

4.2 AIR QUALITY

This section analyzes the impacts of the CMH Code upon local and regional air quality. Both construction and long-term impacts associated with population growth and associated growth in vehicle traffic and energy consumption are discussed. Impacts related to global climate change are discussed in Section 4.9, *Greenhouse Gas Emissions*.

4.2.1 Setting

a. Local Climate and Meteorology. The semi-permanent high pressure system west of the Pacific coast strongly influences California's weather. It creates sunny skies throughout the summer and influences the pathway and occurrence of low pressure weather systems that bring rainfall to the area during October through April. As a result, wintertime temperatures in Ventura are generally mild, while summers are warm and dry. During the day, the predominant wind direction is from the west and southwest, and at night, wind direction is from the north and generally follows the Santa Clara River Valley.

Predominant wind patterns are occasionally broken during the winter by storms coming from the north and northwest and by episodic Santa Ana winds. Santa Ana winds are strong northerly to northeasterly winds that originate from high pressure areas centered over the desert of the Great Basin. These winds are usually warm, very dry, and often full of dust. They are particularly strong in the mountain passes and at the mouths of canyons.

Daytime summer temperatures in the area average in the high 70s to the low 90s. Nighttime low temperatures during the summer are typically in the high 50s to low 60s, while the winter high temperatures tend to be in the 60s. Winter low temperatures are in the 40s. Annual average rainfall in Ventura ranges from about 14 to 16 inches, the majority of which falls in winter months.

Two types of temperature inversions (warmer air on top of colder air) are created in the Ventura County area: subsidence and radiational (surface). 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 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 and is generally accompanied by stable air. Both types of inversions limit the dispersal of air pollutants within the regional airshed. The primary air pollutant of concern during the subsidence inversions is ozone, while carbon monoxide and nitrogen oxides are of greatest concern during winter inversions.

b. Local Regulatory Framework. Both the federal and state governments have established ambient air quality standards for the protection of public health. The U.S. Environmental Protection Agency (USEPA) is the federal agency designated to administer air quality regulation, while the California Air Resources Board (CARB) of the California Environmental Protection Agency is the state equivalent. Local control in air quality management is provided by the CARB through county-level Air Pollution Control Districts



(APCDs). The CARB has established air quality standards and is responsible for the control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources. The CARB has established 14 air basins statewide. In addition, the City further regulates air quality through the City’s Air Quality Ordinance (Ordinance 93-37). This ordinance requires developers of projects that generate emissions exceeding Ventura County APCD (VCAPCD) significance thresholds to pay air quality impact fees that are placed in a transportation demand management (TDM) fund that is used by the City to offset project emissions through implementation of regional air quality programs.

The USEPA has set primary national ambient air quality standards (NAAQS) for ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), suspended particulates, known as PM₁₀ (particulate matter with a diameter of 10 microns or less) and PM_{2.5} (particulates of less than 2.5 microns in diameter), and lead (Pb). Primary standards are those levels of air quality deemed necessary, with an adequate margin of safety, to protect public health. In addition, the State of California has established health-based ambient air quality standards for these and other pollutants, some of which are more stringent than the federal standards. Table 4.2-1 lists the current federal and state standards for regulated pollutants.

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

Pollutant	Averaging Time	Federal Primary Standards	California Standard
Ozone	1-Hour	---	0.09 ppm
	8-Hour	0.075 ppm	0.07 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.053 ppm	0.03 ppm
	1-Hour	---	0.18 ppm
Sulfur Dioxide	Annual	0.03 ppm	---
	24-Hour	0.14 ppm	0.04 ppm
	1-Hour	---	0.25 ppm
PM ₁₀	Annual	---	20 µg/m ³
	24-Hour	150 µg/m ³	50 µg/m ³
PM _{2.5}	Annual	15 µg/m ³	12 µg/m ³
	24-Hour	35 µg/m ³	--
Lead	30-Day Average	---	1.5 µg/m ³
	3-Month Average	1.5 µg/m ³	---

ppm = parts per million

µg/m³ = micrograms per cubic meter

Source: California Air Resources Board, www.arb.ca.gov/research/aaqs/aaqs2.pdf, April 1, 2008.

