatest potential to result in a significant, material impact on human health. This analysis is consistent with the current state-of-practice and published guidance by BAAQMD (2017), California Air Pollution Control Officers Association (CAPCOA) (2009), OEHHA (2015), and ARB (2000). The pollutants of concern include (1) TACs and (2) localized CO. BAAQMD guidance and thresholds for each pollutant are identified below. A discussion of potential health effects from regional criteria pollutants is included under Impact 3.3-4 for informational purposes.

Toxic Air Contaminants

Potential health risks from development supported by the proposed Plan are assessed based on BAAQMD's plan-level guidance. BAAQMD (2017) requires that overlay zones be established around all existing and planned sources of TACs, including stationary sources, high-traffic roadways, and railways. The overlay zones must identify goals, policies, and objectives to minimize potential TAC impacts to existing and future receptors.

BAAQMD has established project-level thresholds for cancer and non-cancer health hazards from TAC.[3] The health risk thresholds defined by BAAQMD are the probability of contracting cancer for the maximally exposed individual (MEI) exceeding 10.0 in 1 million, or the ground-level concentrations of non-carcinogenic TACs resulting in a hazard index (HI) greater than 1.0 for the MEI. BAAQMD has also adopted an incremental concentration-based significance threshold to evaluate receptor exposure to PM2.5 exhaust, where a "substantial" contribution is defined as PM2.5 exhaust (diesel and gasoline) concentrations exceeding 0.3 $\mu g/m^3$.

With respect to asbestos, which is a TAC, there are no quantitative thresholds related to receptor exposure. However, BAAQMD requires the demolition or renovation of asbestos containing building materials to comply with the limitations of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations as listed in the Code of Federal Regulations.

Localized Carbon Monoxide

BAAQMD considers localized CO emissions to result in significant impacts if concentrations exceed CAAQS (Table 3.3-4). The air district has adopted screening criteria that provide a conservative indication of whether project-generated traffic will cause a potential CO hot spot. BAAQMD (2017) indicates that if the screening criteria are not met, a quantitative analysis through site-specific dispersion modeling of project-related CO concentrations would not be necessary and the project would not cause localized exceedances of CO CAAQS.

Screening criteria adopted by BAAQMD include quantitative criteria based on the number of additional vehicles added to affected intersections. These quantitative metrics were established based on local modeling and provide a conservative estimate for the maximum number of vehicles that can be added to an intersection without an exceedance of the CO CAAQS. BAAQMD CO screening criteria are summarized below.

1. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.

2. The project traffic 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

[3] DPM is the primary TAC of concern for mobile sources; of all controlled TACs, emissions of DPM are estimated to be responsible for approximately 70 percent of the total ambient TAC risk (California Air Resources Board 2000). Given the risks associated with DPM, tools and factors for evaluating human health impacts from project-generated DPM have been developed and are readily available. Conversely, tools and techniques for assessing project-specific health outcomes as a result of exposure to other TACs (e.g., benzene) remain limited. These limitations impede the ability to evaluate and precisely quantify potential public health risks posed by TAC exposure.

(e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

3. The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans.

Supplemental Odor Guidance

BAAQMD (2017) and ARB (2005) have identified several types of land uses as being commonly associated with odors, such as landfills, wastewater treatment facilities, and animal processing centers. BAAQMD's CEQA Guidelines recommend that plan-level analyses identify the location of existing and planned odor sources and include policies to reduce potential odors impacts in the plan area.

METHODOLOGY AND ASSUMPTIONS

This analysis focuses on the nature and magnitude of the change in the air quality environment due to implementation of the proposed Plan. Air pollutant emissions associated with the proposed Plan would result from operation of future land uses that would be developed in the Planning Area and from traffic volumes generated by these new developments. These emissions would not occur at once but over the course of the proposed Plan's buildout period. Construction activities would also generate air pollutant emissions within the Planning Area and on roadways resulting from construction-related traffic. For this analysis, impacts of the proposed Plan's criteria pollutant emissions on air quality from construction were assessed qualitatively, while emissions from the proposed Plan's operations were assessed quantitatively using standard and accepted software tools, techniques, and emission factors. The primary assumptions and key methods used to quantify emissions and estimate potential impacts are described below. Model inputs and calculation files are provided in Appendix B: Air Quality and Greenhouse Gas Data.

This analysis provides a program-level overview of construction and operational emissions that could occur with buildout of the proposed Plan. Subsequent project-level environmental review, including quantification of construction criteria pollutant emissions, would be required during the processing of individual applications for future projects associated with the proposed Plan.

Construction Emissions

Land uses that could be developed under the proposed Plan would generate construction-related emissions from mobile and stationary construction equipment exhaust, employee and haul truck vehicle exhaust, dust from land clearing, and application of architectural coatings. However, the specific size, location, and construction techniques and scheduling that would be utilized for each individual development project occurring within the Planning Area from implementation of the proposed Plan is not currently known. With an anticipated buildout year of 2040, development of the various land uses associated with the proposed Plan would occur over an extended period of time and would depend on factors such as local economic conditions, market demand, and other financing considerations. As such, without specific project-level details it is not possible to develop

a refined construction inventory.[4] Consequently, the determination of construction air quality impacts for each individual development project, or a combination of these projects, would require the City to speculate regarding such potential future project-level environmental impacts. Thus, in the absence of the necessary construction information required to provide an informative and meaningful analysis, the evaluation of potential construction-related impacts resulting from implementation of the proposed Plan is conducted qualitatively in this EIR. The analysis discusses the potential for future individual developments in the Planning Area to generate construction emissions that exceed BAAQMD's project-level thresholds and, where necessary, mitigation measures that are available to reduce those emissions.

Operational Emissions

Long-term (i.e., operational) regional emissions of criteria air pollutants and precursors, including mobile- and area-source emissions, were quantified for the proposed Plan using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. Mass mobile-source emissions were modeled based on the daily vehicle trips and vehicle miles traveled (VMT) data provided by Kittelson & Associates, the proposed Plan's traffic engineers, for the existing (2013) and proposed Plan buildout year (2040) conditions. VMT data for the proposed Plan account for trip reductions achieved by proposed policies that increase proximity to transit and mixed-use design.

Area and energy (natural gas) emissions were modeled according to the amount (i.e., square footage or number of dwelling units) and type of land uses proposed. Area sources account for direct sources of air emissions, and includes those generated from hearth (e.g., natural gas fireplaces) usage, consumer product use, landscape maintenance equipment, and architectural coatings used for the repainting of buildings. Energy sources account for emissions associated with the combustion of natural gas for building heating and hot water. Emissions were quantified for existing (2013) and proposed Plan buildout (2040) conditions based on current and anticipated land uses. CalEEMod defaults were assumed, with the exception of wood burning stoves and fireplaces, which were assumed to be prohibited for all new development under the proposed Plan per BAAQMD Regulation 6, Rule 3. Land use assumptions and CalEEMod output files can be found in Appendix B.

To evaluate the proposed Plan's potential operational air quality impacts, the increase in criteria pollutant emissions resulting from its implementation in the Planning Area over existing conditions is assessed against BAAQMD's project-level thresholds.

Carbon Monoxide Hot-Spots

Increased traffic in the Planning Area may contribute to localized increases in CO, known as CO "hot-spots." As discussed above, BAAQMD has adopted screening criteria that provide a conservative indication of whether traffic volumes will cause a potential CO hot-spot. Traffic data provided by the project engineers indicates that no intersections in the Planning Area would exceed BAAQMD's screening level of 24,000 vehicles per hour. However, consistency with the applicable congestion management plan could not be determined as intersections are not subject to the

[4] Project-level information includes details such as the size and scale of the project to be constructed, construction schedule, equipment fleet, construction worker crew estimates, and demolition and grading quantities.

Alameda County Transportation Commission's Congestion Management Plan. Accordingly, BAAQMD's screening criteria was not met and additional analysis of CO hot-spots through dispersion modeling is warranted to determine whether increased project traffic may contribute to a CO hot-spot at nearby intersections.

CO concentrations were modeled at Isabel Avenue/Airway Boulevard, Livermore Avenue/Portola Avenue, and Isabel Avenue/Jack London Boulevard. The intersections were selected by project engineers because they were identified as the intersections with the greatest impacts (i.e., highest traffic volumes). These intersections were analyzed using ARB's EMFAC2014 emissions factor model and CALINE4 dispersion model. Receptors were placed three meters from the traveled way and a standard receptor elevation of 1.8 meters was used (Garza et al. 1997). Worst-case wind angles and meteorological conditions were modeled to estimate conservative CO concentrations at each receptor. Maximum monitored 1- and 8-hour CO values between 2014 and 2016 (see Table 3.3-8) were averaged to obtain background concentrations that account for sources of CO not included in the modeling. Eight-hour modeled values were calculated from the 1-hour values using a persistence factor of 0.7.

