4.2 AIR QUALITY

This section discusses the project's potential impacts to air quality. Both temporary impacts related to construction and long-term impacts associated with the proposed project are discussed. Traffic projections used in emissions estimates are based on a traffic study prepared by Associated Transportation Engineers (ATE) dated November 15, 2012. The traffic study is included as Appendix I. All other air quality model results and calculations are included as Appendix B.

4.2.1 Setting

a. Climate and Topography. The City of Goleta is located within the South Central Coast Air Basin (SCCAB) which includes all of San Luis Obispo, Santa Barbara, and Ventura counties. The climate of the SCCAB is strongly influenced by its proximity to the Pacific Ocean and the location of the semi-permanent high-pressure cell in the northeastern Pacific. With a Mediterranean-type climate, the project area is characterized by warm, dry summers and cool winters with occasional rainy periods. Annual precipitation averages 16 inches, with most rainfall between November and March. Average monthly temperatures range from a high of 79 degrees Fahrenheit (°F) in August to a low of 40°F in December.

Cool, humid marine air causes frequent fog and low clouds along the coast, generally during the night and morning hours in the late spring and early summer months. The region is subject to a diurnal cycle in which daily onshore winds flow to the northwest over the City and are replaced by mild offshore breezes flowing to the southwest over the City from warm inland valleys during night and early morning hours. This alternating cycle can create a situation where suspended pollutants are swept offshore at night, and then carried back onshore the following day. Dispersion of pollutants is further degraded when the wind velocity for both day and nighttime breezes is low.

The region is also subject to seasonal Santa Ana winds, which are strong winds from the north to northeast that originate from high-pressure areas centered over the desert of the Great Basin. These winds blowing over the City toward the south are usually warm, dry, and often full of dust. They are particularly strong in the mountain passes and at the mouths of canyons.

Two types of temperature inversions (warmer air on top of cooler air) are created in the area: subsidence and radiational. The subsidence inversion is a regional effect created by the Pacific high in which air is heated as it is compressed when it flows from the high-pressure area to the low-pressure areas inland. This type of inversion generally forms at about 1,000 to 2,000 feet and can occur throughout the year, but it is most evident during the summer months. Surface inversions are formed by the more rapid cooling of air near the ground at night, especially during winter. This type of inversion is typically lower (0 to 500 feet at Vandenberg AFB, for example) and is generally accompanied by stable air. Both types of inversions limit the dispersal of air pollutants within the regional airshed, with the more stable the air (low wind speeds, uniform temperatures), the lower the amount of pollutant dispersion.

b. Local Regulatory Framework. The federal and state governments have been empowered by the federal and state Clean Air Acts (42 United States Code §§ 7401 *et seq.* and California Health and Safety Code §§ 40910 *et seq.*) to regulate emissions of airborne pollutants and have established ambient air quality standards for the protection of public health. The U.S. Environmental protection Agency (EPA)

is the federal agency designated to administer federal air quality regulation, while the California Air Resources Board (ARB) is the state equivalent and operates under the auspices of the California Environmental Protection Agency (CalEPA). Local control in air quality management is provided by the ARB through county-level or regional (multi-county) air pollution control districts (APCDs). The ARB establishes statewide air quality standards and is responsible for control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources. The ARB has established 15 air basins statewide. Goleta is located in the SCCAB, in the portion that is within the jurisdiction of the Santa Barbara County Air Pollution Control District (SBCAPCD).

Federal and state standards have been established for six criteria pollutants, including ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulates less than 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$), and lead (Pb) (refer to Table 4.2-1). California air quality standards are identical to or stricter than federal standards for all criteria pollutants. Table 4.2-1 illustrates the current Federal and State Ambient Air Quality Standards.

Table 4.2-1
Current Federal and State Ambient Air Quality Standards

Pollutant	Federal Standard	California Standard
Ozone	0.075 ppm (8-hr avg)	0.07 ppm (8-hr avg) 0.09 ppm (1-hr avg)
Carbon Monoxide	9.0 ppm (8-hr avg) 35.0 ppm (1-hr avg)	9.0 ppm (8-hr avg) 20.0 ppm (1-hr avg)
Nitrogen Dioxide	0.100 ppm (1-hr avg) 0.053 ppm (annual avg)	0.18 ppm (1-hr avg) 0.030 ppm (annual avg)
Sulfur Dioxide	0.075 ppm (1-hr avg)	0.25 ppm (1-hr avg) 0.04 ppm (24-hr avg)
Lead	1.5 $\mu g/m^3$ (calendar quarter)	0.15 $\mu g/m^3$ (3-month avg)
Particulate Matter (PM_{10})	150 $\mu g/m^3$ (24-hr avg)	20 $\mu g/m^3$ (annual avg) 50 $\mu g/m^3$ (24-hr avg)
Particulate Matter ($PM_{2.5}$)	12 $\mu g/m^3$ (annual avg) 35 $\mu g/m^3$ (24-hr avg)	12 $\mu g/m^3$ (annual avg)

ppm= parts per million
µg/m3 = micrograms per cubic meter
Sources: California Air Resources Board, June 7, 2012. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf; EPA Particulate Matter (PM) Regulatory Actions, March 2013. http://www.epa.gov/pm/actions.html.

