3.3 Air Quality

This section assesses the local and regional air quality impacts of implementing the proposed Pacifica General Plan. This analysis focuses on criteria air pollutants and toxic air contaminants. Greenhouse gases are evaluated in Section 3.4: Energy and Greenhouse Gases.

Environmental Setting

PHYSICAL SETTING

Air quality is affected by the rate, amount, and location of pollutant emissions, and the associated meteorological conditions that influence pollutant movement and dispersal. Atmospheric conditions, including wind speed, wind direction, and air temperature, in combination with local surface topography (i.e., geographic features such as mountains and valleys), determine the effect of air pollutant emissions on local air quality.

Climate, Meteorology, and Topography

Regional

The City of Pacifica is located within the San Francisco Bay Area Air Basin (SFBAAB). The Bay Area Air Quality Management District (BAAQMD) is the regional agency with regulatory authority over emission sources in the Bay Area, which includes all of San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Marin, and Napa counties and the southern half of Sonoma and southwestern half of Solano counties.

The Bay Area's climate is dominated by the strength and position of the semi-permanent high-pressure center over the Pacific Ocean. During the summer, dry and subsiding air associated with high pressure off the coast acts as a cap over the cooler marine air near the surface. During the winter, when the high pressure system has retreated southward, subsidence inversions are less common; however, radiant inversions caused by warmer air radiating back from the land trapped under colder air masses above are frequent. These inversions typically develop overnight and, though they can restrict the vertical dispersion of pollutants emitted at ground level, generally dissipate by afternoon.

The Bay Area has complex terrain that distorts wind flow and substantially influences local atmospheric conditions and air quality. The Golden Gate and Carquinez Strait provide major gaps in the Coast Range, allowing air to pass between the Pacific Ocean and the Central

Valley. Winds typically bring marine air from the northwest, and pick up speed where they are channeled through the gaps.

Within the peninsula sub-region, air pollution potential is highest in the southeast (in the vicinity of Redwood City), the area most protected from high winds and most susceptible to pollution transported from upwind urban areas.

Pacifica

Pacifica lies in the northwestern portion of the Bay Area's peninsula climatological subregion, on the coastal side of the Santa Cruz Mountains. The mountains generally rise to an elevation between 500 and 2,000 feet, with the exception of the San Bruno gap, extending from Fort Funston on the Pacific Ocean to SFO on the San Francisco Bay. Because it is oriented in the same northwest-to-southeast direction as the prevailing winds, and because elevations there are below 200 feet, marine air flows through the gap in the direction of the Bay.

Due to its position relative to wind flow patterns and topography, air quality in Pacifica is better than it is in the Bay Area overall. At Pacifica's location, winds bring air from the ocean and are generally strong enough to carry away local emissions.

Air Pollution Sources

The BAAQMD maintains an Emissions Inventory, which estimates the total volume of air pollutants generated each day by approximately 100 "areawide" sources, point sources such as factories, gas stations and power plants, and mobile sources (primarily vehicles). From estimates for San Mateo County for 2010, shown in **Table 3.3-1**, it is clear that the proportion of air pollution generated by different sources varies by pollutant. Cars, trucks, airplanes and boats are responsible for most of the smog-producing pollutants (nitrogen oxides and reactive organic gases) in the air and nearly all of the carbon monoxide. Areawide sources, especially dust from roads, produce most of the particulate air pollutants. Ships account for virtually all of the sulfur dioxide emitted in San Mateo County. Waste disposal is the largest contributor to the release of Total Organic Gases (TOG) (Bay Area Air Quality Management District, 2013).

Table 3.3-1:	Summary	of Sources	of Air F	Pollutants i	n San	Mateo	County	2010

			Avero Emissio	ige Annua ns (tons/a	ıl lav)			
	TOG	ROG	CO	NO _x	SO _x	РМ	PM-10	PM-2.5
Stationary Sources								
Fuel Combustion	0.4	0.1	1.7	۱.6	0	0.2	0.2	0.2
Waste Disposal	54.4	1.3	0.4	0.1	0	0	0	0
Cleaning and Surface Coatings	4.7	3.6	0	0	-	-	-	-

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Petroleum Production and Marketing	3.9	1.2	-	-	-	-	-	-
Industrial Processes	١.5	1.1	0	0	-	1.1	0.7	0.5
Total Stationary Sources	64.8	7.4	2.1	1.7	0.1	1.3	1.0	0.8
Areawide Sources								
Solvent Evaporation	8.7	7.8	-	-	-	-	-	-
Miscellaneous Processes	5.2	1.1	11.0	1.9	0.1	0.9	0.9	0.6
Total Areawide Sources	13.9	8.8	11.0	1.9	0.1	32.8	17.0	4.2
Mobile Sources								
Mobile Sources On-Road Motor Vehicles	9.9	9.1	89.6	4.	0.1	0.9	0.9	0.6
Mobile Sources On-Road Motor Vehicles Other Mobile Sources	9.9 9.0	9.1 8.1	89.6 55.6	4. 38.5	0.1 8.4	0.9 2.2	0.9 2.1	0.6 2.0
Mobile SourcesOn-Road Motor VehiclesOther Mobile SourcesTotal Mobile Sources	9.9 9.0 18.9	9.1 8.1 17.2	89.6 55.6 45.2	14.1 38.5 52.6	0.1 8.4 8.5	0.9 2.2 3.1	0.9 2.1 3.0	0.6 2.0 2.5

Source: California Air Resources Board, 2013, available at http://www.arb.ca.gov/app/emsinv/emseic1_query.php, accessed July 2013.

Existing Air Quality

Criteria Air Pollutants: Bay Area Attainment Status

To measure and monitor the ambient concentrations of criteria pollutants in the Bay Area, the BAAQMD operates a regional network of monitoring stations that measures the ambient concentrations of criteria pollutants. Ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM), and lead are the six criteria air pollutants. Detailed definitions of pollutants are provided below in the regulatory setting.

The major criteria pollutants of concern in the San Francisco Bay Area are ozone and PM (both PM-10 and PM-2.5), which are monitored at a number of locations. As of August 2010, the Bay Area had nonattainment status for ozone (state and federal standards) and PM (PM-10 and PM-2.5, state and federal standards). The Bay Area has attained the state and federal CO standards; however, CO can be a concern at highly congested intersections during periods of high meteorological stability. Sulfur dioxide is no longer considered a problem pollutant in California due to improved industrial source controls, the substitution of natural gas for fuel oil, and lower sulfur content in fuels. The state has attained the sulfur dioxide standard for several years.¹ **Table 3.3-2** summarizes the Bay Area Attainment Status.

¹ CARB, 2009.

	the Bay Area		
	Averaging Time	Standard	Bay Area Attainment Status
Ozone: from m	otor vehicles, other mobile s	ources, combustion, inc	lustrial and commercial processes
State	l hour	0.09 ppm	Non-Attainment
	8 hours	0.07 ррт	Non-Attainment ⁸
Federal	8 hours	0.075 ppm	Non-Attainment ^{4,5}
Carbon Monox	t ide: Internal combustion eng	gines, primarily gasoline	-powered motor vehicles
State	l hour	20 ppm	Attainment
	8 hours	9.0 ppm	Attainment ⁶
Federal	l hour	35 ppm	Attainment
	8 hours	9.0 ppm	Attainment
Nitrogen Diox	ide: Motor vehicles, petroleu	um refining operations, i	industrial sources, aircraft, ships, and
railroads			
State	l hour	0.18 ppm	Attainment
	Annual Average	0.030 ррт	Attainment
Federal	l hour	0.1 ppm ¹⁰	Unclassified
	Annual average	0.053 ррт	Attainment
Sulfur Dioxide	: Fuel combustion, chemical p	plants, sulfur recovery p	lants and metal processing ¹¹
State	l hour	0.25 ррт	Attainment
	24 hours	0.04 ppm	Attainment
Federal	24 hours	0.14 ppm	Attainment
	Annual average	0.03 ррт	Attainment
Respirable Par	ticulate Matter (PM-10):	Dust- and fume-produc	ing industrial and agricultural
operations, com	oustion, atmospheric photoch	nemical reactions, and n	atural activities (e.g., wind-raised dust
and ocean sprays	5) 0.4.1		NI A .
State	24 hours	50 µg/m³	Non-Attainment
	Annual arithmetic mean	20 μg/m³	Non-Attainment′
Federal	24 hours	150 μg/m³	Unclassified
Fine Particulat	e Matter (PM-2.5): same s	ources as PM10	
State	Annual arithmetic mean	I2 μg/m³	Non-Attainment ⁷
Federal	24 hours ⁹	35 μg/m ³	Non-Attainment
	Annual arithmetic mean	$15 \mu g/m^3$	Attainment
Lead: Lead sme	ters, battery manufacturing a	nd recycling facilities ¹²	
State	30 Day Average	1.5 µg/m ³	Attainment
Federal	, Calendar guarter	15 µg/m ³	Attainment
L. California standa	ards for ozone carbon monoxid	e (except Lake Tahoe) su	Ifur dioxide (1-hour and 24-hour)

Table 3.3-2:Ambient Air Quality Sources, Standards and Attainment Status in
the Bay Area^{1,2,3}

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM10, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM10 annual standard), then some measurements may be excluded. In particular, measurements are excluded that ARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.

2. National standards shown are the "primary standards" designed to protect public health. National standards other

Table 3.3-2:Ambient Air Quality Sources, Standards and Attainment Status in
the Bay Area^{1,2,3}

Averaging Time	Standard	Bay Area Attainment Status
than for ozone, particulates and those based	d on annual averages are	e not to be exceeded more than once a year.
The I-hour ozone standard is attained if, du	ring the most recent th	ree-year period, the average number of days
		The Oliver and the shear and The Oliver and the

per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.075 ppm (75 ppb) or less. The 24-hour PM10 standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m3. The 24-hour PM2.5 standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m3.

Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM10 is met if the 3-year average falls below the standard at every site. The annual PM2.5 standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.

- 3. National air quality standards are set by US EPA at levels determined to be protective of public health with an adequate margin of safety.
- 4. Final designations effective July 20, 2012.
- 5. The national I-hour ozone standard was revoked by U.S. EPA on June 15, 2005.
- 6. In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.
- 7. In June 2002, CARB established new annual standards for PM2.5 and PM10.
- 8. The 8-hour CA ozone standard was approved by the Air Resources Board on April 28, 2005 and became effective on May 17, 2006.
- 9. U.S EPA lowered the 24-hour PM2.5 standard from 65 μg/m³ to 35 μg/m³ in 2006. EPA designated the Bay Area as nonattainment of the PM2.5 standard on October 8, 2009. The effective date of the designation is December 14, 2009 and the Air District has three years to develop a plan, called a State Implementation Plan (SIP), that demonstrates the Bay Area will achieve the revised standard by December 14, 2014. The SIP for the new PM2.5 standard must be submitted to the US EPA by December 14, 2012.
- 10. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100ppm (effective January 22, 2010).
- 11. On June 2, 2010, the U.S. EPA established a new 1-hour SO2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO2 NAAQS however must continue to be used until one year following U.S. EPA initial designations of the new 1-hour SO2 NAAQS. EPA expects to designate areas by June 2012.
- 12. ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure below which there are no adverse health effects determined.

Source: BAAQMD, 2013.

Criteria Air Pollutants: Local Air Quality

Because the nearest BAAQMD monitoring station is approximately 10 miles from Pacifica on Arkansas Street in San Francisco, air quality in Pacifica can be inferred but not precisely gauged from BAAQMD measurements. Based on this data, however, from the year 2008 to the year 2012, there were no violations of the state or national ozone standard in the project vicinity. However, because ozone is a regional pollutant, and precursors can travel long distances before they react to form ozone, local emissions of reactive organic gases (ROG) and nitrogen oxides (NOx) may contribute to regional ozone levels as they are transported inland (wind generally blows from the coast toward inland valleys in summer). The regional monitoring network has recorded one-hour ozone levels exceeding the State standard on an average of approximately 10 days per year over the past five years, with 8-hour levels exceeding the state standard an average of about 15 days per year over the same period.

Particulate matter is assessed in two size categories, particulate matter of 10 microns and less (PM-10) and fine particulate matter of 2.5 microns or less (PM-2.5). There is no BAAQMD or California Air Resources Board (CARB) station that monitors PM2.5 concentrations that can be considered to be representative of concentrations in Pacifica. Therefore existing air quality with regard to particulate matter is only presented relative to PM-10. PM-10 concentrations measured in the project vicinity show that the state's 24-hour average standard was violated in 2012. For PM-2.5, the National standard was strengthened in 2006, from 65 to 35 micrograms per cubic meter, a level that has been exceeded in two of the three years it has been in effect. In general, particulate levels are relatively low near the coast, and peak in dry, sheltered valleys. PM-10 concentrations violated the State's 24-hour average standard at an average rate of about six days per year at the Arkansas Street station over the last five years, compared to 30 days for the SFBAAB as a whole. For PM-2.5, the Air Basin exceeded the Federal standard an average of about eight days per year, compared to about two days per year or the last three years data is available for the Arkansas Street monitoring station (California Air Resources Board, 2013). Pacifica's air is generally less polluted than the region's, though local emissions play a role in the region's air quality issues.

Ozone

In the Bay Area, on-road motor vehicles are the major sources of ozone precursors, followed by other mobile sources, and petroleum and solvent evaporation. Ozone levels have been trending down in the Bay Area in general, and specifically in San Mateo County, since 1988. Based on implementation of state and district programs and controls, this trend is expected to continue, though at a slower rate.²

Based on air quality data measured at the Arkansas Street station, there have been no exceedances of the state one-hour ozone standard or the state and national eight-hour standards since the measurement of ozone concentrations began being measured at this station in 1985. The principal sources of ozone precursors, ROG and NO_x, in the Bay Area include on-road motor vehicles (approximately 35 percent for ROG and 48 percent for NO_x), other mobile sources (approximately 22 percent for ROG and 39 percent for NO_x), solvent evaporation (approximately 19 percent for ROG), fuel combustion (approximately 9 percent NO_x), cleaning and surface coating (approximately 9 percent for ROG) and petroleum production and marketing (approximately 6 percent for ROG). **Table 3.3-3** summarizes ozone data for the past five years. Generally, peak ozone values have improved.

Carbon Monoxide

Table 3.3-3 also shows that local CO concentrations have been well below both state and federal standards, and continue to decline. This decline in CO concentrations is largely attributable to the use of reformulated gasoline in California. The Bay Area has been in attainment and has not experienced any exceedances of state and federal ambient CO

² CARB, 2009.

standards in the last five years. The highest daily eight-hour CO averages measured at the Arkansas Street station over the last five years is 2.86 parts per million (ppm), well below the state and national ambient air quality standard of nine ppm. As shown in **Table 3.3-1**, approximately 92 percent of CO emissions in San Mateo County come from onroad mobile sources.

Particulate Matter

Finally, **Table 3.3-3** shows that local PM-10 concentrations have exceeded state (but not federal) 24-hour standards over two of the past five years. The annual average concentration has been over the state standard in each of the past four years for which it has been calculated. The Bay Area does experience exceedances of the state PM-10 and PM-2.5 standards on a fairly regular basis. As described above, site-specific information for PM-2.5 concentrations in Pacifica is not available.

Contributors to PM concentrations in the project area are primarily urban sources, such as dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere. Particulate concentrations near residential sources generally are higher during the winter, when more fireplaces are in use and meteorological conditions prevent the dispersion of directly emitted contaminants. Direct PM-10 emissions in the Bay Area are expected to increase by approximately 14 percent between 2005 and 2020.³ This increase would be primarily fugitive dust from increased vehicle miles traveled (VMT) as well as additional stationary sources (such as industrial activities) and area sources (such as construction and demolition, road dust, and other miscellaneous processes). Fugitive dust refers to particulate matter not emitted from a duct, tailpipe or stack, which becomes airborne due to the forces of wind, man's activity, or both. Activities that generate fugitive dust include vehicle travel over paved and unpaved roads, brake wear, tire wear, soil cultivation, off-road vehicles, any vehicles operating on open fields or dirt roadways, wind erosion of exposed surfaces, storage piles at construction sites, etc. PM-2.5 emissions in the Bay Area are projected to increase by about 5 percent over the same period,⁴ as the projected reduction in emissions from on-road and off-road engines would be more than offset by an increase in their activity and also an increase in industrial growth.

³ Ibid.

⁴ Ibid.

	_		Monito	ring Data b	y Year	
	Standard	2008	2009	2010	2011	2012
Ozone						
Highest I-hour average (ppm)		0.082	0.072	0.079	0.070	0.069
Days above state I-Hour Std.	0.9	0	0	0	0	0
Highest 8-hour average ppm		0.066	0.057	0.051	0.054	0.049
Days above state 8-hour Std.	0.07	0	0	0	0	0
Days above federal 8-Hour Std.	0.075	0	0	0	0	0
Carbon Monoxide						
Highest 8-hour average ppm		2.29	2.86	1.37	1.20	1.19
Days above state 8-hour Std.	9.0	0	0	0	0	0
Days above federal 8-Hour Std.	9.0	0	0	0	0	0
Respirable Particulate Matter (PM-10)						
Highest 24-hour average (µg/m³)		41.3	36.0	39.7	45.6	50.6
Estimated Days above state Std. ²	50	0	0	n/a	0	6
Estimated Days above federal Std.	150	0	0	n/a	0	0
Annual Average	20	21.9	18.6	19.3	22	17.5

 Table 3.3-3:
 Air Quality Data Summary (2008 – 2012) for the Project Area¹

I Data for Arkansas Street Monitoring Station in San Francisco

2 Measurements are usually collected every six days. Estimated days over the standard represent the estimated number of days the standard would have been exceeded if measurements were collected every day.

Notes: ppm means parts per million; $\mu g/m^3$ means micrograms per cubic meter; n/a means insufficient data available

Source: California Air Resources Board http://www.arb.ca.gov/adam/topfour/topfour/1.php, accessed July, 2013.

Toxic Air Contaminants

The ambient background of toxic air contaminants (TACs) is the combined result of many diverse human activities, including gasoline stations, automobiles, dry cleaners, industrial operations, hospital sterilizers, and painting operations. In general, mobile sources contribute more significantly to health risks than do stationary sources. The BAAQMD operates a network of monitoring stations that measure ambient concentrations of certain TACs that are associated with strong health-related effects and are present in appreciable concentrations in the Bay Area, as in all urban areas. The Arkansas Street station also measures TACs.

	Emissions (pounds	_
Pollutant	þer year)	Percentage
Ammonia (NH3)	1,485,003	40%
Isopropyl alcohol	563,570	15%
Toluene	242,137	6.5%
Formaldehyde	200,441	5.4%
Xylene	190,019	5.1%
Perchloroethylene	147,465	4.0%
Hydrogen Chloride (HCl)	133,704	3.6%
Styrene	128,475	3.5%
Hydrogen Sulfide (H2S)	113,649	3.1%
Methyl alcohol	89,033	2.4%
Methylene chloride	62,630	1.7%
Diesel Engine Exhaust Particulate	41,578	1.1%
Benzene	35,541	1.0%
Ethylbenzene	30,914	0.8%
Hydrogen Fluoride (HF)	27,270	0.7%
Phenol	23,750	0.6%
Hydrochloric acid mist	22,384	0.6%
Hexane	20,024	0.5%
Propylene glycol monomethyl ether	18,998	0.5%
Trichloroethane, 1,1,1- (w/o dioxane)	15,438	0.4%
Total	3,728,047.31	100%

Table 3.3-4:Summary of Hazardous Air Pollutant
Emissions in the Bay Area- Toxic Air
Contaminant Inventory 2011

Totals may not add up due to rounding, and include pollutants not listed above, as some accounted for less than one percent of the total.