IMPACTS

Impact 3.3-1 Implementation of the proposed Plan would not conflict with or obstruct implementation of the applicable air quality plan. *(Less than significant)*

The CAA requires that an SIP or an air quality control plan be prepared for areas with air quality violating the NAAQS. The SIP sets forth the strategies and pollution control measures that states will use to attain the NAAQS. The CCAA requires attainment plans to demonstrate a five percent per year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. Air quality attainment plans (AQAPs) outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date. The current AQAP for the SFBAAB is BAAQMD's 2017 Clean Air Plan, which provides an integrated strategy to control ozone, PM, TACs, and GHG emissions. This and other previous AQAPs estimate future emissions in the SFBAAB and determine strategies necessary for emissions reductions through regulatory controls. Emissions projections are based on population, vehicle, and land use trends typically developed by BAAQMD, the Metropolitan Transportation Commission, and ABAG. As the proposed Plan would establish a new regulatory framework that would replace the existing land use designations of the City's existing General Plan as well as the zoning regulations of the Livermore Development Code to guide private and public development within the Planning Area over the next 20 to 25 years, the population and employment growth that would occur in the Planning Area could potentially be inconsistent with the growth estimates used in formulating the emissions limits and control measures of the 2017 Clean Air Plan.

According to BAAQMD's (2017) CEQA Guidelines, the determination of AQAP consistency should consider the following for plan-level analyses:

4. Does the plan support the primary goals of the air quality plan?
5. Does the plan include applicable control measures from the air quality plan?

6. Does the plan disrupt or hinder implementation of any air quality plan control measures?

Support of 2017 Clean Air Plan Goals

The primary goals of the 2017 Clean Air Plan are to attain air quality standards, reduce population exposure and protect public health in the Bay Area, and reduce GHG emissions and protect the climate. In line with the Clean Air Plan, one of the primary objectives of the proposed Plan is to position the BART to Livermore extension project to qualify and compete for regional transportation funds through supporting transit ridership. In support of this objective, implementation of the proposed Plan is intended to support regional goals of integrating transit and land use policies to create opportunities for transit-oriented development around the proposed BART station and other transit nodes throughout Livermore; alleviate traffic congestion on I-580; improve air quality; and reduce GHGs and other emissions associated with automobile use. Through implementation of specific policies in line with these objectives and goals, the proposed Plan would reduce emissions and support regional attainment of the CAAQS and NAAQS.

The proposed Plan also identifies environmental sustainability as a key design guideline that would be applied to all projects in the Planning Area. It stipulates that the defining characteristics of development in the Planning Area should include environmentally-sensitive design that incorporates green building techniques and protects natural resources. Some of the various environmentally-sensitive design guidelines and standards include maximizing natural cooling and passive solar heating through building placement and orientation, orienting building windows and balconies to maximize solar access, using vegetation to shade buildings to limit direct solar gain and glare, using plantings on building exteriors to insulate and cool interiors, installing solar panels and/or solar hot water systems to reduce energy demands, selecting sustainable building and paving materials, and using building materials and products that minimize exposure to VOCs and other known toxins to support healthy indoor air quality.

With implementation of the proposed Plan, per capita emissions in the Planning Area in 2040 would be lower than forecasted for the Planning Area under the 2017 Clean Air Plan without the proposed Plan, as the 2017 Clean Air Plan would not have assumed the sustainability policies and transit-oriented development patterns that would be implemented under the proposed Plan. Reductions in per capita emissions would further help the region attain the ambient air quality standards.

Based on the above analysis, the proposed Plan would support the primary goals of the 2017 Clean Air Plan. All relevant proposed Plan policies that would support the 2017 Clean Air Plan goals are provided further below.

Applicable Control Measures

The 2017 Clean Air Plan contains 85 control measures aimed at reducing air pollution in the SFBAAB from a wide variety of emission sources. The control measures are classified for the following nine general sectors: (1) Stationary Sources; (2) Transportation; (3) Energy; (4) buildings; (5) Agriculture; (6) Natural and Working Lands; (7) Waste Management; (8) Water; and (9) Super-GHG Pollutants. Table 3.3-6 presents the control measures of the 2017 Clean Air Plan that are applicable to the proposed Plan and how the proposed Plan complies with each of the measures.

As shown in Table 3.3-6, the proposed Plan includes policies and design standards that incorporate the primary purpose of each control measure from the 2017 Clean Air Plan.

As discussed above, the proposed Plan includes numerous policies that promote mixed-use and transit-oriented development along with sustainable, environmentally-sensitive design. The proposed Plan would not cause the disruption, delay, or otherwise hinder implementation of any applicable control measure from the 2017 Clean Air Plan. Rather, as shown in Table 3.3-6, the proposed Plan has incorporated many of the control measures identified in the 2017 Clean Air Plan related to the transportation, building, energy, waste, and water sectors into its policies for implementation. Accordingly, development under the proposed Plan would not fundamentally conflict with the 2017 Clean Air Plan and would result in a less-than-significant air quality impact.

Table 3.3-6. BAAQMD 2017 Clean Air Plan Control Measures Applicable to Proposed Plan

Clean Air Plan Control Measures		*Incorporation into Proposed Plan Policies*
Stationary Source		
SS20	Air Toxics Risk Cap and Reduction from Existing Facilities	Policies PENV-9 and P-ENV-10 outline requirements for projects within certain distances of existing stationary and roadway sources to install indoor air quality equipment, such as enhanced air filters or equivalent mechanisms, to minimize health risks to future residents.
SS25	Coatings, Solvents, Lubricants, Sealants and Adhesives	Design guideline DG-23 requires the selection of sustainable building materials, including non-toxic low-VOC (volatile organic compound) glues and paints. Policy P-ENV-14 requires the use of low VOC interior/exterior paints to reduce pollutant emissions.
SS26	Surface Prep and Cleaning Solvent	See above for SS25.
SS30	Residential Fan Type Furnaces	The Urban Design Chapter includes guidelines for sustainable and environmentally-sensitive building design. Design guideline DS-20 would maximize natural cooling and passive solar heating through building placement and orientation, which would reduce use of indoor cooling/heating equipment and their associated emissions.
SS31	General Particulate Matter Emission Limitation	Policy P-ENV-12 ensures construction activities would implement applicable BAAQMD BMPs to minimize air quality impacts. The support and promotion of transit-oriented development near the future BART station and the numerous polices in the circulation element designed to reduce VMT would reduce re-entrained road dust.
SS36	PM from Trackout	Policy P-ENV-12s ensures construction activities would implement applicable BAAQMD BMPs, including the removal of all visible mud or dirt track-out into adjacent public roads, to minimize air quality impacts.
Transportation		
TR1	Clean Air Teleworking Initiative	Policy P-TRA-24 requires businesses within a half-mile of the BART station to implement at least two TDM programs, which could include flexible work schedules, shortened work weeks, or options to telecommute.
TR2	Trip Reduction Programs	Support for transit-oriented development around the proposed BART station and other transit nodes throughout Livermore, along with numerous policies that promote mixed-use development and the provision of a street network consisting of trails, bike lanes, pedestrian crossings, and other facilities that supports a walkable street grid within proximity of the future BART station, would result in reduced vehicle trips.
TR3	Local and Regional Bus Service	The BART station area will be well-served by buses, with routes to destinations throughout Livermore, including Las Positas College, Downtown, national labs, and the Altamont Corridor Express (ACE) stations. Additionally, Policy P-TRA-22 calls for

Table 3.3-6. BAAQMD 2017 Clean Air Plan Control Measures Applicable to Proposed Plan