c. Current Ambient Air Quality. The SBCAPCD monitors air pollutant levels and develops strategies to ensure that air quality standards are met. Depending on whether or not the standards are met or exceeded, Santa Barbara County is classified as being in "attainment" or as "non-attainment." Santa Barbara County is in non-attainment for the state eight-hour ozone standard and the state standard for PM_{10}. The County is unclassified (meaning there is insufficient data to designate the area or designations have yet to be made) for the state $PM_{2.5}$ standard and the federal PM_{10} standard. The County is in attainment for all other standards.

Non-attainment status within Santa Barbara County is a result of several factors, primarily the natural meteorological conditions that limit the dispersion and diffusion of pollutants (surface and subsidence

inversions), the limited capacity of the local airshed to eliminate pollutants from the air, and the number, type, and density of emission sources within the air basin. The potential health effects of pollutants for which the County is in nonattainment are described below.

Ozone. Ozone is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NOx) and reactive organic compounds (ROC).[1] Nitrogen oxides are formed during the combustion of fuels, while reactive organic gases are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it occurs in serious concentrations primarily between the months of May and October. Ozone is a pungent, colorless toxic gas with direct health effects on humans, including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, persons with respiratory disorders, and people who exercise strenuously outdoors.

Suspended Particulates. PM_{10} is small particulate matter measuring no more than 10 microns in diameter, while $PM_{2.5}$ is fine particulate matter measuring no more than 2.5 microns in diameter. Both PM_{10} and $PM_{2.5}$ are comprised mostly of dust particles, nitrates, and sulfates. The characteristics, sources, and potential health effects associated with the small particulates (those between 2.5 and 10 microns in diameter) and fine particulates ($PM_{2.5}$) can be very different. The small particulates generally come from windblown dust and dust kicked up from mobile sources. The fine particulates are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. PM_{10} is a by-product of fuel combustion and wind erosion of soil and unpaved roads, and is directly emitted into the atmosphere through these processes. PM_{10} is also created in the atmosphere through chemical reactions. Fine particulate matter poses a serious health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the fine particulate matter that is inhaled into the lungs remains there, which can cause permanent lung damage. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

An important fraction of the particulate matter emission inventory is that formed by diesel engine fuel combustion. Particulates in diesel emissions are very small and readily respirable. The particles have hundreds of chemicals adsorbed onto their surfaces, including many known or suspected mutagens or carcinogens. Diesel PM emissions are estimated to be responsible for about 70% of the total ambient air toxics risk. In addition to these general risks, diesel PM can also be responsible for elevated localized or near-source exposures ("hot spots"). Depending on the activity and proximity to receptors, these potential risks can be as high as 1,500 excess cancer cases per million or more (ARB, October 2000). Risk characterization scenarios have been conducted by the ARB staff to determine the potential excess cancer risks involved due to the location of individuals near to various sources of diesel engine emissions, ranging from school buses to high volume freeways.

Table 4.2-2 summarizes the annual air quality data for Goleta's local airshed, collected at the Goleta-Fairview station, located at 380 N. Fairview Avenue in Goleta. The data collected at this station is considered to be representative of the baseline air quality experienced in the City.

[1] Reactive organic compounds (ROC) are sometimes referred to as reactive organic gases (ROG)

Table 4.2-2
Ambient Air Quality Data

Pollutant	2010	2011	2012
Ozone, ppm - Worst Hour	0.072	0.091	0.065
Number of days of State exceedances (>0.09 ppm)	0	0	0
Ozone, ppm – Worst 8 Hours	0.065	0.075	0.056
Number of days of State exceedances (>0.07 ppm)	0	1	0
Number of days of Federal exceedances (>0.075 ppm)	0	0	0
Carbon Monoxide, ppm - Worst 8 Hours	0.56	0.56	0.65
Number of days of State/Federal exceedances (>9.0 ppm)	0	0	0
Nitrogen Dioxide, ppm - Worst Hour	0.044	0.052	0.041
Number of days of State exceedances (>0.18 ppm)	0	0	0
Particulate Matter <10 microns, $\mu g/m^3$ Worst 24 Hours	44.0	67.9	46.5
Number of samples of State exceedances (>50 $\mu g/m^3$)	*	0	0
Number of samples of Federal exceedances (>150 $\mu g/m^3$)	*	*	0
Particulate Matter <2.5 microns, $\mu g/m^3$ Worst 24 Hours	23.6	18.4	29.0
Number of days Federal exceedances	*	*	*

** There was insufficient (or no) data available to determine the value.*
Goleta-Fairview Station
Source: ARB Air Quality Data Statistics. Top four Summary. Accessed May 2013. Retrieved from: http://www.arb.ca.gov/adam/topfour/topfour1.php