Source: Bay Area Air Quality Management District, 2013, available at http://www.baaqmd.gov/?sc_itemid=CF8D0072-9245-4406-AAIC-DA55433AABEE Regionally, ambient concentrations of TACs are similar throughout the urbanized parts of the Bay Area. Of the pollutants for which monitoring data are available, benzene and 1,3-butadiene (which are emitted primarily from motor vehicles) account for more than one-half of the average calculated cancer risk.⁵ Benzene levels have declined dramatically since 1996 with the advent of Phase 2 reformulated gasoline. The use of reformulated gasoline also appears to have led to significant decreases in 1,3-butadiene. Due largely to these observed reductions in ambient benzene and 1,3-butadiene levels, the calculated network average cancer risk has been significantly reduced in recent years. Based on 2003 ambient monitoring data, the calculated inhalation cancer risk is 162 in one million, which is 46 percent less than what was observed in 1995.⁶

However, the risks described above do not include the entire cancer risk from exposure to airborne TACs, mainly because an important TAC, diesel particulate matter (DPM), is not included in the monitoring data. DPM is a mixture of over 30 different toxic chemicals, most of which are not part of the TAC measurement system. CARB has estimated statewide levels of DPM by relying on measurements of surrogate substances related to diesel exhaust, such as carbon black. From these statewide measurements, CARB has determined that risks from exposure to DPM make up about 70 percent of the total risks from TACs.⁷ Applying this factor to the Bay Area value of 162 in a million (above) yields a combined cancer risk estimate of approximately 540 in a million.

Odors

Another air quality issue of concern in the Bay Area is nuisance impacts from odors. Objectionable odors may be associated with a variety of pollutants. Common sources of odors include wastewater treatment plants, landfills, composting facilities, refineries and chemical plants. Odors rarely directly affect health, but they can be very unpleasant and lead to distress and concern over possible health effects among the public, generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

REGULATORY SETTING

Regulation of air pollution is achieved through both national and state ambient air quality standards and emissions limits for individual sources of air pollutants.

⁵ BAAQMD, 2006.

⁶ Ibid.

⁷ BAAQMD, undated.

Definitions

Attainment Status

Under amendments to the federal Clean Air Act, EPA has classified air basins or portions thereof, as either "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the national standards have been achieved. The California Clean Air Act, patterned after the federal Clean Air Act, also designates areas as "attainment" or "nonattainment" for state standards. Thus, California has two sets of attainment/nonattainment designations: one with respect to national standards and one with respect to state standards.

Criteria Air Pollutants

As required by the federal Clean Air Act passed in 1977, the EPA has identified six criteria air pollutants that are pervasive in urban environments and for which state and national healthbased ambient air quality standards have been established. The EPA identifies these pollutants as criteria air pollutants because the agency has regulated them by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. Ozone, CO, NO₂, SO₂, PM-10 and PM-2.5, and lead are the six criteria air pollutants. In addition, California has established state ambient air quality standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

- Ozone. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and that can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and nitrogen oxides (NO_x). ROG and NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours. Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources of ROG and NO_x under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone. Ground level ozone in conjunction with suspended particulate matter in the atmosphere leads to hazy conditions generally termed as "smog."
- Carbon Monoxide (CO). CO, a colorless and odorless gas, is a non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicle traffic. High CO concentrations develop primarily during winter when periods of light wind combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain,

heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease or anemia.

- Nitrogen Dioxide (NO₂). NO₂ is an air quality concern because it acts a respiratory irritant and is a precursor of ozone. NO₂ is produced by fuel combustion in motor vehicles, industrial stationary sources, ships, aircraft, and rail transit.
- Sulfur Dioxide (SO₂). SO₂ is a combustion product of sulfur or sulfur-containing fuels such as coal and oil, which are restricted in the San Joaquin Valley. Its health effects include breathing problems and may cause permanent damage to lungs. SO₂ is an ingredient in acid rain, which can damage trees, lakes and property, and can also reduce visibility.
- **Particulate Matter.** PM-10 and PM-2.5 consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. (A micron is one-millionth of a meter). PM-10 and PM-2.5 represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles (PM-2.5) of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates also can damage materials and reduce visibility.
- Lead. Paint (houses, cars) and manufacture of lead storage batteries are the primary sources of lead released into the atmosphere. Historically, leaded gasoline was a source of lead but has been phased out. Lead has a range of adverse neuron-toxic health effects for which children are at special risk. Some lead-containing chemicals cause cancer in animals.

	Joure	.03			
Pollutant Ozone	Averaging Time I hour 8 hour	California Standard 0.09 ppm 0.07 ppm	National Primary Standard 0.08 ppm	Major Pollutant Sources On-road motor vehicles, other mobile sources, solvent extraction, combustion, industrial and commercial processes.	Pollutant Health and Atmospheric Effects High concentrations can directly affect lungs, causing irritation. Long- term exposure may cause damage to lung tissue.
Carbon	l hour	20 ppm	35 ppm	Internal combustion	Classified as a chemical
Monoxide	8 hour	9.0 ppm	9.0 ppm	engines, primarily gasoline- powered motor vehicles.	asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.
Nitrogen Dioxide	l hour	0.18 ppm		Motor vehicles, petroleum refining operations,	Irritating to eyes and respiratory tract. Colors
	Annual	0.03	0.053	industrial sources, aircraft,	atmosphere reddish
	Average	ррт	ррт	ships, and railroads.	brown.
Sulfur Dioxide	I hour	0.25 ррт		Fuel combustion, chemical plants, sulfur recovery	lrritates upper respiratory tract,
	24 hour	0.04 ррт	0.14 ppm	plants, and metal processing.	injurious to lung tissue. Can yellow the leaves o
	Annual		0.03	-	marble, iron and steel.
	Average		ppm		Limits visibility and reduces sunlight.
Respirable Particulate	24 hour	50 μg/m³	150 μg/m³	Dust- and fume-producing industrial and agricultural	May irritate eyes and respiratory tract,
Matter (PM-10)	Annual Average	20 μg/m³		operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).	decreases lung capacity and increases risk of cancer and mortality. Produces haze and limit visibility.
Fine	24 hour		35 μg/m ³	Fuel combustion in motor	Increases respiratory
Particulate Matter (PM-2.5)	Annual 12 μg/m ³ 15 μg/m ³ Average		vehicles, equipment and industrial sources; residential and agricultural burning. Also formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.	disease, lung damage, cancer and premature death. Reduces visibility and results in surface soiling.	

Table 3.3-5: State and National Criteria Air Pollutant Standards, Effects, and Sources

	e e u e				
Pollutant	Averaging Time	California Standard	National Primary Standard	Major Pollutant Sources	Pollutant Health and Atmospheric Effects
Lead	Monthly Average	1.5 μg/m³	Present source: lead smelters, battery	Disturbs gastrointestinal system, and causes	
	Quarterly		1.5 μg/m³	manufacturing and recycling facilities. Past source: combustion of leaded gasoline.	anemia, kidney disease, and neuromuscular and neurologic dysfunction.
I. ppm = parts per million; and μg/m3 = micrograms per cubic meter					

Table 3.3-5:State and National Criteria Air Pollutant Standards, Effects, and
Sources

Sources: California Air Resources Board (ARB) Fact Sheet: Air Pollution Sources, Effects and Control, available at http://www.arb.ca.gov/research/health/fs/fs2/fs2.htm, accessed July 2013, Dyett and Bhatia, 2013.

Hazardous Air Pollutants

The federal Clean Air Act defines hazardous air pollutants as those which may reasonably be anticipated to result in increased deaths or serious illness and which are not already regulated. Hazardous air pollutants are similar to state-designated TACs.

Toxic Air Contaminants

The California Health and Safety Code defines TACs as air pollutants that may cause or contribute to an increase in mortality or in serious illness, or that may pose a present or potential hazard to human health. TACs are less pervasive in the urban atmosphere than criteria air pollutants, but are linked to short-term (acute) or long-term (chronic and/or carcinogenic) adverse human health effects. There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust. The current list of TACs includes approximately 200 compounds, including all of the toxics identified under federal law plus additional compounds, such as particulate emissions from dieselfueled engines, which were added in 1998.

- Diesel particulate matter (DPM). DPM has been identified by CARB as a TAC and represents 70 percent of the known potential cancer risk from air toxics in California. DPM is an important contributor to particulate matter air pollution. Particulate matter exposure is associated with premature mortality and health effects such as asthma exacerbation and hospitalization due to aggravating heart and lung disease.
- Asbestos. In 1986, CARB identified asbestos as a TAC based on its classification as a known cancer causing pollutant. In that process, CARB found that no threshold exposure level could be identified below which adverse health effects would not be expected. Asbestos occurs naturally in ultramafic rock (which includes serpentine). When this material is used in unpaved surfacing and disturbed by vehicles and other means, dust containing asbestos can be generated. Serpentine soils have been identified in San Mateo County, but not within the Planning Area.

Sensitive Receptors

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions source, or duration of exposure to air pollutants. Land uses such as schools, children's day care centers, hospitals, and convalescent homes are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress and other air quality-related health problems. Parks and playgrounds are considered moderately sensitive to poor air quality because persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality; however, exposure times are generally far shorter in parks and playgrounds than in residential locations and schools, which typically reduces overall exposure to pollutants. Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions.

The location of land uses where sensitive receptors are present should be carefully evaluated. 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 with some exceptions. CARB has published advisory recommendations on siting new sensitive land uses, with the same guidelines as the state school limitation.⁸

Vehicle Miles Traveled (VMT)

Vehicle miles traveled (VMT) is a term used throughout this EIR and refers to the number of vehicle miles traveled within a specified geographic area during a given period of time. One vehicle traveling one mile constitutes one vehicle mile, regardless of its size or the number of passengers. VMT is a common measure of roadway use and economic activity. The VMT per capita is the total VMT divided by the population of the geographic area; basically, it is a measure of the vehicle miles each person travels on average. Per capita VMT data correlate with various economic and lifestyle factors such as increased auto ownership, more women in the workforce, more teen driving, and land use patterns.