Clean Air Plan Control Measures		*Incorporation into Proposed Plan Policies*
		the formation of a Transportation Management Association (TMA) for the Isabel Neighborhood that would work with LAVTA and BART to alter or add bus routes and/or provide free shuttle service between the BART station and major destinations such as Las Positas College.
TR5	Transit Efficiency and Use	The majority of new development or redevelopment in the Planning Area are designated to occur within the half-mile radius – or walking distance – of the future BART station. To reduce dependency on vehicle travel and congestion on neighborhood, Policy P-TRA-21 requires the establishment of partnerships with transit operators, developers, technology providers, corporate shuttles, Transportation Network Companies, bike share operators, and other entities to enhance transit efficiency.
TR8	Ridesharing, Last-Mile Connection	Following opening of the future BART station, Policy P-TRA-24 requires businesses within a half-mile of the BART station to implement at least two of the following TDM programs, one of which could be carpool and vanpool ride-matching services.
TR9	Bicycle and Pedestrian Access and Facilities	Policies in the Circulation, Access, and Parking Chapter support the provision of a street network consisting of trails, bike lanes, pedestrian crossings, and other facilities that supports a walkable street grid within proximity of the future BART station that is safe and efficient for pedestrians and bicyclists.
TR10	Land Use Strategies	The project is intended to support regional goals of integrating transit and land use policies to create opportunities for transit-oriented development around the proposed BART station and other transit nodes throughout Livermore, which would reduce pollutant and GHG emissions.
TR13	Parking Policies	Circulation policies include implementation of TDM strategies, which include parking management. The management of parking supply would entail tracking parking demands and sizing parking to match demand while also considering the price, location, and design of parking facilities.
TR22	Construction, Freight and Farming Equipment	Policy P-ENV-13 requires the use of Tier 4 engines in off-road equipment, which would reduce pollutant emissions.
Energy		
EN1	Decarbonize Electricity Production	The Urban Design Chapter identifies some of the various environmentally-sensitive design guidelines and standards that would be used for new development in the Planning Area, which include maximizing natural cooling and passive solar heating through building placement and orientation, orienting building windows and balconies to maximize solar access, using vegetation to shade buildings to limit direct solar gain and glare, using plantings on building exteriors to insulate and cool interiors, and installing solar panels and/or solar hot water systems. These design guidelines and standards would reduce energy demands.

Table 3.3-6. BAAQMD 2017 Clean Air Plan Control Measures Applicable to Proposed Plan

Clean Air Plan Control Measures		*Incorporation into Proposed Plan Policies*
EN2	Decrease Electricity Demand	See above for EN1.
Building		
BL1	Green Buildings	See above for EN1. New development in the Planning Area would include environmentally-sensitive design that incorporates green building techniques.
BL2	Decarbonize Buildings	See above for EN1.
BL4	Urban Heat Island Mitigation	As part of the environmentally-sensitive design guidelines and standards that would be used for new development in the Planning Area, design guideline DG-26 calls for the incorporation of green roofs to manage storm water runoff and reduce energy consumption through insulation.
Natural and Working Lands		
NW2	Urban Tree Planting	Policy P-ENV-19 would promote the healthy growth of trees and control the removal of trees within the Planning Area through the City's Tree Protection Ordinance. Additionally design guideline DG-29 would promote the minimizing of paved area and other barriers to root growth to support the development of large healthy trees and tree canopies, consistent with the City's Standard Specifications on tree planting.
Waste Management		
WA1	Landfills	Policy P-PF-30 would require all new development in the Planning Area to participate in all City, County, and State diversion programs and construction regulations in effect at the time of issuance of building permits. Additionally, Policy P-PF-31 would require new development in the Planning Area to exceed the City's 75 percent waste diversion goal. Methods to achieve this goal include: • Design new development to make recycling, composting, and organic material collection as convenient as possible for residents, employees, and visitors. • Reduce the amount of solid waste that must be processed through implementation of recycling programs, composting, source reduction (such as packaging), purchasing policies, and manufacturing processes. • Continue to implement educational and outreach programs on available diversion programs and best practices. • Encourage businesses to participate in the Bay Area's Green Business Program. • Support the expansion of organics capacity in Alameda County and statewide.
WA2	Composting and Anaerobic Digesters	See above for WA1.

Table 3.3-6. BAAQMD 2017 Clean Air Plan Control Measures Applicable to Proposed Plan

Clean Air Plan Control Measures		*Incorporation into Proposed Plan Policies*
WA3	Green Waste Diversion	See above for WA1.
WA4	Recycling and Waste Reduction	See above for WA1.
Water		
WR2	Support Water Conservation	Various policies included in the Parks, Public Services, and Infrastructure Chapter, including Policies P-PF-35, P-PF-36, P-PF-37, P-PF-38, P-PF-39, and P-PF-40, would support water conservation by new development in the Planning Area.
Super-GHG		
SL1	Short-Lived Climate Pollutants	The promotion of transit-oriented development around the proposed BART Station would serve to reduce mobile-source emissions of GHGs. Policies that promote mixed-use development and the diversion of solid waste to landfills along with environmentally-sensitive design guidelines and standards that would be incorporated into new development in the Planning Area would reduce GHG emissions.

Proposed Plan Goals and Policies that Reduce the Impact

Land Use Chapter

P-LU-1: Establish a new Main Street through the center of the Planning Area that accommodates neighborhood-serving businesses and places for social gathering, and that helps create a sense of place for the Isabel Neighborhood.

P-LU-2: Require buildings on Main Street between Constitution Drive and Portola Avenue to provide active ground floor uses facing Main Street that are publicly accessible and that generate walk-in clientele.

P-LU-3: Establish a neighborhood-serving retail center anchored by a grocery store. This center shall:

- Be visible and accessible from the BART station and Main Street; and
- Incorporate a major public space such as a plaza or park.

P-LU-9: The location of the Ground Floor Retail/Flex Space Overlay on the BART property north of I-580 is diagrammatic only on Figure 2-1. As the Plan is implemented, the Overlay shall apply to all building frontages along the Isabel Path between the north end of the BART pedestrian bridge and Isabel Avenue.

P-LU-36: Pursue grant opportunities funds for transit-oriented development such as those using cap and trade.

P-LU-44: Help connect businesses to the BART station through existing and emerging transportation technologies.

Transportation Chapter

P-TRA-1: Create a walkable street grid within a half-mile radius of the BART station (Neighborhood core area).

- Block sizes within this area should range from 300-400 feet, with a maximum length of 600 feet. Where block lengths exceed 400 feet, mid-block crossings shall be installed.

P-TRA-3: Connect existing uses, new development, the Main Street, BART station, bus stops, parks, natural areas, Las Positas College, and other key destinations with sidewalks, pedestrian and bicycle trails, and bicycle facilities.

P-TRA-4: Create a continuous trail loop within the Isabel Neighborhood and links to the regional trail network outside of the Planning Area.

- Partner with LARPD and East Bay Regional Parks District and Alameda County to identify funding opportunities.

P-TRA-6: Provide pedestrian bridges and undercrossings to enhance the connectivity of the trail network and provide direct access to the BART station.

- Orient pedestrian bridges to be as short, direct, and visually unobstructed as possible.

P-TRA-7: Provide multiple safe bicycle and pedestrian crossings of I-580 within the Isabel neighborhood.

- Prioritize the construction of the I-580 crossing along Collier Canyon Creek.
- Ensure that the BART station pedestrian bridges are available for non-BART patron use when the station is open.

P-TRA-10: Provide bike parking areas at trailheads and major destinations and bicycle-signals at major intersections.

P-TRA-11: Incorporate traffic calming measures to slow vehicle speeds and increase the visibility of pedestrian crossings.

P-TRA-13: Require development to meet the on-site bicycle parking requirements listed in Table 3-4. Development applications shall show bicycle parking on site plans, including spaces to be provided within garages of individual dwelling units. Bicycle stalls shall meet the following requirements:

- Stalls shall be capable of supporting a bicycle in an upright or hanging position and enable a user to lock his bicycle to such a device.
- The areas containing stalls shall be surfaced with hardscape or paving.
- When located within a parking area, stalls shall be protected by curbs, fences, planter areas, bumpers, or similar barriers for the mutual protection of bikes, automobiles and pedestrians, unless deemed by the City to be unnecessary.
- Where required, "secured, covered" bicycle parking may include garages, lockers, storage rooms, or fenced areas with restricted access.
- Publicly accessible bicycle parking may include uncovered racks.

P-TRA-14: **Encourage** BART station infrastructure to be integrated into the Neighborhood's circulation and land use networks.

P-TRA-15: Prioritize pedestrian safety when designing roadways serving the BART station.

P-TRA-16: Support direct, comfortable, shaded, safe, visible, and well-lit walking paths between the BART platform and surrounding development.

P-TRA-17: Support the research, piloting, and deployment of emerging technologies and new services such as real-time parking availability signage, real-time bus arrival updates, and rideshare matching.

P-TRA-19: Employ a range of Transportation Demand Management (TDM) strategies to help make alternative modes of transportation as convenient, affordable, and safe as solo driving. Strategies include sponsored transit passes, parking cash-out programs, sponsored rideshare programs, bicycle commuter tax reimbursement, and bikeshare programs.

P-TRA-20: Design the street network to minimize cut-through vehicle traffic in residential areas.

P-TRA-21: Establish partnerships with transit operators, developers, technology providers, corporate shuttles, Transportation Network Companies, bike share operators, and other entities.