As shown in Table 4.2-2, between 2010 and 2012 the only exceedance of air quality standards was one day of exceedance of the State 8-hour ozone standard in 2011. The standards for 1-hour ozone, CO, NO_2, and particulate matter have not been exceeded in the last three years.

d. Air Quality Planning. Under the California Clean Air Art, the SBCAPCD is required to prepare an overall plan for air quality improvement for the SCCAB, known as the Clean Air Plan (CAP). The CAP was updated in 2010 from its previous update in 2007, and is the fifth triennial update to the initial CAP adopted in 1991. The 2010 CAP incorporates new scientific data and notable regulatory actions that have occurred since adoption of the 2007 CAP. The 2010 CAP was adopted by the SBCAPCD Board of Directors on January 20, 2011. The SCBAPCD is currently developing a 2013 CAP, but it has not yet been adopted.

The 2010 CAP was prepared to address both federal and state requirements. The federal requirements pertain to provisions of the federal Clean Air Act that apply to the City's current designation as an attainment area for the federal 8-hour ozone standard (SBAPCD, 2011). Areas that are designated as attainment for the federal 8-hour ozone standard and attainment for the previous federal 1-hour ozone standard with an approved maintenance plan must submit an 8-hour maintenance plan under section 110(a)(1) of the federal Clean Air Act. The California Clean Air Act, under Health and Safety Code sections 40924 and 40925, requires areas to update their clean air plans every three years with the goal of attaining the state 1-hour ozone standard. The 2010 CAP provides a three-year update to the SBCAPCD's 2007 CAP.

The 2010 CAP also includes a climate protection chapter, with an inventory of carbon dioxide emissions in the County. More information on carbon dioxide emissions and climate change can be found in Section 4.6, Greenhouse Gas Emissions.

e. Sensitive Receptors. Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare. They are designed to protect that segment of the public most susceptible to respiratory distress, such as children under 14; the elderly over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases. The majority of sensitive receptor locations are therefore residences, schools and hospitals. The project site vicinity is primarily occupied by business park development, which is not generally considered a sensitive receptor. Sensitive receptors near the project site include residential uses (the Pacific Glen townhomes) approximately 500 feet southwest of the project site across Storke Road. Though not yet approved, a 149-room hotel is proposed at the northwest corner of Hollister Avenue and Cortona Drive, approximately 400 feet south of the project site (the Rincon Palms Hotel and Conference Center). This hotel would be considered a sensitive receptor.

4.2.2 Impact Analysis

a. Methodology and Significance Thresholds. Pursuant to guidance provided in Appendix G of the *CEQA Guidelines*, air quality impacts related to the proposed project would be significant if the project would:

- *Conflict with or obstruct implementation of the applicable air quality plan;*
- *Violate any air quality standard or contribute substantially to an existing or projected air quality violation;*
- *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative guidelines for ozone precursors);*
- *Expose sensitive receptors to substantial pollutant concentrations; and/or*
- *Create objectionable odors affecting a substantial number of people.*

In addition, pursuant to the City's *Environmental Thresholds and Guidelines Manual*, a significant adverse air quality impact may occur when a project, individually or cumulatively, triggers either of the following:

- *Interferes with progress toward the attainment of the ozone standard by releasing emissions which equal or exceed the established long-term quantitative thresholds for NO_X and ROG; or*
- *Equals or exceeds the State or Federal ambient air quality standards for any criteria pollutant (as determined by modeling).*

The analysis of air quality impacts follows the guidance provided in the SBCAPCD *Scope and Content of Air Quality Sections in Environmental Documents* (December 2011). The EIR utilizes SBCAPCD thresholds because they are more current than City thresholds, having most recently been adopted as part of the update of the APCD's Scope and Content of Air Quality Sections in Environmental Documents in March 2014 whereas the City thresholds (which are based on the former County thresholds) are dated 2002. The California Emissions Estimator Model (CalEEMod version 2011.1.1) was used to estimate air pollutant emissions associated with project construction and operation. Construction trips related to soil import assume 2,800 cubic yards of soil imported and 20 cubic yards per truck trip (for a total of 140 round trips. Where project-specific information was unavailable, default assumptions provided in the

CalEEMod software for Santa Barbara County were used to calculate operational emissions associated with the project. The estimate of vehicle trips associated with the proposed project is from the Traffic and Circulation Study prepared by Associated Transportation Engineers (Appendix I; also refer to Section 4.13, *Transportation and Circulation*).