Federal Regulations

The U.S. Environmental Protection Agency (EPA) is responsible for implementing the programs established under the federal Clean Air Act. The Clean Air Act establishes the framework for federal air pollution control, including direction for the EPA to develop national emission standards for hazardous air. **Table 3.3-5** provides the 2013 Ambient Air Quality Standards for the State of California and federal standards. If an area does not meet the federal standard for a pollutant, the state is required to prepare and adopt State Implementation Plans (SIPs) to show how the standards will be attained.

⁸ CARB, 2005.

The federal Clean Air Act also outlines requirements for ensuring that federal transportation plans, programs, and projects conform to the SIP's purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards. As such, Regional Transportation Plans (RTPs) and Transportation Improvement Programs (TIPs) that require federal funding or approval must be included in the SIP emissions budget.

National Emission Standards for Hazardous Air Pollutants developed by US EPA in accordance with Title III of the 1990 federal Clean Air Act Amendments regulate "major source" facilities that emit large quantities of TACs. These rules require that emissions be reduced using the Maximum Achievable Control Technology (MACT).

State Regulations

In California, the CARB is responsible for establishing and reviewing California ambient air quality standards, developing and managing the California SIP, securing approval of this plan from US EPA, and identifying TACs. The California Clean Air Act of 1988 focuses on attainment of the state ambient air quality standards, which, for certain pollutants and averaging periods, are more stringent than the comparable federal standards. Local and regional air districts are required to prepare and adopt air quality attainment plans if the district violates the state standards.

The State of California's regulatory efforts regarding the identification and control of TACs are embodied in AB 1807, the Tanner Bill (effective 1984). The CARB identifies the most important toxic pollutants by considering risk of harm to public health, amount or potential amount of emissions, manner of usage of the substance, its persistence in the atmosphere, and its concentration in the outdoor air. CARB also regulates mobile emissions sources in California, such as construction equipment, trucks, and automobiles, and oversees the activities of air quality management districts, which are organized at the county or regional level. All new diesel-powered engines and vehicles sold in California are required to meet both federal and state emissions certification requirements. The Air Toxics 'Hot Spots' Act (AB 2588) was enacted in 1987 with the objective of collecting information concerning industrial emissions of TACs and making the information available to the public.

Regional Regulations

The BAAQMD is the regional agency with regulatory authority over emission sources in the Bay Area. An air quality management district is primarily responsible for regulating stationary emissions sources at facilities within its geographic areas and for preparing the air quality plans required under the federal Clean Air Act and California Clean Air Act. BAAQMD also maintains the regional Toxics Emission Inventory.

2010 Bay Area Clean Air Plan

In September 2010, BAAQMD adopted the 2010 Bay Area Clean Air Plan, which replaces the Bay Area 2005 Ozone Strategy. This plan is the most current triennial update to the 1991

Clean Air Plan. This plan includes a control strategy to reduce ozone, particulate matter, air toxics, and Greenhouse Gas Emissions (GHGs) in a single, integrated plan.

2013 Plan Bay Area

Plan Bay Area, which was adopted in July, 2013, is an integrated long-range land-use/housing plan and transportation plan and demographic and economic forecast for the nine-county region of the San Francisco Bay Area. It is unique in the sense that it includes the Regional Transportation Plan as well as requires the Metropolitan Transportation Commission and Association of Bay Area Governments to adopt a Sustainable Communities Strategy for the region, which coordinates land use and transportation in order to reduce greenhouse gases missions for cars and light-duty trucks for the region through the year 2040.

Ozone

BAAQMD has prepared both federal and state air quality plans to bring the SFBAAB into attainment with ozone standards. The 2001 Ozone Attainment Plan describes the Bay Area's strategy for compliance with the federal 1-hour ozone standard. Although the US EPA revoked the federal one-hour ozone standard on June 15, 2005, the emission reduction commitments in the plan are still being carried out by the BAAQMD. At the time of the NOP, the Bay Area 2005 Ozone Strategy was the current adopted plan describing the strategy for compliance with the state 1-hour ozone standard.

Carbon Monoxide

The 1996 Carbon Monoxide Redesignation Request and Maintenance Plan for Ten Federal Planning Areas was developed by the air districts with jurisdiction over ten planning areas (including the BAAQMD) to ensure continued attainment of the federal carbon monoxide standard. In June 1998, the EPA approved this plan and designated the ten areas as attainment. The maintenance plan was revised most recently in 2004.

Particulate Matter

The 2010 Bay Area Clean Air Plan includes a control strategy to reduce particulate matter. In addition, there is a schedule for bringing the Bay Area into compliance, the Particulate Matter Implementation Schedule of 2005. In 2003, SB 656 mandated compliance with state PM standards in order to reduce public exposure to the health risks related to PM. BAAQMD has also developed additional regulations to reduce particulate emissions, including from stationary internal combustion engines (Regulation 9-8), commercial broiling operations (Regulation 6-2), and residential wood-burning devices (Regulation 6-3).⁹

⁹ BAAQMD, 2010b.

Toxic Air Contaminants

TACs do not have ambient standards below which no adverse health effects are assumed. Since 1987, BAAQMD has had a program to describe, control, and where possible, eliminate public exposure to airborne toxic compounds from stationary sources. The program elements include preconstruction review processes for new and modified TAC sources; the Air Toxics Hot Spots Program which identifies and monitors industrial and commercial facilities that emit TACs; implementation of control measures to reduce emissions from source categories of TACs; maintenance of the TAC air emissions inventory; ambient TAC concentration monitoring; and the Community Air Risk Evaluation Program which determines the impacts of TACs at a community level.

BAAQMD has established specific public notification measures for various levels of health risks associated with a facility's routine TAC emissions as determined in a Health Risk Assessment. The "individual cancer risk" is the likelihood that a person exposed to concentrations of TACs from a facility over a 70-year lifetime will contract cancer, based on the use of standard risk assessment methodology established by the Air Toxics Hot Spots Program.

- 1. Level 1 Risks: Between 10 and 100 in one million
- 2. Level 2 Risks: Between 100 and 500 in one million
- 3. Level 3 Risks: Greater than 500 in one million

BAAQMD Regulation 2, Rule 5 New Source Review of Toxic Air Contaminants implements state guidelines and control requirements for new and modified stationary sources. If the emissions from a stationary source exceed trigger levels, the source must use Best Available Control Technology to minimize TAC emissions.

In addition, demolition of buildings constructed prior to 1980 often involve the use of hazardous materials such as asbestos in insulation, fire retardants, or building materials (floor tile, roofing, etc.) and lead-based paint. Airborne asbestos fibers and lead dust pose a serious health threat. The demolition, renovation and removal of asbestos-containing building materials would be subject to the requirements of BAAQMD Regulation 11, Rule 2.

Odors

All odor sources are subject to the requirements of the BAAQMD Regulation 7 – Odorous Substances, which establishes general limitations on odorous substances and specific emission limitations on certain odorous compounds, in addition to the requirements of local nuisance ordinances.

Impact Analysis

SIGNIFICANCE CRITERIA

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

- **Criterion 1:** Cause the rate of increase in VMT or vehicle trips with implementation of the proposed General Plan to exceed the rate of increase in population with implementation of the Plan for the years covered by the proposed Plan.
- **Criterion 2**: Be inconsistent with or fail to implement the 2010 Bay Area Clean Air Plan's Transportation Control Measures, particularly those for which local governments are implementing agencies.
- **Criterion 3**: Fail to identify or establish goals, policies, objectives, and/or overlay or buffer zones for existing and proposed land uses that would emit odors or toxic air contaminants in order to minimize potential impacts of these emissions on sensitive receptors.

METHODOLOGY AND ASSUMPTIONS

Criterion 1 is assessed based on existing population and VMT and projected population and VMT under the proposed General Plan, using analysis from DKS Associates.

Criterion 2 is assessed based on BAAQMD guidance, which identifies three tests to determine consistency. These Criterion 2 consistency tests are as follows:

- 1. Does the General Plan support the primary goals of the 2010 Bay Area Clean Air Plan? These goals are:
 - a. Attain air quality standards;
 - b. Reduce population exposure and protecting public health in the Bay Area; and
 - c. Reduce greenhouse gas emissions and protect the climate.
- 2. Does the General Plan include applicable control measures from the Clean Air Plan (CAP)? The 2010 CAP contains 55 control measures to reduce air pollution. Consistency with greenhouse gas reduction measures of the CAP are addressed in the Greenhouse Gas and Climate Change Section of this EIR.
- 3. Does the General Plan disrupt or hinder implementation of any CAP control measures? BAAQMD identifies examples of how a Plan may cause the disruption or delay of control measures, such as a project which may preclude an extension of a transit line or bike path or proposes excessive parking beyond parking requirements.

Criterion 3 is assessed based on BAAQMD guidance, as outlined in the 2009 BAAQMD CEQA Air Quality Guidelines, which states that the thresholds of significance for General Plans with regard to community risk and hazard impacts are inclusion of a land use diagram that identifies overlay zones around existing and planned sources of TACs and overlay zones of at least 500 feet around each side of freeways and high volume roadways.

Additionally, the Plan must identify goals, policies and objectives to minimize potential impacts and create overlay zones for sources of TACs and receptors. As identified by the BAAQMD, if emissions of TACs exceed any of the Thresholds of Significance below, the proposed project would result in a significant impact:

- Non-compliance with a qualified risk reduction plan; or
- An excess cancer risk level of more than 10 in one million, or a non-cancer (i.e., chronic or acute) hazard index greater than 1.0 would be cumulatively considerable contribution;
- An incremental increase of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$) annual average PM 2.5 would be a cumulatively considerable contribution.