P-TRA-22: With the exception of Business Park users outside of the Core, require property owners, residents, and tenants to form a Transportation Management Association (TMA) for the Isabel Neighborhood. Required actions shall be determined by the TMA and may include but are not limited to the the following:

- Monitor and manage the vehicular and bicycle parking supply for all retail uses north of I-580, rather than on a project or site basis.
- Work with LAVTA and BART to alter or add bus routes and/or provide free shuttle service between the BART station and major destinations such as Las Positas College.
- Establish neighborhood-wide car-sharing and/or bike sharing programs.
- Implement programs for streetscape maintenance and beautification projects along Main Street, Pedestrian Streets, and Bike Streets.
-
- Implement informational campaigns using brochures, boards/kiosks, or other communication outlets.
- Provide technical support to businesses and homeowner associations in the implementation of TDM measures.
- Implement a wayfinding signage program for motorists, bicyclists, and pedestrians prior to construction of Phase 1.

P-TRA-23: Require Office and Business Park projects exceeding 15,000 square feet within a half-mile of the BART station to implement the following site design measures:

- Integration of passenger loading zones near the main building entrance on large sites;
- Access to electrical vehicle charging stations for 10 percent of residential parking spaces and two percent of commercial or industrial parking spaces;
- On-site showers and lockers for employees; and
- Preferential parking for carpools, vanpools, and low emission vehicles.

P-TRA-24: Following station opening, require businesses within a half-mile of the BART station to implement at least two of the following TDM programs (to be implemented through the initial Site Plan Design Review process for new development or through the Zoning Clearance process after construction):

- Parking cash-out for employees that do not drive to work.
- Transit passes (such as the Clipper Card) for employees.
- Car-sharing or bike-sharing program.
- Carpool and vanpool ride-matching services.
- Guaranteed ride home for transit users and car/vanpoolers.
- Flexible work schedules, shortened work weeks, or options to telecommute.

Parks, Public Facilities, and Infrastructure Chapter

P-PF-30: Require all new development to participate in all City, County, and State diversion programs and construction regulations in effect at the time of issuance of building permits.

P-PF-31: Work with residents, businesses, LARPD, and the City's franchise hauler to exceed the City's 75 percent waste diversion goal in the Isabel Neighborhood.

- Design new development to make recycling, composting, and organic material collection as convenient as possible for residents, employees, and visitors.
- Reduce the amount of solid waste that must be processed through implementation of recycling programs, composting, source reduction (such as packaging), purchasing policies, and manufacturing processes.
- Continue to implement educational and outreach programs on available diversion programs and best practices.
- Encourage businesses to participate in the Bay Area's Green Business Program.
- Support the expansion of organics capacity in Alameda County and statewide.

P-PF-36: Require new development to install water efficient appliances and fixtures such as low-flow faucets and toilets.

P-PF-37: Require new development to comply with State and City's mandatory water efficient landscape ordinance (WELO).

P-PF-38: Require new development within the Municipal Water service area to connect to the recycled water system and to use recycled water for landscape irrigation, if economically feasible.

P-PF-39: Allow the use of rainwater harvesting systems, consistent with regional permit requirements.

P-PF-40: Restaurants and others that discharge grease into the wastewater treatment system shall be required to reduce impacts through individual or collective pretreatment facilities.

P-PF-41: Design new streetscape and landscaped areas in the public right-of-way for stormwater management and the efficient use of water through:

- The installation of low-maintenance, drought-resistant plant palettes;
- Use of low-flow irrigation systems; and
- Use of bioswales and rain gardens in planting areas,curb extensions, and other green infrastructure

P-PF-42: Require new development to incorporate low impact landscape design, such as natural drainage systems and groundwater recharge features, consistent with stormwater permit requirements.

Environmental Resources Chapter

P-ENV-9: Require new residential projects and other new sensitive receptors such as schools, daycares, nursing and retirement homes located within 500 feet of I-580 to install indoor air quality equipment, such as high-efficiency particulate HEPA filters or equivalent mechanisms to minimize health risks for future residents.

P-ENV-10: Require proponents of projects within identified high risk Overlay Zones surrounding existing hazardous sites, roadways, or TAC sources to assess health risks at the location in question and to incorporate feasible design-related risk mitigation measures, such

as high-efficiency particulate air filters (HEPA filters) or equivalent indoor air quality equipment mechanisms, as appropriate.

P-ENV-11: Require new large commercial projects to prepare a loading plan aimed to minimize truck idling and reduce diesel particulate emissions related to truck loading.

P-ENV-12: Require construction projects to implement the following measures recommended by the BAAQMD, as applicable:

- 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 track-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). 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 visible emissions evaluator; and
- A visible sign with the telephone number and person to contact at the lead agency regarding dust complaints shall be posted. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

P-ENV-13: Require that applicants proposing development of projects within the Planning Area require contractors, as a condition of contract, to reduce construction-related exhaust emissions by ensuring that all off-road equipment greater than 50 horsepower (hp) shall operate on an EPA-approved Tier 4 or newer engine. Exemptions can be made for specialized equipment where Tier 4 engines are not commercially available within 200 miles of the project construction site. The construction contractor must identify these pieces of equipment, document their unavailability from at least two construction equipment rental firms, and ensure that they operate on no less than an EPA-approved Tier 3 engine.

P-ENV-14: Require that applicants proposing development of projects within the Planning Area require contractors, as a condition of contract, to reduce construction-related fugitive ROG emissions by ensuring that low-VOC coatings that have a VOC content of 10 grams/liter (g/L) or less be used during construction. All project applicants shall submit evidence of the use of low-VOC coatings to BAAQMD prior to the start of construction.

Urban Design Chapter

DS-8: Traffic-calming measures, such as zebra striping for crosswalks, speed tables, and bulb-outs shall be employed along the bus loop north of I-580.

DS-9: A pedestrian- and bicycle-only pathway shall be provided between the north end of the BART pedestrian bridge and the corner of Gateway Avenue and Main Street, crossing Isabel Avenue and passing through the Retail Center block (see Isabel Neighborhood Plan figures 5-4, 5-5, and 5-9 for a conceptual route of the "Isabel Path" and the applicable dimensions).

DS-10: The Isabel Path shall be designed to be as direct, flat, and visually unobstructed as possible to maximize accessibility and reduce the walking distance to and from the BART Station.

DS-11: The City shall coordinate with BART and the property owner/developer of the Retail Center block to determine the appropriate method for crossing Isabel Avenue along the Isabel Path. Considerations may include: grading, pedestrian safety, directness, utility relocation.

DS-13: The following pedestrian amenities shall be provided along the Isabel Path:

- Seating such as benches and terraced steps;
- Public art;
- Lighting;
- Drinking fountains;
- Trash/recycling receptacles; and
- Additional/specialty landscaping.

DS-26: Buildings shall be oriented such that frontages and entrances are visible and accessible from the public right-of-way, on-site common areas, pedestrian pathways, parks, and/or plazas.

DS-27: Site plans shall establish well-defined, accessible, direct, and well-lit pedestrian links between buildings, sidewalks, parking areas, trails, and any on-site or nearby public spaces such as bus stops and the BART station.

DS-28: Where possible, large-scale developments shall be broken up by pedestrian paths that connect to the street grid.

DS-58: Windows shall be operable to the extent possible, to allow natural ventilation and potentially eliminate the need for mechanical ventilation. If mechanical systems are necessary, energy-efficient and low emission heating, ventilation and air conditioning (HVAC) systems shall be used.

DS-81: A variety of site furnishings shall be considered and incorporated into site plans to promote a sense of comfortable outdoor living space for the pedestrian realm. Examples of such features include but are not limited to seating, freestanding planters, ornamental trash/recycling containers, cigarette ash receptacles, drinking fountains including pet basins, fountains or other water features, bollards, kiosks for information or artwork, sculptures, bicycle racks, and/or newspaper racks.

Mitigation Measures

None required.

Impact 3.3-2 Implementation of the proposed Plan would violate an air quality standard and contribute substantially to an existing or projected air quality violation during construction. (*Less than Significant with Mitigation*)

Construction associated with new land use developments under the proposed Plan would result in the temporary generation of ozone precursors (ROG, NO_X), CO, and particulate matter emissions that could result in short-term impacts on ambient air quality in the Planning Area. Emissions would originate from mobile and stationary construction equipment exhaust, employee and haul truck vehicle exhaust, land clearing, demolition, architectural coatings, and asphalt paving. Construction-related emissions would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

By its nature as a specific plan, the proposed Plan does not propose any specific development projects. Rather, construction of new land use developments allowable under the Plan would occur intermittently in the Planning Area throughout the course of the buildout period. As the timing and intensity of future development projects is not known at this time, the precise effects of construction activities associated with buildout of the Planning Area cannot be accurately quantified at this time. While the details of future development within the Planning Area are currently unknown, since development would be driven by market forces and private applicants, it is known that implementation of the proposed Plan ultimately would result in the net new development of 4,095 multi-family residential dwelling units, and 2,104,200 square feet of non-residential development at buildout in 2040. As such, it is anticipated that in any given year, multiple land use development projects would be constructed within the Planning Area.