Ventura County has been listed as “moderate nonattainment” for the eight-hour ozone standard with an estimated attainment date of June 2010.



Ventura is located in the Ventura County portion of the South Central Coast Air Basin. The VCAPCD is the designated air quality control agency in the Ventura County portion of the Basin. The Ventura County portion of the South Central Coast Air Basin is a state and federal non-attainment area for ozone (1-hour and 8-hour, respectively) and a state non-attainment area for suspended particulates (PM₁₀ & PM_{2.5}). In addition, though the Ventura County portion of the South Central Coast Air Basin is in attainment for the state and federal carbon monoxide standards, carbon monoxide can potentially be a problem at heavily congested intersections.

c. Characteristics and Effects of Key Pollutants. The general characteristics and potential health effects of the pollutants of primary concern in Ventura County are described below.

Ozone. Ozone is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_x) and reactive organic gases (ROG). 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 mostly occurs in serious concentrations 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, people with respiratory disorders, and people who exercise strenuously outdoors.

Suspended Particulates. PM₁₀ is small particulate matter measuring no more than 10 microns in diameter. It is mostly composed of dust particles, nitrates, and sulfates. PM₁₀ 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. PM₁₀ is also created in the atmosphere through chemical reactions. Particles less than 10 micrometers in diameter (PM₁₀) pose a health concern because they can be inhaled into and accumulate in the respiratory system. Particles less than 2.5 micrometers (=microns) in diameter (PM_{2.5}) are referred to as "fine" particles and are believed to pose the greatest health risks. Because of their small size (approximately 1/30th the average width of a human hair), fine particles can lodge deeply into the lungs. Fine particulate matter is composed primarily as a by-product of combustion, while particulate matter between 2.5 and 10 microns is mostly dust from roads and grinding or crushing operations. 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 adsorbed toxic substance.

Toxic Air Contaminants. 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 and carcinogens. The California Office of Environmental Health Hazard Assessment (OEHHA) reviewed and evaluated the potential for diesel exhaust to affect human health, and the associated scientific uncertainties (California EPA, CARB, April 1998). Diesel particulate emissions were identified by the ARB as a toxic air contaminant in 1998. Based on the available scientific evidence, a level of diesel PM exposure below which no carcinogenic effects are anticipated has not been identified. The



Scientific Review Panel that approved the OEHHA report determined that based on studies to date that 3×10^{-4} ($\mu\text{g}/\text{m}^3$)-1 is a reasonable estimate of the unit risk for diesel PM. This means that a person exposed to a diesel PM concentration of $1 \mu\text{g}/\text{m}^3$ continuously over the course of a lifetime has a 3 per 10,000 chance (or 300 in one million chance) of contracting cancer due to this exposure. Based on an estimated year 2000 statewide average concentration of $1.26 \mu\text{g}/\text{m}^3$ for indoor and outdoor ambient air, about 380 excess cancer cases per one million population could be expected if diesel PM concentrations remained the same (CARB, October 2000).

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 nearness to receptors, these potential risks can range from small to 1,500 per million or more (CARB, October 2000). Risk characterization scenarios have been conducted by the CARB 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.

The ARB (April 2007) estimates that in 2005, off-road diesel vehicles were responsible for 24 percent of the total statewide diesel mobile source PM emissions, and 19 percent of the total statewide diesel mobile source NO_x emissions. Consequentially, the ARB adopted a regulation in July 2007 that would require owners of in-use off-road diesel vehicles to modernize their fleets by replacing engines with newer, cleaner ones (re-powering), replacing vehicles with newer vehicles equipped with cleaner engines, retiring older vehicles, operating higher emitting vehicles less often (designating them as low-use vehicles) and applying exhaust retrofits that capture and destroy pollutants before they are emitted into the atmosphere.