IMPACT SUMMARY

Comparison of Projected VMT and Projected Population

City-wide forecasted VMT is projected to increase 32.9 percent, while city-wide population in expected to increase 7 percent, which indicates that VMT would increase at a faster rate than population. Therefore, this is a significant and unavoidable impact.

Criteria Air Pollutants and Precursor Emissions

The proposed Plan is consistent with the 2010 Bay Area Clean Air Plan in that the proposed Plan meets the air quality plan control measures in the Bay Area 2010 Clean Air Plan and contains numerous policies that are consistent with the control measures in the Bay Area 2010 Clean Air Plan.

Odors and Toxic Air Contaminants

Policies, objectives, and goals are included in the proposed Plan to mitigate any possible impacts as a result of a change in land uses that could affect the emission of odors or toxic air contaminants in the city. The proposed Plan includes policies that minimize the potential impacts of toxic air contaminants, including developing a Community Risk Reduction Plan and using BAAQMD's Air Quality Guidelines.

IMPACTS AND MITIGATION MEASURES

Impact

3.3-1 Implementation of the proposed Pacifica General Plan would cause the rate of increase in VMT or vehicle trips to exceed the rate of increase in population with

implementation of the Plan for the years covered by the proposed Plan. (Significant and Unavoidable)

BAAQMD guidance states that "due to the [Bay Area's] nonattainment status for ozone and PM, and the cumulative impacts of growth on air quality, [long-range] plans almost always have a significant unavoidable adverse air quality impacts." To assess this possibility related to the proposed General Plan, the increases in VMT and population envisioned under the General Plan were calculated and compared. The baseline (year 2010) daily VMT was 339,501. The projected daily generated VMT of 451,300 under the proposed General Plan in 2035 indicates that implementation of the proposed General Plan would result in an approximately 33 percent increase in VMT from the baseline (see **Table 3.3-6**). The projected VMT only incorporates the effect of changes to the roadway networks and public transit networks, and not the effect of General Plan policies that would further reduce VMT, as described below.

The 2010 baseline population was 37,230. Population projections of 39,800 in 2035 under the proposed General Plan indicate that implementation of the proposed General Plan would increase population from the 2010 baseline of 37,230 by 7 percent (see **Table 3.3-7**). Because the rate of increase in VMT would exceed the rate of increase in population, the proposed General Plan would have a significant adverse impact on air quality.

Table 3.3-6:Comparison of Change in VMT and Population Under the General
Plan

	2010 Baseline	General Plan (2035)	Change from 2010 Baseline to Proposed Plan
Vehicle Miles Traveled (VMT)	339,501	451,300	32.9%
Population	37,230	39,800	7.0%

Source: Dyett & Bhatia, 2013; DKS Associates, 2013; ABAG Projections 2009.

Proposed General Plan Policies that Reduce the Impact

The proposed General Plan includes a number of policies that serve to reduce VMT in relation to population growth within the City of Pacifica. The effect of these policies has not been directly incorporated into VMT projections; including their effect would further reduce projected 2035 VMT. The policies include:

Circulation Element

- CI-G-10 **Bicycle and Pedestrian Routes.** Establish trails, bike routes and pedestrian amenities connecting neighborhoods to major shopping and public facility destinations, and fill in gaps in the existing network.
- CI-G-16 **Improved Public Transit.** Advocate for SamTrans and other public transit providers to improve transit service and facilities, to enable trips to be made without use of a car. In particular, advocate for the expansion of public transit services and facilities to improve public access and recreation opportunities along the coast.

- CI-G-17 **Transportation Demand Management (TDM).** Support TDM strategies to reduce congestion and single-occupant vehicle travel.
- CI-I-27 **Pedestrian-Oriented Street Improvements.** Reduce curb-to-curb road widths and employ roadway design features, such as wider sidewalks, islands, bulb-outs, improved striping and signage, street trees, pedestrian amenities, pedestrian countdown signals, and pedestrian refuges where feasible and appropriate. Priority locations for pedestrian-oriented design improvements include:
 - Pedestrian Priority Zones, shown on Figure 5-1 (of the proposed General Plan), which include mixed use and higher-intensity areas;
 - Streets that are part of Pacifica's proposed trail system improvements;
 - Streets adjacent to schools; and
 - Locations where pedestrian-automobile collisions have occurred.
- CI-I-28 **Palmetto Avenue Streetscape Plan.** Complete and implement the Palmetto Avenue Streetscape Plan to widen sidewalks, provide bike lanes, landscaping, and make other improvements that will upgrade the appearance of the avenue and make it more attractive to pedestrians.
- CI-I-29 Additional Pedestrian Facilities on Large Sites. Enhance the pedestrian network with an interconnected system of walkways, continuous sidewalks on both sides of the street, and pedestrian crossings as part of higher-intensity redevelopment of large sites.
- CI-I-30 **Safe Routes to Schools.** Partner with Pacifica School District to develop and implement a Safe Routes to Schools program.
- CI-I-31 **Universal Design.** Require all pedestrian facilities to be ADA compliant and accessible to persons with disabilities.
- CI-I-32 **Direct North-South Bikeway.** Complete the City's direct north-south bicycle route to optimize safety and comfort. Improvements should include the following, from north to south:
 - Class II bike lanes along Westline Drive north of Palmetto Avenue;
 - A continuous Class II bikeway on Palmetto Avenue between Westline Drive and the San Francisco RV Park;
 - A Class II bikeway on Clarendon Road, Lakeside Road, Francisco Boulevard, and Bradford Way, improving the bikeway between West Sharp Park and Mori Point;
 - A reconstructed Class I path between Mori Point and Reina del Mar Avenue that is wider and more sheltered from the highway than the current trail;

- A Class II bikeway on SR 1 between Reina del Mar Avenue and San Pedro Creek, providing a direct travel route along SR 1 through southern Pacifica with well-marked and buffered lanes; and
- A Class III bikeway along SR 1 between San Pedro Creek and the Devil's Slide bypass.
- CI-I-33 **Parallel North-South Bikeway West of SR 1.** Create and upgrade bicycle facilities that provide an alternative for north-south bicycle travel west of Highway 1. Improvements should include the following, from north to south:
 - A Class I trail in a public access easement along the west side of the RV park as part of any development or change in use, ensuring public access along the coast (a previous path was lost to erosion);
 - A Class III route along Beach Boulevard between Paloma Avenue and Clarendon Road;
 - A Class III bikeway along Dondee Drive in the Rockaway Beach district, connecting existing Class I trails along Calera Creek to the north and Rockaway Headlands to the south;
 - A Class I trail parallel to and west of SR 1 from San Pedro Creek to the Devil's Slide bypass.
- CI-I-34 **Parallel North-South Bikeway East of SR 1.** Create and upgrade bicycle facilities for north-south bicycle travel on the east side of SR 1. Improvements should include the following, from north to south:
 - A new Class II facility along Oceana Boulevard from Manor Drive to Clarendon Road;
 - A new Class II route on Fassler Avenue, Roberts Road, and Crespi Drive, providing a connection between Rockaway Beach and Linda Mar on the east side of SR 1;
 - An upgraded and extended path on the east side of SR 1 between Crespi Drive and Linda Mar Boulevard meeting the Class I facility on the San Pedro Terrace right-of-way.
- CI-I-35 **Neighborhood Bikeways.** Develop a system of bikeways connecting all neighborhoods to the City's north-south pathway, including Class II routes along Monterey Road and Hickey Boulevard, Rosita Road, Oddstad and Terra Nova Boulevards, and Fassler Avenue and Class III routes as shown on Figure 5-3 of the proposed General Plan.
- CI-I-40 **Priorities for Improvements.** Make designated bicycle routes a priority for pavement repair, as needed, and for regular maintenance to remove sand, gravel or other debris.
- CI-I-41 **Improved Bikeway Visibility.** Use strategies to improve bikeway visibility, including but not limited to:

- Using visual cues such as brightly-colored paint on bike lanes or a one-foot painted buffer strip;
- Upgrading a Class III facility to Class II and providing additional signage; and
- Removing on-street parking, if feasible.
- CI-I-42 **Bicycle Lockers at Public Parking Lots.** Replace existing bicycle lockers at the public parking lot on Crespi Drive, and add lockers at the park-and-ride lot on Linda Mar Boulevard.
- CI-I-43 **Bicycle Parking at Recreation and Shopping Areas.** Provide bicycle parking at the following locations:
 - Park and beach access at the northern end of Esplanade Drive (Lands End Apartments);
 - Manor Plaza shopping area; and
 - Pedro Point Headlands/Devil's Slide.
- CI-I-44 **Bicycle Parking Requirements for New Development.** Continue to require bicycle parking facilities in new non-residential development.
- CI-I-45 **Bicycle Parking at Schools and Workplaces.** Work with the school districts and employers to provide adequate bicycle parking at all schools and workplaces with 30 or more employees.
- CI-I-46 **Bicycle Education.** Distribute appropriate informational material to all schools in Pacifica in conjunction with bicycle education campaigns.
- CI-I-47 **Funding for Bicycle Facilities.** Designate a portion of the City's annual street construction and improvement budget to fund bikeway design and construction, and continue to pursue potential funding from MTC and San Mateo County, as well as appropriate Federal and State programs.
- CI-I-48 **Eligibility Criteria for Improvements.** Review eligibility criteria for funding for improvements from the State, to obtain additional funding for bicycle facilities.
- CI-I-53 **Promotion of Transit Use.** Lead an initiative to promote transit use and reduce reliance on the private automobile in order to reduce congestion, reduce greenhouse gas emissions, and improve quality of life.

Conservation Element

- CO-I-54 **Regional Cooperation.** Cooperate with the Bay Area Air Quality Management District (BAAQMD) and other public agencies in implementing plans to achieve State and Federal Ambient Air Quality Standards.
- CO-I-55 **Impact Guidelines.** Use the BAAQMD's Air Quality Guidelines, to determine and mitigate project air quality impacts.