As noted previously, the BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project. While the construction emission impacts associated with each new individual development would be short-term in nature (relative to the buildout year) and limited to the period of time when construction activity is taking place for that particular development, the concurrent construction of a multitude of individual development projects that could occur at any one time in the Planning Area under the proposed Plan would generate combined criteria pollutant emissions on a daily basis that would exceed BAAQMD's project-level thresholds. Additionally, depending on the size and scale of an individual development project, along with its construction schedule and other parameters, there may also be instances where the daily construction emissions generated by a single development project in the Planning Area could also exceed BAAQMD's criteria pollutant thresholds. As such, construction emissions generated in the Planning Area by implementation of the proposed Plan would result in a potentially significant impact on air quality.

During construction of a development project, the activity that typically generates the highest NO_X and PM exhaust emissions is the operation of off-road equipment, whereas the activity that typically generates the highest ROG emissions is the application of architectural coatings. Under Policy P-LU-61 of the proposed Plan, the use of Tier 4 engines for off-road equipment to reduce NOx and PM exhaust emission levels and use of low-VOC paints to reduce ROG emission levels would be required during construction activities in the Planning Area. Additionally, while the BAAQMD

considers fugitive PM10 and PM2.5 dust emissions significant without the application of standard best management practices (BMPs), Policy P-LU-60 of the proposed Plan would require construction projects in the Planning Area to implement BMPs as recommended by the BAAQMD to reduce these fugitive dust emissions. Thus, the implementation of BMPs under Policy P-LU-60 for each development project in the Planning Area would reduce fugitive PM10 and PM2.5 emissions to less-than-significant levels for the proposed Plan.

However, with respect to ROG, NOx and PM10 and PM2.5 exhaust emissions, there could be foreseeable conditions under the proposed Plan where the amount of construction activity for an individual development project, or a combination of these projects, could result in the generation of these pollutant emissions that exceed their respective BAAQMD significance thresholds (54 pounds/day for ROG and NOx, 82 pounds per day for exhaust PM10, and 54 pounds/day for exhaust PM2.5). As such, Mitigation Measures AQ-1 and AQ2, which require off-road equipment to utilize renewable diesel and for all on-road diesel trucks used for construction activities to have 2010 model year or newer engines, respectively, are recommended to further reduce NOx and other criteria pollutant levels associated with construction activities occurring under the proposed Plan. Nonetheless, even with implementation of Mitigation Measures AQ-1 and AQ-2 in addition to Policy P-LU-61, emissions of ROG, NOx, PM10, and PM2.5 exhaust may not be reduced to levels below BAAQMD's thresholds when multiple construction projects are concurrently ongoing in the Planning Area. Accordingly, additional mitigation would be required to reduce these emissions impacts to a less-than-significant level. Pursuant to Mitigation Measure AQ-3, the City would be required to track all land use development construction activities occurring in the Planning Area, assess and determine the estimated total emissions for all construction activities that would be concurrently ongoing, and determine the mitigation fees for each development project's applicant to pay on a pro rata basis to BAAQMD to offset their pollutant emissions as necessary such that BAAQMD's daily pollutant thresholds would not be exceeded. Thus, Mitigation Measure AQ-3 would ensure that the construction-related impacts of the proposed Plan on air quality would be reduced to a less-than-significant level.

Proposed Plan Goals and Policies that Reduce the Impact

Policies P-ENV-9, P-ENV-10, P-ENV-11, and P-ENV-12, as listed under Impact 3.3-1.

Mitigation Measures

MM-AQ-1: Require Construction Fleet to Use Renewable Diesel. All applicants proposing development of projects within the Planning Area shall require their contractors, as a condition of contract, to reduce construction-related exhaust emissions by ensuring that all off-road equipment operating for more than 20 total hours over the entire duration of construction activities shall operate on renewable diesel (such as Diesel high performance renewable). Renewable diesel is currently commercially available in San Francisco Bay Area.

MM-AQ-2: Require Use of Diesel Trucks with 2010-Compliant Model Year Engines. All applicants proposing development of projects within the Planning Area shall require their contractors, as a condition of contract, to use diesel trucks that have 2010 model year or newer engines. In the event that 2010 model year or newer diesel trucks cannot be obtained, the contractor must provide documentation to the City showing that a good faith effort to locate such engines was conducted.

MM- AQ-3: Require Payment of Mitigation Fees to Offset Emissions Exceeding BAAQMD's Daily Pollutant Thresholds. The City shall work with BAAQMD's Office of Community Investment and Infrastructure (OCII) to establish City-specific construction emissions offset guidance that can be implemented to assess, determine, and issue mitigation fees that project applicants would be required to pay BAAQMD on a pro rata basis for all concurrently ongoing construction projects in the Planning Area to offset all pollutant emissions exceeding BAAQMD's daily pollutant thresholds. The offset fees will be paid into BAAQMD's Bay Area Clean Air Foundation (Foundation) in an amount to be determined at the time of mitigation. This mitigation (AQ-3) does not apply **if builder/contractor documents show they will not exceed BAAQMD's daily pollutant threshold.** This mitigation includes the following specific requirements:

- For all construction projects occurring in the Planning Area, the applicants for each project shall require their construction contractors to estimate annual construction activity monitoring data for the following year. All applicants shall submit their estimated construction-related emissions to the City for review by November 1 of each year for the following construction year.
- The City shall review all received construction estimates to ensure they are representative, total the emissions estimates for all construction projects that had activities that would be ongoing during the following construction year, and determine the total mitigation fee that would need to be submitted to BAAQMD to fund offsets for the portion of annual emissions that exceed BAAQMD's average daily thresholds for criteria pollutants.
- In light of the total mitigation fee that was determined, and based on the construction emission amounts submitted by each applicant, the City shall appropriate the mitigation fee amount that would need to be submitted by each project applicant on a pro rata basis. The City shall issue the required mitigation fee amounts to each applicable project applicant.
- Upon receiving the City's assigned mitigation fee amount, the applicants shall enter into a construction mitigation contract with BAAQMD to submit their apportioned mitigation fees.

Impact 3.3-3 Implementation of the proposed Plan would violate an air quality standard and contribute substantially to an existing or projected air quality violation during operation. (*Significant and unavoidable*)

Buildout of the Planning Area under the proposed Plan has the potential to result in air quality impacts from mobile, area, and energy sources. Mobile sources would include vehicle trips generated by land uses proposed within the Planning Area. Area sources would include hearth usage, landscaping equipment, off-gassing during the reapplication of architectural coatings, and consumer products (e.g., solvents, cleaning supplies, cosmetics, toiletries). Energy sources would include onsite natural gas combustion for space and water heating. Each of these sources was taken into account in calculating the proposed Plan's long-term operational emissions, which were quantified using CalEEMod model.

Table 3.3-7 summarizes daily mobile, area, and energy source emissions generated under existing (2013) and 2040 conditions with the proposed Plan. To evaluate the magnitude of the change in the

air quality environment due to implementation of the proposed Plan, the emissions under the proposed Plan at buildout in 2040 are compared to the emissions under existing conditions, and the resulting net increase in emissions is compared to BAAQMD's project-level thresholds.

As indicated in Table 3.3-7, operational sources under the proposed Plan would result in a net increase in criteria pollutant emissions of PM10 and PM2.5 that exceeds BAAQMD's project-level thresholds, while emissions of ROG, NOx, and CO under the proposed Plan would not exceed BAAQMD's project-level thresholds. It should be noted that a net reduction in emissions of both NOx and CO would occur under the proposed Plan when compared to existing conditions, which is primarily attributed to the continued improvement in mobile source emissions in California over time due to vehicle fleet turnover and the implementation of more advanced vehicle technologies, including lower emission fuels.

While vehicle fleet turnover and improved vehicle technologies over time would also result in a reduction of PM10 and PM2.5 exhaust emissions, the fugitive PM10 and PM2.5 emissions generated by vehicle travel on roadways would still occur and would not receive the same emissions reduction benefits because those emissions are dependent on miles traveled by vehicles. Because full buildout of the proposed Plan in 2040 would result in an increase of total VMT over existing conditions, the fugitive PM10 and PM2.5 emissions from on-road travel by vehicles would also increase over existing conditions. While fugitive PM10 and PM2.5 emissions made up approximately 94 and 81 percent of the total mobile source PM10 and PM2.5 emissions, respectively, under existing conditions, both the fugitive PM10 and PM2.5 emissions each made up 99 percent of the total mobile source PM10 and PM2.5 emissions, respectively, under the proposed Plan at buildout. These results indicate that exhaust emissions of PM10 and PM2.5 in 2040 would decline as a result of the benefits from vehicle fleet turnover and the implementation of more advanced vehicle technologies.