The regulation establishes fleet average emission rate targets for both diesel PM and NO_x. By the applicable compliance date each year, the regulation would require each fleet to demonstrate either that it meets the fleet average emission rate target for diesel PM or that it has applied the highest level verified diesel emission control system (VDECS) to 20 percent of the total horsepower of its fleet in the past year. The regulation is expected to reduce 48 tons per day (tpd) NO_x and 5.2 tpd of PM statewide in Year 2020. These reductions represent a 32 percent reduction in NO_x and a 74 percent reduction in PM from the Year 2020 emissions that would otherwise occur in the absence of the regulation. As part of this regulation, no equipment would be allowed to idle for greater than 5 minutes unless necessary for the operation of that equipment.

Large fleets (more than 5,000 total hp) would have to begin meeting the fleet average targets on March 1, 2010. Medium fleets would need to begin meeting the fleet average on March 1, 2013, and small fleets (less than or equal to 12,500 hp, as defined below) would have until March 1, 2015. The fleet average targets would decline over time until 2020 (or until 2025 for small fleets). Small fleet requirements are generally delayed by 5 years behind those for medium fleets. As this regulation is applied over the construction timeframe for the Hospital District development, the potential for impact will decline as cleaner equipment will be in use.

On December 12, 2008, the CARB approved a new regulation to significantly reduce emissions from existing on-road diesel vehicles operating in California. The regulation requires affected trucks and buses to meet performance requirements between 2011 and 2023. This regulation



would affect all construction delivery vehicles, which are a substantial portion of the total construction diesel exhaust emissions. In addition to these regulations on existing trucks and buses, stricter standards for new heavy-duty diesel-engines and vehicles were adopted in October 2008.

Carbon Monoxide. Carbon monoxide, a colorless, odorless, poisonous gas, is a local pollutant that is found in high concentrations only very near the source. The major source of carbon monoxide is automobile engines. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes. Carbon monoxide's health effects are related to its affinity for hemoglobin in the blood. At high concentrations, carbon monoxide reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities.

d. Current Ambient Air Quality. The Air Quality Monitoring Station at El Rio is the nearest to the City of Ventura and most representative of air quality in the Hospital District. The El Rio monitoring station measures ozone, NO₂, PM₁₀, and PM_{2.5}. The closest monitoring station reporting CO is the Goleta-Fairview station in Santa Barbara. There are no CO monitoring stations in Ventura County. Table 4.2-2 lists the ambient air quality data for the El Rio and Goleta-Fairview monitoring stations.

Ozone concentrations at the El Rio monitoring station exceeded the state standard twice during the 2006-2008 period and federal standards were not exceeded. Measured concentration samples of PM₁₀ at El Rio exceeded state standards between 2 to 4 times per year from 2006-2008. Federal exceedances occurred once in the year 2007; 2006 and 2008 did not report any exceedances of the federal standard. Estimates were used due to a lack of samples. Ventura County is in attainment for the federal PM_{2.5} standard. Neither carbon monoxide nor nitrogen dioxide exceeded federal or state standards at the El Rio station. Carbon monoxide concentrations at the Goleta-Fairview monitoring station did not exceed state or federal standards during the 2006-2008 period.

The major sources of ozone precursors in Ventura County are motor vehicles and other mobile equipment, solvent use, pesticide application, the petroleum industry, and electric utilities. The major sources of PM₁₀ are road dust, construction, mobile sources, and farming operations. Locally, Santa Ana winds are responsible for entraining dust and occasionally causing elevated PM₁₀ levels.

e. Air Quality Management Plan. The Federal Clean Air Act Amendments (CAAA) mandate that states submit and implement a State Implementation Plan (SIP) for areas not meeting air quality standards. The SIP includes pollution control measures to demonstrate how the standards will be met through those measures. The SIP is established by incorporating measures established during the preparation of AQMPs and adopted rules and regulations by each local APCD and AQMD, which are submitted for approval to the CARB and the USEPA. The goal of an AQMP is to reduce pollutant concentrations below the National Ambient Air Quality Standards (NAAQS) through the implementation of air pollutant emissions controls.