Operational Pollutant Emissions. As described in the SBCAPCD *Scope and Content of Air Quality Sections in Environmental Documents* (December 2011), a project will have a significant air quality effect on the environment if operation of the project will:

- *Emit (from all sources, both stationary and mobile) more than 240 lbs/day for ROC and NO_X or more than 80 lbs/day for PM_{10}*
- *Emit more than 25 lbs/day of NO_X or ROC from motor vehicle trips only;*
- *Cause or contribute to a violation of any California or National Ambient Air Quality Standard (except ozone);*
- *Exceed the APCD health risk public notification thresholds adopted by the APCD Board (10 excess cancer cases in a million for cancer risk and a Hazard Index of more than 1.0 for non-cancer risk); or*
- *Be inconsistent with the latest adopted federal and state air quality plans for Santa Barbara County.*

The SBCAPCD does not have a daily operational threshold for CO as it is an attainment pollutant. The City's thresholds include criteria for conducting CO emissions modeling. Due to the relatively low background ambient CO levels in Santa Barbara County, localized CO impacts associated with congested intersections are not expected to exceed the CO health-related air quality standards. Therefore, CO "Hotspot" analyses are no longer required.

The California Air Resources Board (CARB) recommends that "sensitive land uses" such as: residences, schools, daycare centers, playgrounds, or medical facilities not be located within 500 feet of a freeway or urban road with more than 100,000 vehicles/day, within 1,000 feet of distribution centers, ports and rail yards, or within 300 feet of large gas stations (defined as a facility with a throughput of 3.6 million gallons per year or greater) or dry cleaners using perchloroethylene (California Air Resources Board, April 2005). The proposed project would not emit toxic air contaminants (TACs) but would be located within 500 feet of a freeway with more than 100,000 vehicles per day.

Construction Pollutant Emissions. The SBCAPCD has not adopted quantitative thresholds of significance for construction emissions since such emissions are temporary. However, according to the SBCAPCD's *Scope and Content of Air Quality Sections in Environmental Documents* (December 2011), construction-related NO_X, ROC, PM_{10}, and $PM_{2.5}$ emissions from diesel and gasoline powered equipment, paving and other activities, should be quantified. SBCAPCD uses 25 tons per year for all pollutants except CO as a guideline for determining the significance of construction impacts. In addition, standard dust control measures must be implemented for any discretionary project involving earth-moving activities, regardless of size or duration. According to the SBCAPCD, proper implementation of these required measures reduces fugitive dust emissions to a level that is less than significant (SBCAPCD, December 2011). Therefore, all construction activity would be required to incorporate the SBCAPCD requirements pertaining to minimizing construction-related emissions and demolition of existing structures.

2010 Clean Air Plan Consistency. Consistency with land use and population forecasts in local and regional plans, including the Clean Air Plan (CAP), is required under CEQA for all projects. Consistency with the CAP for the projects subject to the CEQA guidelines means that direct and indirect emissions associated with the project are accounted for in the CAP's emissions growth assumptions and the project is consistent with policies adopted in the CAP. The CAP relies primarily on the land use and population projections provided by the Santa Barbara County Association of Governments (SBCAG) and ARB on-road emissions forecast as a basis for vehicle emission forecasting. SBCAG's regional growth forecast is used by the CAP to project population growth and associated air pollutant emissions for all of the Santa Barbara County incorporated and unincorporated areas. SBCAG's latest regional growth forecast is for 2010-2040 and was adopted in December 2012. Residential projects that involve population growth in an individual jurisdiction or subregion of the unincorporated County above the amount forecasted for that jurisdiction or subregion will be considered inconsistent with the CAP and may have a significant impact on air quality.

b. Project Impacts and Mitigation Measures.

Impact AQ-1 Project construction would generate temporary increases in localized air pollutant emissions. Such emissions may result in temporary adverse impacts to local air quality but are below SBCAPCD guideline thresholds for construction emissions. Additionally, standard dust and emissions control measures are required by the SBCAPCD. Impacts would be Class III, *less than significant*.

The proposed project includes developing 176 multi-family residences, parking areas, a club house, and recreational facilities on an 8.8-gross acre site. Construction of the proposed project is expected to occur over 14 months. Estimated preliminary project grading would include approximately 5,700 cubic yards of cut and 8,500 cubic yards of fill, for a net import of 2,800 cubic yards of material. Assuming approximately 20 cubic yards of material per truck trip, the proposed project would result in approximately 140 round-trip hauling truck trips.

Construction activities associated with this development would result in temporary air quality impacts. Ozone precursors NO_X and ROC, as well as CO, would be emitted by the operation of construction equipment such as graders, backhoes, and generators, while fugitive dust (PM_{10}) would be emitted by activities that disturb the soil, such as grading and excavation, road construction and building construction. Table 4.2-3 shows estimates of construction emissions associated with the proposed development.

SBCAPCD uses 25 tons per year for all pollutants except CO as a guideline for determining the significance of construction impacts. As shown in Table 4.2-3, the annual emissions of ROC and NO_X PM_{10} and $PM_{2.5}$ would be below the 25-tons-per-year threshold. The construction phase with the largest emissions of NO_X, CO, PM_{10}, and $PM_{2.5}$ would be the building construction phase, which is estimated to occur over approximately 10.5 months. The construction phase with the largest ROC emissions would be the architectural coating phase, which is assumed to occur over the last 60 days of building construction.