The emissions shown in Table 3.3-7 accounts for mobile source emission benefits achieved by Plan policies that increase proximity to transit and mixed-used design. These policies reduce per capita VMT, although total VMT, when compared with existing (2013) conditions, are projected to increase with the proposed Plan due to greater population and employment growth.

As discussed above, BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project and so offer an extremely conservative evaluation of emissions from an entire specific plan. Accordingly, operational air quality impacts of the proposed Plan are also evaluated for consistency with the 2017 Clean Air Plan to determine whether criteria pollutant emissions attributed to population and economic growth are significant. Impact 3.3-1 provides the 2017 Clean Air Plan consistency analysis based on the requirements of BAAQMD's 2017 CEQA Guidelines. The analysis demonstrates that the proposed Plan would support the goals of the 2017 Clean Air Plan, include all applicable control measures, and would not conflict with its implementation.

While the proposed Plan would reduce the severity of growth-oriented criteria pollutants by locating uses in proximity to transit (i.e., the future Isabel Avenue BART station), fostering bicycle and pedestrian infrastructure, and supporting sustainable land use patterns, including mixed-use design and increased density, individual projects may still generate emissions in excess of

BAAQMD's project-level thresholds. Accordingly, operational criteria pollutant emissions associated with development under the proposed Plan are conservatively identified as significant.

Table 3.3-7. Estimated Maximum Daily Unmitigated Operational Emissions for the Proposed Plan (pounds per day)

Analysis Condition/Source	*ROG*	*NOx*	*CO*	*PM10*	*PM2.5*
Existing (2013)					
Area	152	9	116	1	1
Energy	3	29	23	2	2
Mobile	363	1,948	4,209	576	179
Total	*517*	*1,985*	*4,348*	*580*	*182*
2040 With Proposed Plan					
Area	426	34	442	5	5
Energy	7	67	51	5	5
Mobile	120	1,070	1,417	950	257
Total	*553*	*1,170*	*1,910*	*960*	*267*
Net Increase with Proposed Plan					
2040 With Proposed Plan vs. Existing	35	(815)	(2,438)	380	85
Threshold[a]	54	54	-	82	54
Exceed Threshold?	No	No	-	**Yes**	**Yes**

Note: Emission outputs from CalEEMod are generated for both the summer and winter seasons, with emission levels differing slightly for the pollutants in each season. Emission levels of ROG and NOx tend to be generally higher during the winter while emissions of CO tend to be generally higher in the summer. Emissions of PM10 and PM2.5 remain the same during both seasons. The maximum emissions for each pollutant over the course of the summer and winter seasons are shown in this table.

a. BAAQMD's project-level thresholds were developed to analyze emissions generated by a single project and so offer an extremely conservative evaluation of emissions from an entire specific plan such as the proposed Plan.

Source: ICF, 2018.

The proposed Plan includes numerous policies to reduce VMT and associated mobile sources. As shown in Table 3.3-7, mobile sources would contribute the majority of emissions that would exceed BAAQMD's PM10 and PM2.5 thresholds. Because the proposed Plan's mobile-source emissions are generated from passenger vehicles that are not regulated at the City level, there are no feasible mitigation measures available that can be implemented by the City to reduce these PM10 and PM2.5 emissions. Accordingly, operational sources under the proposed Plan would result in a significant and unavoidable air quality impact associated with PM10 and PM2.5 emissions.

Proposed Plan Goals and Policies that Reduce the Impact

Refer to policies, design standards, and design guidelines identified under Impact 3.3-1.

Mitigation Measures

No feasible mitigation measures are available.

Impact 3.3-4 Implementation of the proposed Plan would result in a cumulatively considerable net increase of a criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors). (*Significant and unavoidable*)

Regional air pollution is by nature a cumulative impact, as emissions from past, present, and future projects contribute to unfavorable air quality on a cumulative basis. No single project by itself would be sufficient in size to result in regional nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative negative air quality impacts. As discussed above, BAAQMD has identified project-level thresholds to evaluate impacts to air quality (Table 3.3-5). The thresholds have been adopted to prevent further deterioration of ambient air quality, which is influenced by emissions generated by projects within a specific air basin. The project-level thresholds, therefore, consider relevant past, present, and reasonably foreseeable future projects within SFBAAB. For example, as noted in BAAQMD's (2017) CEQA Guidelines,

> In developing thresholds of significance for air pollutants, BAAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. 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. Therefore, additional analysis to assess cumulative impacts is unnecessary.

As discussed above, BAAQMD's project-level thresholds do not lend themselves well to the analysis of specific plans. Rather, it is more appropriate to evaluate planning-level documents for their consistency with the most recently adopted AQAP, which is the 2017 Clean Air Plan for the SFBAAB. As discussed under Impact AQ 3.3-1, the proposed Plan would support the goals of BAAQMD's 2017 Clean Air Plan, include all applicable control measures, and would not conflict with its implementation. The comprehensive suite of proposed Plan policies would ultimately reduce the severity of growth-oriented criteria pollutants, relative to conditions without the proposed Plan.

Individual development projects may still generate construction emissions in excess of BAAQMD's project-level thresholds, Implementation of Mitigation Measures AQ-1 through AQ-3 would ensure that the construction-related impacts of the proposed Plan on air quality would be reduced to a less-than-significant level. However, operational sources under the proposed Plan would result in a significant and unavoidable and cumulatively considerable air quality impact associated with PM10 and PM2.5 emissions.

Health Implications of Regional Criteria Pollutants[5]

High levels of criteria pollutants are associated with various forms of health risk (e.g., asthma, irregular heartbeat). Adverse health effects associated with criteria pollutant emissions are highly

[5] As noted previously under the "Supplemental Health Risk Guidance" heading in Section 3.3.2 (Impact Analysis) of this EIR, the discussion of potential health effects from regional criteria pollutants is provided for informational purposes. The analysis of impacts to human health from the proposed Plan focuses on the localized pollutants with the

dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender]). Moreover, ozone precursors (ROG and NO_X) affect air quality on a regional scale. Health effects related to ozone are therefore the product of emissions generated by numerous sources throughout a region.

EPA develops and considers quantitative characterizations of exposures and associated risks to human health and the environment, known as the Health Risk and Exposure Assessment (HREA). The HREA estimates population exposure to and resulting mortality and morbidity health risks associated with the full range of observed pollutant concentrations, as well as incremental changes in exposures and risks associated with ambient air quality adjusted to meet the existing NAAQS. However, existing models have limited sensitivity to small changes in criteria pollutant concentrations and, as such, translating project-generated criteria pollutants to specific health effects would produce meaningless results. In other words, increases in regional air pollution from project-generated ozone precursors (ROG and NO_X) would have no effect on specific human health outcomes that could be attributed to specific project emissions. Other criteria pollutant emissions, including CO, PM10, and PM2.5, generally affect air quality on a localized scale. Health effects related to localized pollutants are the product of localized sources and emissions generated by numerous sources throughout a region. Certain air quality models, particularly dispersion models, have the ability to translate project-generated localized pollutants to specific health effects. Refer to Impacts 3.3-5 and 3.3-6 for an analysis of health risks related to PM and CO.

As shown in Table 3.3-7, land uses developed under the proposed Plan would increase emissions of ROG, which is an ozone precursor. Emissions of ROG generated by buildout of the proposed Plan could increase photochemical reactions and the formation of tropospheric ozone, which, at certain concentrations, could lead to respiratory symptoms (e.g., coughing), decreased lung function, and inflammation of airways. Although these health effects are associated with ozone, the impacts are a result of cumulative ROG emissions throughout the Bay Area. Accordingly, the incremental contribution of development supported by the proposed Plan to specific health outcomes related to criteria pollutant emissions would be limited. It is also important to note that growth-related emissions associated with the proposed Plan would not occur immediately and all at once, but would instead occur incrementally over time as regional air quality improves and regulations to reduce emissions take effect.

Proposed Plan Goals and Policies that Reduce the Impact

Refer to policies, design standards, and design guidelines identified under Impact 3.3-1.

Mitigation Measures

MM- AQ-1: Require Construction Fleet to Use Renewable Diesel. Refer to Impact 3.3-2.

MM-AQ-2: Require Use of Diesel trucks with 2010-compliant Model Year Engines. Refer to Impact 3.3-2.