The City consults with the BAAQMD during CEQA review for projects that require air quality impact analysis and BAAQMD is on the distribution list for CEQA documents.

CO-I-59 **Transportation Control Measures.** Ensure compliance with the most current Bay Area Clean Air Plan by implementing the Plan's recommended Transportation Control Measures.

The 2010 Clean Air Plan identifies 17 TCMs aimed at reducing vehicle trips and vehicle miles traveled; increasing access to and support of alternative modes of transportation; promoting compact, walkable land use patterns; and increasing public education and awareness.

CO-I-60 **Climate Action Plan for Greenhouse Gas Reductions.** Maintain and update the Climate Action Plan that focuses on feasible actions the City can take to reduce greenhouse gas emissions from government, businesses, and residents in Pacifica.

The CAP should:

- Establish a baseline inventory of all known or reasonably discoverable sources of GHGs that currently exist in Pacifica and that existed in 1990;
- Projected GHG emissions expected in 2030 under this General Plan and foreseeable municipal operations;
- Set a target for the reduction of GHG emissions, in line with targets established by the California Air Resources Board;
- Present a list of feasible—and to the greatest extent possible, quantifiable— GHG reduction measures to meet the reduction target, in the areas of energy use (in all sectors), transportation and land use, solid waste, water, and education/outreach; and
- Establish an implementation plan, including strategies and funding for monitoring and making improvements.

A well-implemented TDM plan can reduce VMT by up to 15 percent overall.¹⁰ However, this would still be insufficient to close the gap between predicted VMT growth and population growth.

¹⁰ CAPCOA, Quantifying Greenhouse Gas Mitigation Measures, 2010, available at <u>http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf</u>, accessed October 2013. This CAPCOA report notes that commute trip reduction, a strategy similar to TDM, can have up to a 25% reduction in work trip VMT, or a 15% reduction in overall VMT.

Mitigation Measures

The BAAQMD CEQA Guidelines state with regard to mitigation of plan impacts, "Plans are the appropriate place to establish community-wide air quality policies that reinforce regional air quality plans. Plans present opportunities to establish requirements for new construction, future development, and redevelopment projects within a community that will ensure new or revised plans do not inhibit attainment of state and national air quality standards and actually assist in improving local and regional air quality. Binding, enforceable mitigation measures identified through the environmental review process should be incorporated as policies and implementation programs within the plan to the greatest extent feasible. Ideally, air quality related goals, policies, performance measures and standards should be incorporated within the context of the proposed project itself, rather than introduced as corrective actions within the [General Plan] EIR."¹¹

The proposed General Plan incorporates a number of strategies recommended by the BAAQMD for reducing automobile travel. In addition, because the City of Pacifica includes portions located within the Coastal Zone, development within the Planning Area is constricted to that which is consistent with the Local Coastal Land Use Plan. The expected development as a result of the proposed Plan is therefore not enough to include large-scale changes to the city. Nearly half of the Planning Area is preserved as open space, and the surrounding areas are also preserved as open space.

In terms of mitigation measures identified by the BAAQMD in its CEQA Guidelines, the proposed Plan calls for policies that promote the reduction in VMT through the development of higher-density, mixed use areas and the improvement of transit opportunities.

The policies included in the proposed General Plan include measures identified by the BAAQMD as ones that apply to the reduction of air quality impacts of general plans. Based strictly on the transportation modeling conducted for the proposed Plan in accordance with BAAQMD CEQA Guidelines, vehicle travel is forecast to increase at a faster rate than population, and therefore this impact would be considered significant and unavoidable.

As the BAAQMD CEQA Guidelines require Plan-level analysis to determine significance to be based on the strict relationship between population and VMT, this determination cannot be modified to reflect the fact that improvements in vehicle fuel efficiency are expected to decrease emissions per vehicle mile traveled over the planning period. As described in the Metropolitan Transportation Commission's 2013 Plan Bay Area air quality analysis, emissions of several criteria pollutants are projected to <u>decrease</u> through 2040, not increase, due to these fuel efficiency gains. As a basis for making a finding of overriding considerations, it is reasonable for the City to find that fuel efficiency, combined with the compact land use and multimodal transportation initiatives represented by proposed Plan policies, would actually result in minimal contribution to the overall regional cumulative impact of criteria

¹¹ BAAQMD, 2009 CEQA Air Quality Guidelines, 2010.

pollutant emissions. However, in accordance with BAAQMD requirements, the impact described in this EIR must still found to be significant and unavoidable based on the assumed strict relationship between population and VMT.

Impact

3.3-2 Implementation of the proposed Pacifica General Plan would not be inconsistent with or fail to implement the 2010 Bay Area Clean Air Plan's Transportation Control Measures, particularly those for which local governments are implementing agencies. (*Less than Significant*)

The Bay Area 2010 Clean Air Plan (CAP) was adopted by the BAAQMD Board on September 15, 2010. The primary goals of the CAP are to (1) attain air quality standards; (2) reduce population exposure to protect public health in the Bay Area; and (3) reduce greenhouse gas emissions and protect the climate.

The Bay Area 2010 CAP contains 59 control measures aimed at reducing air pollution in the Bay Area. Many (18) of these measures address stationary sources and will be implemented by BAAQMD using its permit authority and are therefore not suited to implementation through local planning efforts. Sixteen other measures are a draft list of measures for further study and are not yet identified as feasible for implementation under the 2010 CAP. The remaining 25 measures are identified in **Table 3.3-7**. This table identifies each Control Strategy and correlates it to specific Goals or Policies of the proposed General Plan or presents justification for why the Strategy does not apply to the proposed General Plan. As demonstrated in **Table 3.3-7**, the proposed General Plan would be consistent with the Control Strategies contained in the 2010 CAP for the SFBAAB.

Table 3.3-7 shows that the proposed General Plan generally would not disrupt or hinder implementation of any CAP control measures. BAAQMD has identified examples of how a Plan may cause the disruption or delay of control measures, such as a project that may preclude an extension of a transit line or bike path or proposes excessive parking beyond parking requirements. As described in **Table 3.3-7**, Policy C-G-2 encourages projects that facilitate walking, bicycling and transit use to facilitate alternative modes of travel that will assist with reducing emissions. In addition, Policy C-G-16 calls for the improvement of public transit. These two policies provide an example of how the proposed General Plan would be consistent with the policies identified in the 2010 Bay Area Clean Air Plan.

2010 CAP Control Strategy	Elements of the Proposed Project Consistent with the Strategy or Justification for Non-applicability						
Transportation Control Measures							
TCM A: Improve Transit Services A–1: Improve Local & Areawide Bus Service A-2: Improve Local & Regional Rail Service	 Cl-G-16 Improved Public Transit. Advocate for SamTrans and other public transit providers to improve transit service and facilities, to enable trips to be made without use of a car. In particular, advocate for the expansion of public transit services and facilities to improve public access and recreation opportunities along the coast. Cl-G-17 Transportation Demand Management (TDM). Support TDM strategies to reduce congestion and single-occupant vehicle travel. Cl-I-49 Service Optimization. Continue coordination efforts with transit agencies (i.e., SamTrans) to maintain transit service that is safe and efficient, provides convenient connections to high-use activity areas and key destinations outside the City, and responds to the needs of all passengers, including seniors, youth, and persons with disabilities. Cl-I-50 Improved Transit Stops. Work with transit agencies to improve transit stops and access to facilities. Cl-I-51 Park-and-Ride Locations and Attributes. Work with Samtrans to identify changes that would improve the convenience and functionality of Park-and-Ride facilities, and result in increased ridership. Cl-I-52 Transit-Oriented Development. Work with Samtrans to facilitate transit-oriented development. Work with Samtrans to facilitate transit-oriented development on all or part of the Linda Mar Boulevard Park-and-Ride lot. Cl-I-53 Promotion of Transit Use. Lead an initiative to promote transit use and reduce reliance on the private automobile in order to reduce congestion, reduce greenhouse gas emissions, and improve quality of life Cl-I-54 Transportation Demand Management Programs. Establish a Transportation Demand Management (TDM) program for City employees that may include transit passes or subsidies, preferential carpool parking, car share programs, bicycle lockers, and other incentives to employees choosing transportation modes other than driving. Cl-I-55 Local Transportation Services. Support expanded funding f						
TCM B: Improve System	students, seniors, and recreational visitors.						
Efficiency B-1: Freeway & Arterial Operations Strategies B-2: Transit Efficiency & Use Strategies	CI-G-1 Comprehensive Circulation System. Create a comprehensive, multi-modal transportation system with streets and highways; transit facilities; a continuous network of sidewalks and bicycle routes. CI-I-16 Multi-modal Level of Service (LOS) Performance Measures. Develop performance measures for LOS for pedestrians, cyclists, and transit users, based on the criteria in this chapter and on "best practices."						
B-3: Bay Area Express Lane Network B-4: Goods Movement Improvements & Emission Reduction Strategies	Measures may be both quantitative (for example, sidewalk width) and qualitative (perceived safety and attractiveness.)Measures should use data that is readily available or can be readily collected, while providing an accurate assessment. CI-G-4 Level of Service (LOS) for All Modes of Travel. Assess the performance of the transportation system by measuring how well pedestrians, bicycles, and transit vehicles as well as automobiles are able to move within						