Table 4.2-3
Estimated Construction Air Pollutant Emissions

Construction Phase	Emissions (tons/year)				
	ROC	**NO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Site Preparation	0.05	0.37	0.22	0.11	0.07
Grading	0.10	0.74	0.53	0.22	0.09
Building Construction	0.77	4.31	5.06	0.54	0.26
Architectural Coating	1.17	0.09	0.15	0.02	0.01
Paving	0.05	0.30	0.22	0.03	0.03
Total Construction Emissions	**2.15**	**5.83**	**6.19**	**0.93**	**0.46**
SBCAPCD Thresholds	***25***	***25***		***25***	***25***
Threshold Exceeded?	**No**	**No**		**No**	**No**

Notes: All calculations were made using the CalEEMod computer model. See Appendix B for calculations. Site Preparation, Grading, Paving, Building Construction and Architectural Coating totals include worker trips, construction vehicle emissions and fugitive dust. Construction phase numbers don't add up to total emissions due to rounding.

The project site is located in Santa Barbara County and the Santa Barbara County portion of the SCCAB is a nonattainment area for the state PM_{10} standard. Therefore, the SBCAPCD requires construction emissions and dust control measures for all projects involving earthmoving activities regardless of size or duration. In accordance with standard practices, such construction emissions control measures would be shown on grading and building plans and as a note on a separate information sheet to be recorded with map. According to the SBCAPCD's *Scope and Content of Air Quality Sections in Environmental Documents* (December 2011), implementation of required dust control measures results in fugitive dust emissions that are less than significant. The specific measures that would be applied in accordance with standard SBCAPCD requirements include the following:

- *During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this should include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency should be required whenever the wind speed 21 exceeds 15 mph. Reclaimed water should be used whenever possible. However, reclaimed water should not be used in or around crops for human consumption.*
- *Minimize amount of disturbed area and reduce on site vehicle speeds to 15 miles per hour or less.*
- *If importation, exportation and stockpiling of fill material is involved, soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site shall be tarped from the point of origin.*

- *Gravel pads shall be installed at all access points to prevent tracking of mud onto public roads.*
- *After clearing, grading, earth moving or excavation is completed, treat the disturbed area by watering, or revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.*
- *The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to land use clearance for map recordation and land use clearance for finish grading of the structure.*
- *Prior to land use clearance, the applicant shall include, as a note on a separate informational sheet to be recorded with map, these dust control requirements. All requirements shall be shown on grading and building plans.*

Project construction emissions would not exceed the 25-tons-per-year guideline emission threshold. Construction-related air quality impacts would be less than significant.

Mitigation Measures. Mitigation would not be required.

Residual Impact. Impacts would be less than significant without mitigation.

Impact AQ-2 The proposed project would generate operational air pollutant emissions from area sources, energy use, and increased vehicular traffic. However, the increase in emissions would not exceed thresholds established by SBCAPCD and impacts would be Class III, *less than significant*.

Long-term regional emissions are generated by area, energy, and mobile sources. Area emissions include the use of aerosols, consumer products, and landscaping maintenance equipment. Energy emissions include emissions from the use of electricity and natural gas. Mobile emissions are based on the estimated amount of project-generated vehicle trips determined by the project traffic study (see Section 4.13, *Transportation and Circulation*).

Table 4.2-4 summarizes operational emissions resulting from the proposed project. As shown, the project would generate an estimated 12.17 pounds of ROC, 12.64 pounds of NO_X, and 12.05 pounds of PM_{10} per day. The largest source of emissions is mobile emissions. Mobile sources contribute 54% of ROC emissions, 94% of NO_X emissions, and 99% of PM_{10} emissions (see Figure 4.2-1). No SBCAPCD thresholds would be exceeded; therefore, impacts would be less than significant.

Mitigation Measures. Mitigation would not be required as project emissions would not exceed SBCAPCD thresholds.

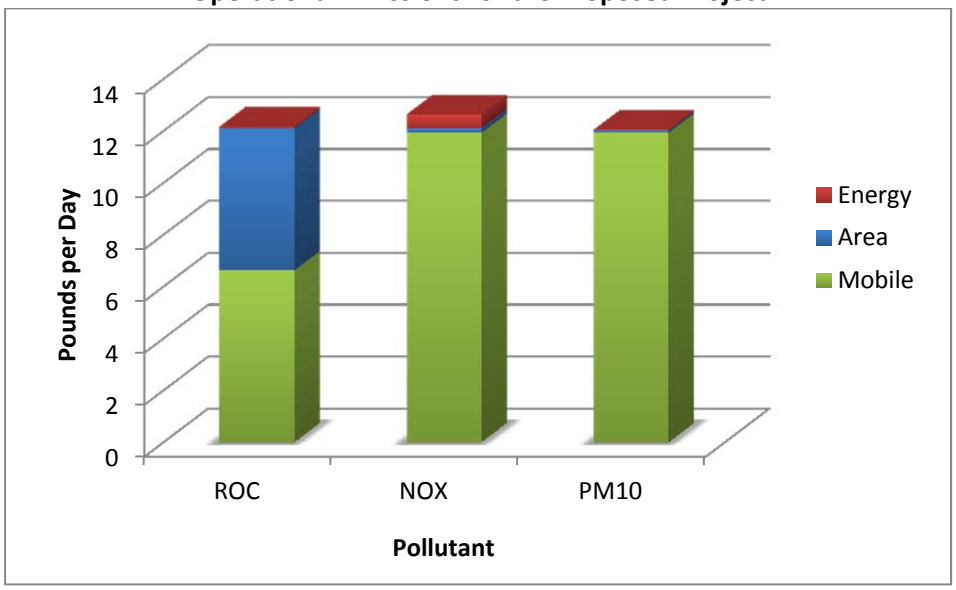
Residual Impact. Impacts would be less than significant without mitigation.