---

greatest potential to result in a significant, material impact on human health, which is consistent with the current state-of-practice and published guidance by entities such as BAAQMD, CAPCOA, OEHHA, and ARB. The pollutants of concern include TACs and localized CO, which are analyzed under Impacts 3.3-5 and 3.3-6.

MM-AQ-3: Require Payment of Mitigation Fees to Offset Emissions Exceeding BAAQMD's Daily Pollutant Thresholds. Refer to Impact 3.3-2.

Impact 3.3-5 Implementation of the proposed Plan would expose sensitive receptors to substantial pollutant concentrations from new sources of toxic air containments. (*Significant and unavoidable*)

Asbestos

Demolition of existing structures results in particulates that may disperse to adjacent sensitive receptor locations. ACM were commonly used as fireproofing and insulating agents prior to the 1970s. The U.S. Consumer Product Safety Commission banned use of most ACM in 1977 due to their link to mesothelioma. However, buildings constructed prior to 1977 that would be demolished by the development supported by the proposed Plan may have used ACM and could expose receptors to asbestos, which may become airborne with other particulates during demolition.

All demolition activities would be subject to EPA's asbestos NESHAP if asbestos is present at the existing facilities. The asbestos NESHAP regulations protect the public by minimizing the release of asbestos fibers during activities involving the processing, handling, and disposal of ACM. The asbestos NESHAP regulations for demolition and renovation are outlined in BAAQMD Regulation XI, Rule 11-2. Consequently, regulatory mechanisms exist that would ensure that impacts from ACM, if present during demolition under the proposed Plan, would be less than significant.

Diesel Particulate Matter and PM2.5

In a recent court case, the California Supreme Court held that lead agencies are not required to analyze the impacts of the environment on a project's future users or residents, unless the project exacerbates existing environmental hazards (see *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369) or when the legislature has indicated by specific California Public Resources Code sections (21096, 21151.8, 21155.1, 21159.21, 21159.22, 21159.23, and 21159.24) that specifically define environmental hazards associated with airport noise and safety, school projects, certain kinds of infill housing, and transit priority projects must be addressed. The proposed Plan, which would guide future development of the area surrounding the future Isabel Avenue BART station in Livermore, is intended to support regional goals of integrating transit and land use policies to create opportunities for transit-oriented development. As the future BART station would be located in the I-580 median at Isabel Avenue, the proposed Plan would bring future land uses and associated sensitive receptors in proximity to roadways that are major source of TAC emissions. Additionally, certain land use types (e.g., residential mixed use) proposed under the proposed Plan may introduce emission sources (e.g., generators) that would exacerbate existing environmental TAC hazards while also siting a sensitive receptor that may be exposed to the exacerbated existing TAC hazard. Accordingly, this EIR considers both potential effects of plan development on existing receptors, as well as effects of the environment on the proposed Plan.

Operational Health Risks

BAAQMD's CEQA Guidelines (2017) suggest that specific plans establish overlay zones around existing and proposed land uses that emit TACs. Table 3.3-2 inventories existing stationary sources within and in proximity to the Planning Area. Three of these sources individually exceed

BAAQMD's project-level thresholds.[6] The values presented in Table 3.3-2 are conservatively estimated based on the distance to the closest residential receptor, and have been adjusted to reflect OEHHA's and BAAQMD's updated health risk assessment guidelines.

As discussed previously, I-580, Isabel Avenue, Airway Boulevard, Portola Avenue, and North Canyons Parkway currently have ADT in excess of 10,000 ADT. Health risks adjacent to these roadways are summarized in Table 3.3-8.

Table 3.3-8. Health Risks from Major Roadways (ADT >10,000) Located In and Within 1,000 Feet of the Planning Area In Excess of BAAQMD Project-Level Thresholds[a]

Source Name	*Location*	*Cancer Risk[b]*	*Chronic Hazard*	*PM2.5 Concentration*
I-580	Within Plan Area	389.4	0.3	2.1
Airway Boulevard	Along Plan Area Boundary	27.7	<0.1	0.2
Isabel Avenue	Within Plan Area	40.1	0.0	0.6
Portola Avenue	Within Plan Area	18.8	0.0	0.3
North Canyon Parkway	Within Plan Area	22.9	0.0	0.3
BAAQMD Project-Level Threshold		10.0	1.0	0.3
BAAQMD Cumulative Threshold		100	10.0	0.8

Notes:
a. Risks have been adjusted by a factor of 1.3744 to reflect OEHHA's and BAAQMD's updated health risk assessment guidelines (Lau pers. comm.)
b. Health risk values are at a distance of 10 feet from the roadway.

Source: Bay Area Air Quality Management District, 2011.

As implementation of the proposed Plan ultimately would result in the net new development of 4,095 multi-family residential dwelling units, and 2,104,200 square feet of non-residential development in the Planning Area at buildout in 2040, the increase in vehicle traffic from the proposed Plan would generate additional vehicle-related TACs (including DPM and other TACs) on the local roadways located within and near the Planning Area and increase their health risks on nearby sensitive receptors. As each of the roadways identified in Table 3.3-8 currently exceed the BAAQMD's project-level cancer risk threshold, the future traffic levels from the proposed Plan would further increase these risks and exacerbate cumulative health risks. Consequently, both new and existing sensitive receptors in the Planning Area would be exposed to increased TAC exposure from roadways as a result of the proposed Plan.

In addition, locating new sensitive receptors associated with land uses that may also generate TACs (e.g., mixed-use developments with generators) within 1,000 feet of stationary and/or roadway sources (especially those located near the future BART station in the I-580 median at Isabel Avenue) could result in exposure of these new sensitive receptors to health risks from individual or

[6] BAAQMD's project-level health risk thresholds are as follows: cancer risk = 10.0 cases per million; hazard index = 1.0; PM2.5 concentration = 0.3 ug/m^3.

combined sources in excess of BAAQMD's cumulative thresholds.[7] While the exposure of new sensitive receptors to existing sources of emissions does not constitute a significant environmental impact under CEQA, emissions generated by the new land uses (e.g., from diesel deliveries) in the Planning Area may individually exceed BAAQMD's project-level thresholds or exacerbate existing cumulative impacts. The proposed Plan includes policies that would reduce the exposure of new sensitive receptors to existing sources of TAC emissions and reduce the potential for new TAC emissions to exacerbate existing exposure in the Planning Area for existing and potential new receptors. For example, proposed Plan Policies P-ENV-9 and P-ENV-10 outline requirements for projects within certain distances of existing stationary and roadway sources to install indoor air quality equipment, such as enhanced air filters or equivalent mechanisms, to minimize health risks to future residents. Proposed Plan Policy P-ENV-11 would require new large commercial developments to prepare loading plans aimed to minimize truck idling and reduce diesel particulate emissions related to truck loading on nearby sensitive receptors.

Development under the proposed Plan may also result in the installation or operation of new stationary sources of TACs. While it is unknown what specific sources would be installed or where they would operate, all new stationary sources would be subject to the permit authority of the BAAQMD. The BAAQMD will not issue a permit for a new permitted source that results in an operational cancer risk in excess of 10.0 cases per million or a hazard index of in excess of 1.0. Consequently, regulatory mechanisms exist that would ensure that cancer and health hazard impacts from stationary sources developed under the proposed Plan would be less than significant, but may not be sufficient to address PM2.5 impacts if the source results in significant PM2.5 concentrations.

Construction Health Risks

Construction activities of future development projects under the proposed Plan would also generate DPM that could expose adjacent receptors to significant health risks. Without specific details on the locations of building footprints or their construction schedules, a quantitative evaluation of potential health risk impacts is not possible. However, Mitigation Measures AQ-1 and AQ-2 along with proposed Plan Policy P-ENV-13 would reduce DPM exhaust from construction equipment and associated health risks. Mitigation Measure AQ-4 is also identified to provide a project-level evaluation of construction-related health risks from future projects within 1,000 feet of sensitive receptors.

While proposed Plan Policies P-ENV-9 through P-ENV-10 would reduce operational health risks to future residents, and Policy P-ENV-13, along with Mitigation Measures AQ-1, AQ-2, and AQ-4, would reduce construction health risks to existing and future receptors, there may be instances where project-specific conditions preclude the reduction of health risks below adopted thresholds. Therefore, consistent with BAAQMD's plan-level guidance, health impacts from TAC exposure are considered significant and unavoidable.

[7] BAAQMD's cumulative-level health risk thresholds are as follows: cancer risk = 100 cases per million; hazard index = 10.0; PM2.5 concentration = 0.8 ug/m^3.

Proposed Plan Goals and Policies that Reduce the Impact

Policy P-ENV-13, as listed under Impact 3.3-1.