Table 3.3-7: Control Strategies of the 2010 Clean Air Plan

2010 CAP Control Strategy	Elements of the Proposed Project Consistent with the Strategy or Justification for Non-applicability
	and through the community.
	 CI-I-17 LOS for Pedestrians, Cyclists and Transit Users. Strive to maintain LOS C or better for pedestrians, cyclists, and transit users on all roadways, and impose mitigation measures as needed to achieve multi-modal service objectives. CI-G-10 Bicycle and Pedestrian Routes. Establish trails, bike routes and pedestrian amenities connecting neighborhoods to major shopping and public facility destinations, and fill in gaps in the existing network.
TCM C: Encourage Sustainable Travel Behavior C–1: Voluntary Employer– Based Trip Reduction Program C–2: Safe Routes to School	 CI-G-2 Serve All Users. Plan, design, build, and maintain transportation improvements to support safe and convenient access for all users with priority for "complete streets" projects that facilitate walking, bicycling and transit use wherever possible. CI-I-I Connective Street Network. Require new streets created as part of new development to continue existing street patterns, and include stub
 C-2: Sale Routes to School & Safe Routes to Transit C-3: Rideshare Services & Incentives C-4: Conduct Public Outreach & Education C-5: Smart Driving 	access points to adjacent undeveloped areas. CI-I-27 Pedestrian-Oriented Street Improvements. Reduce curb-to- curb road widths and employ roadway design features, such as wider sidewalks, islands, bulb-outs, improved striping and signage, street trees, pedestrian amenities, pedestrian countdown signals, and pedestrian refuges where feasible and appropriate. Priority locations for pedestrian-oriented design improvements include:
	 Pedestrian Priority Zones, shown on Figure 5-1 of the proposed General Plan, which include mixed use and higher-intensity areas;
	 Streets that are part of Pacifica's proposed trail system improvements;
	 Streets adjacent to schools; and
	 Locations where pedestrian-automobile collisions have occurred. CI-I-30 Safe Routes to Schools. Partner with Pacifica School District to develop and implement a Safe Routes to Schools program.
	CI-I-32 Direct North-South Bikeway. Complete the City's direct north- south bicycle route to optimize safety and comfort. Improvements should include the following, from north to south:
	 Class II bike lanes along Westline Drive north of Palmetto Avenue;
	 A continuous Class II bikeway on Palmetto Avenue between Westline Drive and the San Francisco RV Park;
	 A Class II bikeway on Clarendon Road, Lakeside Road, Francisco Boulevard, and Bradford Way, improving the bikeway between West Sharp Park and Mori Point;
	 A reconstructed Class I path between Mori Point and Reina del Mar Avenue that is wider and more sheltered from the highway than the current trail;
	 A Class II bikeway on SR I between Reina del Mar Avenue and San Pedro Creek, providing a direct travel route along SR I through

Table 3.3-7: Control Strategies of the 2010 Clean Air Plan

	5					
2010 CAP Control Strategy	Elements of the Proposed Project Consistent with the Strategy or Justification for Non-applicability					
	southern Pacifica with well-marked and buffered lanes; and					
	 A Class III bikeway along SR I between San Pedro Creek and the Devil's Slide bypass. 					
	CI-I-44 Bicycle Parking Requirements for New Development. Continue to require bicycle parking facilities in new non-residential development.					
	CI-I-45 Bicycle Parking at Schools and Workplaces. Work with the school districts and employers to provide adequate bicycle parking at all schools and workplaces with 30 or more employees.					
TCM D: Support Focused Growth D-1: Bicycle Access &	Cl-I-40 Priorities for Improvements. Make designated bicycle routes a priority for pavement repair, as needed, and for regular maintenance to remove sand, gravel or other debris.					
Facilities Improvement D-2: Pedestrian Access & Facilities Improvements D-3: Local Land Use Strategies	LU-G-6 Compact Mixed Use Development. Facilitate compact mixed- use development on sites with good access to transit. Mixed-use development may include housing or office space with retail, restaurants, or personal service businesses.					
	LU-I-8 Walkable and Transit-Oriented Development. Facilitate higher-density, mixed use development at specific locations along the coastline where an active, pedestrian environment is desired.					
	Future development along Palmetto Avenue and at the Eureka Square site; on lower Linda Mar Boulevard and Crespi Drive in West Linda Mar; at the Pacific Manor Shopping Center; and at Rockaway Beach and Quarry are easily accessible along the Highway I corridor and transit routes. Such development should help to make the coastline more accessible to residents and visitors.					
	CI-I-I7 LOS for Pedestrians, Cyclists and Transit Users. Strive to maintain LOS C or better for pedestrians, cyclists, and transit users on all roadways, and impose mitigation measures as needed to achieve multi-modal service objectives.					
	CI-G-10 Bicycle and Pedestrian Routes. Establish trails, bike routes and pedestrian amenities connecting neighborhoods to major shopping and public facility destinations, and fill in gaps in the existing network.					
	CD-I-3 Support Infill and Redevelopment. Support compatible residential infill on vacant lots, and redevelopment of under-utilized commercial properties, and . continue to use the Design Guidelines in evaluation of proposals that don't meet all development standards in residential districts.					
	Pacifica's Design Guidelines identify building form strategies including locating higher portions of the house to be less visible, "stepping down" the house toward adjoining lots, and breaking up the building mass into smaller sections. Good site planning should accommodate necessary parking without allowing parking to dominate the house frontage or front yard.					
TCM E: Implement Pricing Strategies E–1: Value Pricing Strategies	CD-I-7 Parking in Higher-Intensity Mixed Use Areas. Update parking standards to require parking areas to be located behind buildings, in the center of blocks, or tucked under development, and update the Design					

 Table 3.3-7:
 Control Strategies of the 2010 Clean Air Plan

2010 CAP Control Strategy	Elements of the Proposed Project Consistent with the Strategy or Justification for Non-applicability
E-2: Promote Parking Pricing	Guidelines to cover parking issues in higher-intensity, mixed-use areas.
to Reduce Motor Vehicle Travel E–3: Implement Transportation Pricing	If development of above-grade structures is economically viable, the interaction of the parking structure with the street is a key element of design. The design and location of parking directly affects the viability of commercial areas, safety for all road users, and the quality and character of the street and pedestrian environment.
Reform	LU-I-16 Parking Requirements. Update commercial and mixed use parking requirements as appropriate based on best practices. Provide for shared parking between commercial uses; car-sharing availability for residential uses, reductions for transit-accessible locations, and other strategies.
	CI-I-54 Transportation Demand Management Programs. Establish a Transportation Demand Management (TDM) program for City employees that may include transit passes or subsidies, preferential carpool parking, car share programs, bicycle lockers, and other incentives to employees choosing transportation modes other than driving.
Mobile Source Control N	1easures
MSM A-3: Green Fleets	CO-I-64 Clean City Fleet. Establish City budget for clean fuels and electric or hybrid vehicles to replace and improve the existing fleet of gasoline and diesel powered vehicles.
MSM A-4: Replacement or Repair of High-emitting Vehicles	Not Applicable: This Strategy addresses vehicle buy-back programs implemented by BAAQMD.
MSM B-1: Fleet Modernization for Medium and Heavy-Duty Trucks	Not Applicable: This Strategy addresses incentive programs for truck modernization which are implemented by BAAQMD or CARB.
MSM B-2: Low NOx retrofits in Heavy-Duty Trucks	Not Applicable: This Strategy addresses cash incentives for retrofits which are implemented by BAAQMD or CARB.
MSM B-3: Efficient Drive Trains	Not Applicable: This Strategy addresses development and demonstration programs in partnership with CARB and the California Energy Commission.
MSM C-1: Construction and Farming Equipment	Not Applicable: This Strategy addresses cash incentives for retrofits which are implemented by BAAQMD or CARB.
MSM C-2: Lawn & Garden Equipment	Not Applicable: This Strategy addresses voluntary exchange programs implemented by BAAQMD.
MSM C-3: Recreational Vessels	Not Applicable: This Strategy addresses voluntary exchange programs implemented by BAAQMD.
Land Use & Local Impac	t Measures
LUM 1: Goods Movement	CI-G-18 Truck Movement and Quality of Life. Balance commercial goods movement with the health and quality of life priorities of the community.
LUM 2: Indirect Source Review Rule	Not Applicable: This Strategy addresses implementation of an indirect source Rule by BAAQMD.

Table 3.3-7: Control Strategies of the 2010 Clean Air Plan

2010 CAP Control Strategy	Elements of the Proposed Project Consistent with the Strategy or Justification for Non-applicability				
LUM 3: Updated CEQA Guidelines & Enhanced Review	This Strategy addresses updating of the CEQA Guidelines by BAAQMD (adopted in June 2010 and applied in this analysis).				
LUM 4: Land Use Guidance	This strategy addresses updating land use planning documents such as the proposed General Plan and demonstrating consistency with air quality protection guidance such as the new BAAQMD CEQA Guidelines that are applied in this analysis.				
LUM 5: Reduce Health Risk in Impacted Communities	CO-I-56 Sensitive Receptors. Work with BAAQMD to develop and implement a Community Risk Reduction Plan to address the exposure of sensitive populations to toxic air contaminant emissions in Pacifica.				
LUM 6: Enhanced Air Quality Monitoring	Not Applicable: This Strategy addresses air quality monitoring that is the purview of BAAQMD and/or CARB.				
Energy & Climate Measu	ires				
ECM I: Energy Efficiency	 CO-I-60 Climate Action Plan for Greenhouse Gas Reductions. Maintain and update the Climate Action Plan that focuses on feasible actions the City can take to reduce greenhouse gas emissions from government, businesses, and residents in Pacifica. The CAP should: Establish a baseline inventory of all known or reasonably discoverable sources of GHGs that currently exist in Pacifica and that existed in 1990; Projected GHG emissions expected in 2030 under this General Plan and foreseeable municipal operations; Set a target for the reduction of GHG emissions, in line with targets established by the California Air Resources Board; Present a list of feasible—and to the greatest extent possible, quantifiable—GHG reduction measures to meet the reduction target, in the areas of energy use (in all sectors), transportation and land use, solid waste, water, and education/outreach; and Establish an implementation plan, including strategies and funding for monitoring and making improvements. 				
ECM 2: Renewable Energy	CO-I-60 (above).				
ECM 3: Urban Heat Island Mitigation	CO-I-60 (above).				
ECM 4: Shade Tree Planting	CO-I-60 (above).				