Table 4.2-4
Operational Emissions for the Proposed Project

Source	Maximum Emissions (lbs/day)		
	ROC	NO_X	PM_{10}
Area	5.48	0.17	0.08
Energy	0.06	0.54	0.04
Mobile	6.63	11.93	11.93
Total	**12.17**	**12.64**	**12.05**
Threshold (area + energy +mobile)	*240*	*240*	*80*
Threshold Exceeded?	**No**	**No**	**No**
Threshold (mobile only)	*25*	*25*	*n/a*
Threshold Exceeded?	**No**	**No**	**No**

Source: CalEEMod v.2011.1, modeling results contained in Appendix B.

Figure 4.2-1
Operational Emissions for the Proposed Project



Impact AQ-3 Population growth associated with the proposed project would not exceed the 2010 CAP population forecasts for Goleta. Impacts related to CAP consistency would be Class III, *less than significant*.

To be consistent with the CAP, a project's emissions must be accounted for in the growth assumptions of the CAP. The 2010 CAP utilized growth forecasts provided by the Santa Barbara Council Association of Governments (SBCAG). SBCAG's latest regional growth forecast was for 2010-2040 and projected population growth and associated air pollutant emissions for all of the Santa Barbara County incorporated and unincorporated areas.

The proposed project involves developing 176 multi-family apartment units. The current population of Goleta is 29,962 and the City has approximately 2.73 persons per household (California Department of Finance, May 2013). Development of the proposed project would add an estimated 481 residents (176 dwelling units x 2.73 people/dwelling unit), thus increasing the City's population to 30,443. SBCAG's 2010-2040 growth forecast projects Goleta's population to be 30,000 in 2015, 33,900 in 2035, and 34,600 in 2040. The proposed project is not expected to be operational until after 2015. Consequently, the proposed project was compared to the 2035 and 2040 forecasts. Population generated by the proposed project would not exceed SBCAG's 2035 growth forecast of 33,900 and would not exceed the 2040 growth forecast of 34,588 for the City of Goleta (SBCAG, December 2012). Development of the project would therefore be consistent with the population forecasts contained in the 2010 CAP.

Mitigation Measures. Mitigation not required as this impact would be less than significant.

Residual Impact. Impacts would be less than significant without mitigation.

Impact AQ-4 New sensitive receptors on the project site would be exposed to hazardous air pollutants at levels that may cause health risks. The proposed residences closest to U.S. 101 and the Union Pacific Railroad (approximately 120 feet away) would be exposed to hazardous air pollutants that exceed significance thresholds. This impact would be Class II, *significant but mitigable.*

The ARB has identified diesel particulate matter as the primary airborne carcinogen in the state (ARB, n.d.). The main sources of diesel particulate matter are exhaust from heavy-duty trucks on the interstate freeway system and diesel-powered locomotives. Due to the potential for exposure of sensitive receptors to diesel particulate matter and other toxic air contaminants, ARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (June 2005) recommends avoiding siting new sensitive land uses, such as residences, schools, daycare centers, playgrounds, or medical facilities, within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day. Based on ARB's findings, the Santa Barbara County APCD also recommends that land use policies should prohibit the construction of new residences, schools, day care centers, playgrounds, and medical facilities within 500 feet of U.S. 101 (SBCAPCD, Public Health and High Traffic Roadways, accessed online September 2014).

The ARB Handbook found that, based on traffic-related studies, additional non-cancer health risks attributable to proximity to freeways occurs within 1,000 feet and is strongest within 300 feet. California freeway studies show about a 70% drop-off in particulate pollution levels at 500 feet (ARB, 2005).

The project site is located along the south side of U.S. 101 and the Union Pacific Railroad (UPRR). Residences on-site would be located as close as approximately 120 feet to the UPRR railroad tracks and 300 feet to the centerline of U.S. 101. In addition, nearby businesses may emit additional hazardous air pollutants. These emissions are not expected to individually cause a risk; however, these emissions could result in a cumulative risk to onsite residents in the proposed residential units when considered in combination with the TACs associated with the freeway and railroad operations.