Environmental Resources Chapter

P-ENV-9: Require new residential projects and other new sensitive receptors such as schools, daycares, nursing and retirement homes located within 500 feet of I-580 to install indoor air quality equipment, such as HEPA filters or equivalent mechanisms to minimize health risks for future residents.

P-ENV-10: Require project proponents within identified high risk Overlay Zones surrounding existing hazardous sites, roadways, or TAC sources to assess health risks at the location in question and to incorporate feasible design-related risk mitigation measures, such as high-efficiency particulate air filters (HEPA filters) or equivalent indoor air quality equipment mechanisms, as appropriate.

P-ENV-11: Require new large commercial projects to prepare a loading plan aimed to minimize truck idling and reduce diesel particulate emissions related to truck loading.

Mitigation Measures

Mitigation Measure AQ-4: Require Future Projects Located within 1,000 Feet of Receptors Perform a Construction Health Risk Assessment. All applicants proposing development of projects within 1,000 feet of existing sensitive receptors, as defined by the Bay Area Air Quality Management District (BAAQMD), shall prepare a site-specific construction health risk assessment (HRA) taking into account both project-level and cumulative health risks (including existing TAC sources). If the HRA demonstrates, to the satisfaction of the City, that the health risk exposures for adjacent receptors will be less than BAAQMD project-level and cumulative thresholds (as appropriate), then additional mitigation would be unnecessary. However, if the HRA demonstrates that health risks would exceed BAAQMD project-level and/or cumulative thresholds (as appropriate), additional feasible on- and offsite mitigation shall be analyzed by the applicant to help reduce risks to the greatest extent practicable.

Impact 3.3-6 Implementation of the proposed Plan would not expose sensitive receptors to substantial carbon monoxide pollutant concentrations from increased traffic. (*Less than significant*)

Elevated levels of CO concentrations are typically found in areas with significant traffic congestion. CO is a public health concern because it can cause health problems such as fatigue, headache, confusion, dizziness, and even death. Traffic data provided by the project engineers were used to evaluate CO concentrations at the intersections of Isabel Avenue/Airway Boulevard, Livermore Avenue/Portola Avenue, and Isabel Avenue/Jack London Boulevard. These intersections were selected because they have the highest traffic volumes and vehicle delay, and therefore the greatest potential to result in elevated CO concentrations. Table 3.3-9 summarizes CO modeling results.

As indicated in Table 3.3-9, traffic volumes under the proposed Plan would not result in CO concentrations in excess of the State or federal 1- or 8-hour CO standards. Since predicted CO concentrations would not violate the NAAQS and CAAQS, the impact of traffic conditions on ambient CO levels in the planning area would be less than significant.

Proposed Plan Goals and Policies that Reduce the Impact

Policies P-TRA-1, P-TRA-3, P-TRA-4, P-TRA-6, P-TRA-7, P-TRA-10, P-TRA-13, P-TRA-19, P-TRA-20, P-TRA-21, P-TRA-22, P-TRA-23, and P-TRA-24, as listed under Impact 3.3-1.

Mitigation Measures

None required.

Table 3.3-9. Proposed Plan Carbon Monoxide Concentration Results (parts per million

Intersection	Receptor [a]	1-hr[b,c]					8-hr[d,e]				
		2016	2025		2040		2016	2025		2040	
		Existing	2025 No Project	2025 Plus Project	2040 No Project	2040 Plus Project	Existing	2025 No Project	2025 Plus Project	2040 No Project	2040 Plus Project
Isabel Avenue / Airway Boulevard	1	1.9	2.0	2.2	2.1	2.3	1.6	1.6	1.8	1.7	1.8
	2	2.1	2.1	2.4	2.2	2.5	1.7	1.7	1.9	1.8	2.0
	3	2.1	2.2	2.3	2.2	2.4	1.7	1.8	1.8	1.8	1.9
	4	1.9	2.0	2.2	2.0	2.3	1.6	1.6	1.8	1.6	1.8
Livermore Avenue / Portola Avenue	1	2.0	2.0	2.1	2.1	2.4	1.6	1.6	1.7	1.7	1.9
	2	2.0	2.0	2.3	2.2	2.5	1.6	1.6	1.8	1.8	2.0
	3	2.2	2.2	2.4	2.4	2.7	1.8	1.8	1.9	1.9	2.1
	4	2.0	2.1	2.3	2.3	2.5	1.6	1.7	1.8	1.8	2.0
Isabel Avenue / Jack London Boulevard	1	2.0	2.1	2.1	2.2	2.3	1.6	1.7	1.7	1.8	1.8
	2	2.1	2.2	2.2	2.4	2.6	1.7	1.8	1.8	1.9	2.0
	3	2.1	2.2	2.2	2.3	2.6	1.7	1.8	1.8	1.8	2.0
	4	2.0	2.1	2.1	2.3	2.4	1.6	1.7	1.7	1.8	1.9

Notes:

a. Consistent with the CO Protocol (Garza et al. 1997), receptors are located at 3 meters from the intersection, at each of the four corners to represent the nearest location in which a receptor could potentially be located adjacent to a travelled roadway. The modeled receptors indicated are not representative of the actual sensitive receptors.

b. Average 1-hour background concentration between 2014 and 2016 was 1.3 ppm (U.S. Environmental Protection Agency 2017a).

c. Average 8-hour background concentration between 2014 and 2016 was 1.1 ppm (U.S. Environmental Protection Agency 2017a).

d. The federal and state 1-hour standards are 35 and 20 ppm, respectively.

e. The federal and state 8-hour standards are 9 and 9.0 ppm, respectively.

Source: ICF, 2018.

Impact 3.3-7 Implementation of the proposed Plan would not create objectionable odors affecting a substantial number of people. (*Less than significant*)

BAAQMD (2017) and ARB (2005) have identified the following types of land uses as being commonly associated with odors. Although this list is not exhaustive, it is intended to help lead agencies recognize the types of facilities where more analysis may be warranted.

- Sewage Treatment Plants
- Coffee Roasters
- Asphalt Plants
- Metal Smelters
- Landfills
- Recycling Facilities
- Waste Transfer Stations
- Petroleum Refineries
- Biomass Operations
- Autobody Shops
- Coating Operations
- Fiberglass Manufacturing
- Foundries
- Rendering Plants
- Livestock Operations

Several of the potential odor-generating land use types identified above are allowed under the City's existing industrial and manufacturing zoning designations, and would continue to be allowed with approval of the proposed Plan. In addition, the amount of industrial and business park land uses has been reduced overall under the proposed Plan as compared to the existing General Plan, and the proposed Plan does not include any policies that would expressly encourage industrial or manufacturing uses. Additionally, as future development under the proposed Plan must comply with the Planning Area's development standards, odor-generating uses would only be developed in areas zoned for such uses. While the proposed Plan allows for some industrial-related uses, development of most of these uses would be conditionally permitted. For instance, while recycling facilities and auto service facilities are allowed within certain Planning Area locations, no recycling facilities would be permitted on sites that are adjacent to a residential zone and no auto service station structure or equipment are permitted within 75 feet of a residential zone.

Based on the proposed Plan's Land Use Diagram, auto-related, industrial, and manufacturing uses would generally be located in areas outside of the half-mile radius from the future BART station, whereas most of the proposed residential uses would be located within a half-mile radius

of the BART station. As such, the land use categories defined under the proposed Plan and their designated locations within the Planning Area under the Plan would serve to minimize impacts associated with odor nuisance. Furthermore, the proposed Plan also contains Design Standard DS-37, which minimizes potential nuisances including odors from the siting of new uses next to existing uses, and DS-46, which promotes locating loading and service entrances such that noise and odor impacts on nearby uses would be minimized.

Potential odor emitters during construction activities include diesel exhaust, asphalt paving, and the use of architectural coatings and solvents. Construction-related operations near existing receptors would be temporary, and construction activities would not be likely to result in nuisance odors that would violate BAAQMD Regulation 7. Given mandatory compliance with BAAQMD rules, no construction activities or materials are proposed that would create a significant level of objectionable odors. Accordingly, odor impacts would be less than significant.

Proposed Plan Goals and Policies that Reduce the Impact

Urban Design Chapter

DS-34: The location of uses on a site shall be coordinated with adjoining properties to avoid creating nuisances such as noise, odors, loading areas, light intrusion and traffic impacts, particularly when development is adjacent to residential, open space, or other sensitive uses.

DS-2 Loading and service entrances shall not intrude on the public view or interfere with pedestrian and vehicular flows and shall be located to minimize noise and odor impacts to nearby uses and to integrate with the building design

Mitigation Measures

None required.

This page intentionally left blank.