 Table 3.3-7:
 Control Strategies of the 2010 Clean Air Plan

Source: BAAQMD, 2010; Environmental Science Associates, 2010.

Proposed General Plan Policies that Reduce the Impact

See **Table 3.3-7**.

Mitigation Measures

None required.

Impact

3.3-3 Implementation of the proposed Pacifica General Plan does not fail to identify or establish goals, policies, objectives, and/or overlay or buffer zones for existing and proposed land uses that would emit odors or toxic air contaminants in order to minimize potential impacts of these emissions on sensitive receptors. (Less than Significant)

The proposed General Plan identifies specific goals, policies, and objectives in order to minimize the impacts of toxic air contaminant emissions on sensitive receptors in Pacifica. Implementing Policy CO-I-51 of the proposed General Plan directs the City to work with the Bay Area Air Quality Management District to develop and implement a Community Risk Reduction Plan (CRRP) to address the exposure of sensitive populations to toxic air contaminant emissions in Pacifica. In addition, the proposed General Plan does not include land use changes that will create potential odor sources, and therefore sensitive receptors, as described below.

The California Air Resources Board notes that the location of land uses where sensitive receptors are present, such as day care centers, schools, nursing homes, and hospitals, should be carefully evaluated. 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 with some exceptions. The Air Resources board has published advisory recommendations on siting new sensitive land uses, with the same guidelines as the state school limitation.¹²

Odors

The BAAQMD's CEQA Air Quality Guidelines provides examples of types of land uses that are potential odor sources. These land uses include wastewater treatment plants, landfills, confined animal facilities, composting stations, food manufacturing plants, refineries and chemical plants.¹³ Impacts from odor sources are analyzed based on each source's proximity to sensitive receptors. The proposed General Plan will not include the addition of any of the odor sources as listed above. Therefore, the impact of odors on sensitive receptors remains less than significant.

¹² CARB, Air Quality and Land Use Handbook, 2005, available at: http://www.arb.ca.gov/ch/handbook.pdf, accessed September, 2013.

¹³ BAAQMD, 2009 CEQA Air Quality Guidelines, 2010.

Toxic Air Contaminants (TACs)

TAC emissions, such as benzene, perchloroethyle and hydrogen chloride, could also be released from various construction and operations (i.e., industrial processes, diesel equipment and vehicles) associated with the proposed General Plan. The CARB has declared that DPM particulate matter from diesel engine exhaust is a TAC. Additionally, the California Office of Environmental Health Hazard Assessment has determined that chronic exposure to DPM can cause carcinogenic and non-carcinogenic health effects. State and Air District regulations have made significant progress in reducing hazards associated with diesel and other TACs, as described in the Environmental Setting section. CEQA documentation prepared as part of environmental review for new master plan or specific plan areas or for proposed development will be required to address, and to the extent feasible, mitigate any significant or potentially significant air quality impacts. Additionally, a variety of policies are designed to address air pollutant emissions and potential exposure.

Stationary Sources

There are 29 stationary sources identified by BAAOMD within the Planning Area with screening-level risks identified. These sources are predominantly associated with commercial and office uses in the area, such as emergency diesel generators, gasoline dispensing facilities, boilers and dry cleaning operations. The excess cancer risk values for these sources can vary from none up to 296 in one million, depending on the source. This screening-level risk does not represent actual impacts. The values are based on worst-case assumption scenarios to determine whether or not a refined modeling analysis may be needed. The calculations used in the screening analysis do not include source specific exhaust information such as stack height, exhaust gas exit velocity, exhaust gas temperature, nor do they account for actual distances from receptors. A more refined analysis using source specific exhaust parameters, site specific meteorological data, site specific building dimensions and locations, and actual location of source and receptors is expected to result in lower and more accurate values than those found in the BAAQMD screening tool.¹⁴ Stationary sources located in the Planning Area and their associated risks are identified in Table 3.3-8. Values in bold in the table exceed increased cancer risk of 10 in a million or exceed ambient PM_{2.5} increase of 0.3 µg/m³ annual average.

Plant #	Facility Name (Source Type)	Street	Cancer Risk (per million)	Hazard Index (per million)	Increase of PM2.5 annual average (μg/m ³)	
G8132	Farsco Inc.	700 Hickey Boulevard	19.34	0.0320	n/a	

Table 3.3-8: Stationary Sources of TACs in the Planning Area^{1,2}

¹⁴ BAAQMD, California Environmental Quality Act Air Quality Guidelines, Updated May 2011.

Plant #	Facility Name (Source Type)	Street	Cancer Risk (þer million)	Hazard Index (þer million)	Increase of PM2.5 annual average (μg/m ³)
G12283	Hickey- Gateway Shell- Shell Oil Products	679 Hickey Boulevard	26.71	0.04419	n/a
10239	Fairway Cleaners	773 Hickey Boulevard	0	0	0.000
5536	Sanford Firestone	705 Hickey Boulevard	0	0	0.000
5307	Hack's Auto Body	118 Monterey Drive	0	0.00137	0.000
G10764	Pacific Shell- Usman Syed	95 Aura Vista Street	2.136	0.0035	n/a
G7078	Union	498 Palmetto Avenue	3.619	0.0047	n/a
GI3	Pacifica Chevron	100 Milagra Drive	12.63	0.0209	n/a
12244	Tom's Auto Body & Paint	93 I Palmetto Ave	0	0	0.000
13783	What it is	I I 37 Palmetto Avenue	0	0	0.000
7501	Cleaning by Albert	452 Manor Plaza	7.49	0.0199	0.000
18727	In-Town Communities LLC c/o by Cypress Walk	201 Cypress Street	17	0.008	0.00569
G11679	Simon's Auto Werks	1518 Francisco Blvd	7.694	0.0127	n/a
17274	Olympian Oil c/o TEC Accutite, Inc.	1518 Francisco Blvd	18	0.00587	0.000
G8648	North Coast County Water District	2400 Francisco Blvd	0	0	n/a

Table 3.3-8: Stationary Sources of TACs in the Planning Area^{1,2}

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Plant #	Facility Name (Source Type)	Street	Cancer Risk (per million)	Hazard Index (per million)	Increase of PM2.5 annual average (µg/m³)
4709	Eureka Cleaners	160 Eureka Square	7.49	0.0199	0.000
G6694	San Francisco Recreation and Parks Department	Golf Course, Sharp Park	0	0	n/a
G11663	Sharp Park Golf Course	Highway I & Sharp Park Road	0	0	n/a
G11665	City of Pacifica	700 Coast Highway	0	0	n/a
G9787	Pacifica Alliance	2095 Coast Highway	13.035	0.02157	n/a
13500	AT&T (Generator)	325 Reina Del Mar	26.15	0.0093	0.046
5785	Joe's Auto Body	2085 Coast Highway	0.00012	0.00223	0.001
G11092	Pacifica Shell Food Mart- Shell Oil Products (HRA)	4475 Coast Highway & Fassler	9.316	0.071667	n/a
12182	City of Pacifica Calera Creek Water Recycling	700 Coast Highway	41.073	0.015422	0.050
G2994	Dave and Lou's Service	505 Linda Mar Boulevard	19.6326	0.0325	n/a
18791	Whole Energy Fuels Corporation	700 Pacifica Highway	0	0	3.470
G11664	City of Pacifica	l 100 Linda Mar Boulevard	0	0	n/a
17342	North Coast County Water District (Generator)	Big Sur & Park Pacifica	1.2763	0.000452	0.000

Table 3.3-8: Stationary Sources of TACs in the Planning Area^{1,2}

Plant #	Facility Name (Source Type)	Street	Cancer Risk (per million)	Hazard Index (per million)	Increase of PM2.5 annual average (μg/m ³)
G9939	Bay Area Oil #255898	765 Oddstad Boulevard	27.4279	0.0453	n/a

Table 3.3-8: Stationary Sources of TACs in the Planning Area^{1,2}

Note: Values in Bold exceed increased cancer risk of ten in a million or exceed ambient PM_{2.5} increase of 0.3 μg/m³ annual average. Per BAAQMD Screening tool, the maximum acute and chronic hazard index for stationary sources in the Planning area is less than 1.0.

I. Excess Cancer Risk level describes the additional cancer risk above the expected rate of cancer in the population at the fence line of the site.

2. HRA Excess Cancer Risk level is based on Health Risk Screening Assessments conducted by the District for these sources, and represent the most site specific data available.

Source: BAAQMD, Stationary Source Screening Analysis Tool for San Mateo County, 2012, available at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Air quality for all new sensitive receptors will need to be evaluated at the project level when individual projects are proposed, per BAAQMD CEQA Guidelines for local community risk and hazard impacts at the project level.¹⁵ As of 2009, dry cleaners will be required to phase out the use of perchloroethylene by 2023 per State law and BAAQMD regulation, reducing the health risk of dry cleaner sources to less than significant. Projects proposed prior to the phase-out will be required to complete a site-specific analysis.

Proposed General Plan Policies that Reduce the Impact

Conservation Element

- CO-I-56 **Sensitive Receptors.** Work with BAAQMD to develop and implement a Community Risk Reduction Plan to address the exposure of sensitive populations to toxic air contaminant emissions in Pacifica.
- CO-I-57 **Construction Equipment.** Require all construction equipment to be maintained and tuned to meet appropriate EPA and CARB emission requirements.
- CO-I-58 **Dust Abatement.** Require contractors to use best management practices to reduce particulate emissions and dust associated with construction activities.

BMPs include, but are not limited to: regular materials and vehicle tire watering; covering of stockpiles; phasing or extension of grading operations; suspension of grading during high wind periods; and revegetation of graded areas.

¹⁵ BAAQMD, 2010c.

CO-I-64 **Clean City Fleet.** Establish City budget for clean fuels and electric or hybrid vehicles to replace and improve the existing fleet of gasoline and diesel powered vehicles.

Mitigation Measures

None required.