Rincon Consultants, Inc. prepared a Health Risk Assessment (HRA) for the Cortona Apartments project in July 2013. The July 2013 HRA employed the CARB Hotspots Analysis and Reporting Program (HARP), and was based on the project site plans that had been prepared at that time. A copy of this report is included in Appendix B. The HRA examined both carcinogenic risk associated with diesel particulates and other carcinogens (benzene, 1.3 butadiene, acetaldehyde, and formaldehyde) and the chronic inhalation health hazards associated with these toxic air contaminants along with that of acrolein.

Cancer risk is expressed as the maximum number of new cases of cancer projected to occur in a population of one million people due to exposure to the cancer-causing substance, typically over a 70-year lifetime (California EPA, 2001). For example, a cancer risk of one in one million means that in population of one million people, not more than one additional person (relative to the background rate of cancer) would be expected to develop cancer as the result of exposure to the substance causing that risk.

The conclusions of the HRA are summarized in Table 4.2-5. The HRA analysis determined that the residents in on-site housing units would be exposed to an excess cancer risk of between 14 and 23 in one million, assuming a 70-year residency on-site. To provide context for this level of additional risk, the American Cancer Society (2007) reports that in the U.S., men have a one in two chance (0.5 probability) and women about one in three chance (0.3) probability of developing cancer during a lifetime, with one in four deaths (0.23) in the U.S. attributed to cancer.

Diesel exhaust particulates were found to be responsible for about 85% of the calculated cancer risk on-site. The HRA concluded that because the carcinogenic health risk for lifetime residency exceeds the SBCAPCD-recommended health risk criteria for a 70-year residency of ten excess cases of cancer in one million individuals (1.0E-05), the potential effect of exposure to freeway air pollutants for the proposed project is significant. However, the health effects risk level for the average (50-percentile) residency of 9 years for an adult would be less than 3 in one million, and for that of a child (9 years) would be less than 5 in one million; therefore, the risk for average residents and for children would be less than the ten excess cancer cases in one million individuals threshold.

The HRA also found that residences on-site would be exposed to chemicals such as 1,3 butadiene and formaldehyde from the exhaust of vehicles on U.S. 101. However, chronic health hazards associated with inhalation of these chemicals would be below the SBCAPCD threshold (a hazard index of 1.0) for the nearest proposed residences. Based on this finding, future residents on-site would experience a less than significant chronic health risk from freeway exhaust.

The HRA analysis is based on outdoor air concentrations and conservatively assumes that interior concentrations would be the same. EPA activity factors show that people in a residential environment spend only a small portion of the day on an average basis outdoors. Therefore, the HRA recommends a mitigation measure that includes forced air ventilation with filter screens on outside air intake ducts to be provided for all residential units on the project site. The identified mitigation measure would reduce the

future residents' exposure to toxic air contaminants associated with U.S. 101 and the UPRR to below the recommended 10 in one million threshold for a 70-year residency.

Table 4.2-5
Potential Health Risks at the Maximum Exposed Individual Residential Receptors

	Excess Cancer Risk	Exceed Criterion? (10^{-5})	OEHHA Chronic Hazard Quotient[1]	Exceed Criterion? (>1)
Residential 1				
9-year Resident				
Adult	1.69E-06	No	1.05E-02	No
Child	2.82E-06	No	--	--
30-year Adult	5.64E-06	No	1.05E-02	No
70-year Lifetime	1.47E-05	Yes	1.05E-02	No
Residential 2				
9-year Resident				
Adult	1.89E-06	No	1.18E-02	No
Child	3.15E-06	No	--	--
30-year Adult	6.30E-06	No	1.18E-02	No
70-year Lifetime	1.64E-05	Yes	1.18E-02	No
Residential 3				
9-year Resident				
Adult	1.87E-06	No	1.17E-02	No
Child	3.13E-06	No	--	--
30-year Adult	6.25E-06	No	1.17E-02	No
70-year Lifetime	1.62E-05	Yes	1.17E-02	No
Residential 4				
9-year Resident				
Adult	1.91E-06	No	1.19E-02	No
Child	3.18E-06	No	--	--
30-year Adult	6.36E-06	No	1.19E-02	No
70-year Lifetime	1.66E-05	Yes	1.19E-02	No
Residential 5				
9-year Resident				
Adult	2.68E-06	No	1.61E-02	No
Child	4.47E-06	No	--	--
30-year Adult	8.94E-06	No	1.61E-02	No
70-year Lifetime	2.32E-05	Yes	1.61E-02	No

1: Note that chronic risk does not change with increase in years as calculation terms cancel out.

It is important to note that, although the analysis of health risks assumes outdoor exposure, the finding of a potentially significant impact related to cancer risk does not mean that using exterior portions of the site would create acute, or short-term, health risks for site residents or visitors. The excess cancer risk identified in the HRA is based on a 70-year exposure, which far exceeds the length of time that most residents of the rental housing project would be expected to live on-site.

Mitigation Measures. In accordance with the July 2013 Health Risk Assessment for the project, the following mitigation measure are required to reduce impacts to residential receptors on the project site to a less than significant level.

AQ-4 **Indoor Air Pollution.** The mitigation actions listed below applies to all new residential units on the project site:

- *Forced air ventilation with filter screens on outside air intake ducts must be provided for all residential units proposed on the project site (MERV 13 or better). The filter screens must be capable of removing at least 85% of the particulate matter including fine particulate matter (PM<2.5 micron).*
- *For individual residential units with separate HVAC systems, a brochure notifying the future residents of the need for maintaining the filter screens must be prepared and provided at the time of ownership exchange. In addition, a notice of the diesel particulates risk hazard and the need for screen maintenance must be placed in the property title or lease.*
- *For residential units with conjoined HVAC (e.g. apartments), the agent (e.g., HOA or landlord) is responsible for maintaining the filter screens annually. In addition, a notice of the diesel particulates risk hazard and the need for screen maintenance must be placed in the property title or lease.*
- *Windows and doors must be fully weatherproofed with caulking and weather-stripping that is rated to last at least 20 years.*

Plan Requirements and Timing: The above-noted emissions avoidance measures must be incorporated into the project and shown on the plans submitted for ~~zoning clearance~~ building plan check. The brochure and the specifications for the filter screens must also be submitted to the Planning and Environmental Review Director or designee for review and acceptance~~before zoning clearance approval~~ before issuance of a building permit.

Monitoring: The Planning and Environmental Review Director or designee must review the hazard avoidance measures and confirm acceptable wording in the brochure and the suitability of the proposed screens before issuance of ~~zoning clearance~~ a building permit. City building inspectors must check for installation of the filter screens and adequate weather-proofing in the appropriate units before issuance of certificate of occupancy.

Residual Impact. These mitigation actions would provide for the removal of particulates before they enter the indoor environment, thereby reducing the overall exposure of individual residents. With this reduction in exposure to TACs, the combined exposure from time spent both indoors and outdoors would be below significance thresholds, as shown in Table 4.2-6. Resulting impacts would be less than significant.

Table 4.2-6
Mitigated Potential Carcinogenic Health Risks
within the Project Site

	Mitigated Excess Cancer Risk	Exceed Criterion? (10^{-5})
Residential 1		
9-year Resident		
Adult	1.41E-07	No
Child	2.35E-07	No
30-year Adult	4.70E-07	No
70-year Lifetime	1.23E-06	No
Residential 2		
9-year Resident		
Adult	1.58E-07	No
Child	2.63E-07	No
30-year Adult	5.25E-07	No
70-year Lifetime	1.37E-06	No
Residential 3		
9-year Resident		
Adult	1.56E-07	No
Child	2.61E-07	No
30-year Adult	5.21E-07	No
70-year Lifetime	1.35E-06	No
Residential 4		
9-year Resident		
Adult	1.59E-07	No
Child	2.65E-07	No
30-year Adult	5.30E-07	No
70-year Lifetime	1.38E-06	No
Residential 5		
9-year Resident		
Adult	2.23E-07	No
Child	3.73E-07	No
30-year Adult	7.45E-07	No
70-year Lifetime	1.93E-06	No

Impact AQ-5 The proposed project involves residential uses that would not create objectionable odors affecting a substantial number of people. This impact would be Class III, *less than significant*.

The proposed project involves the development of a multi-family residential project consisting of 176 apartments and associated amenities. Operation of the proposed project would not involve any activities that would generate substantially objectionable odors. Construction of the new parking areas would require application of asphalt that could create odors for employees and visitors to the surrounding business park development. However, odors would be temporary and localized. Therefore, odor related impacts would be less than significant.

Mitigation Measures. Mitigation not required as this impact would be less than significant.

Residual Impact. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. Cumulative development in the City of Goleta will contribute to the cumulative degradation of regional air quality. As discussed in Section 3.0, *Related Projects*, 1,249 residential units and more than 1.4 million square feet of non-residential development are currently planned and pending in the City of Goleta. Pursuant to Goleta thresholds, the Cortona Apartments project would have a significant cumulative impact if it were inconsistent with the adopted federal and state air quality plans of Santa Barbara County. As discussed in Impact AQ-3, to be consistent with the Clean Air Plan, emissions must be accounted for in the growth assumptions of the CAP and the 2010 CAP utilized growth forecasts provided by SBCAG.

Assuming a household size of 2.73 persons per household (California Department of Finance, May 2013), cumulative development in the City would add an estimated 3,410 residents (1,249 dwelling units x 2.73 people/dwelling unit) and the proposed project would add an estimated 481 residents (see Impact AQ-3). Cumulative development plus the proposed project would increase the City's population to 33,853 (current population of 29,962 + 3,410 + 481). Population generated by cumulative development and proposed project would not exceed SBCAG's 2035 growth forecast of 33,900 for Goleta or the 2040 growth forecast of 34,600 (SBCAG, December 2012, Figure 2). Cumulative development and the proposed project would therefore be consistent with the population forecasts contained in the 2010 CAP and the proposed project's contribution to cumulative air quality impacts would not be cumulatively considerable.