**Table 4.2-2
Ambient Air Quality Data Concentrations**

Pollutant	Air Pollution Data			
	2006	2007	2008	2009
Ozone, ppm - maximum hourly concentration (ppm)	0.089	0.089	0.086	0.099
Number of days of state exceedances (>0.09 ppm)	0	0	0	1
Number of days of federal exceedances (>0.12 ppm)	0	0	0	0
Ozone, ppm - maximum 8-hour concentration (ppm)	0.070	0.072	0.074	0.077
Number of days of State exceedances (>0.07 ppm)	0	1	1	1
Number of days of federal exceedances (>0.08 ppm)	0	0	0	1
Carbon Monoxide, ppm - Worst 8 Hours ^a	0.80	1.10	0.60	0.60
Number of days of state 1-hour exceedances (>20.0 ppm) ^a	0	0	0	0
Number of days of state 8-hour exceedances (>9.0 ppm) ^a	0	0	0	0
Nitrogen Dioxide, ppm - Worst Hour	0.050	0.053	0.052	0.051
Number of days of state exceedances (>0.25 ppm)	0	0	0	0
Particulate Matter <10 microns, maximum concentration in $\mu\text{g}/\text{m}^3$ (State/Fed)	119.1/119.4	248/245.5	79.0/79.8	99.9/97.4
Number of samples of state exceedances (>50 $\mu\text{g}/\text{m}^3$), <u>24-hour average concentration</u>	4	2	3	2
Number of samples of federal exceedances (>150 $\mu\text{g}/\text{m}^3$), <u>24-hour average concentration</u>	0	1	0	0
Particulate Matter <2.5 microns, maximum 24-hour average concentration in $\mu\text{g}/\text{m}^3$	29.8	39.9	31.8	24.5
Estimated number of days of federal 24-hour average exceedances (>65 $\mu\text{g}/\text{m}^3$)	0	0	0	0

Source: CARB, Air Quality Data Statistics; available at <http://www.arb.ca.gov/adam/topfour/topfour1.php>

All data except for CO data is from the El Rio Monitoring Station

a No CO monitoring is available in Ventura County, the closest point is the Goleta-Fairview site results.

The USEPA designated Ventura County a moderate nonattainment area for the 8-hour ozone standard based on Ventura County's ozone levels over the previous three years in 2004. Moderate ozone nonattainment areas are required to obtain the federal 8-hour ozone standard



by June 15, 2010. On February 14, 2008, the CARB formally requested that the USEPA reclassify Ventura County to a serious 8-hour ozone nonattainment area. This means that Ventura County must meet the federal 8-hour ozone standard by June 15, 2013. The VCAPCD released the Final 2007 AQMP in May 2008. The 2007 AQMP presents new control measures intended to bring the County into compliance by the 2013 date. The 2007 AQMP emission factors based its population forecasts on the 2008 Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP).

The 2007 AQMP also presents the 2003 – 2005 Triennial Assessment and Plan Update required by the California Clean Air Act (CCAA). The goal of the CCAA is to achieve more stringent health-based state air quality standards at the earliest practicable date. Ventura County is designated a severe nonattainment area under the CCAA and must meet many of the most stringent requirements under this act.

While the Final 2007 AQMP contains some additional local control measures, most of the emissions reductions that Ventura County needs to attain the federal 8-hour ozone standard and continued progress to the state ozone standard will come from the CARB's 2007 SIP. This SIP contains comprehensive emission reduction programs that focus on reducing emissions from mobile sources, consumer products, and pesticides to significantly improve air quality. Based on photochemical modeling and the use of the local and state control measures, Ventura County is projected to attain the federal ozone standard by 2013.

f. 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 schools and hospitals. Sensitive receptors in the Hospital District include patients at Community Memorial Hospital and residences located in the vicinity of the Hospital District, north of Loma Vista Road, about 250 feet to the north, or east of Brent Street, about 200 feet to the east. The closest school to the Hospital District is Saint Bonaventure High School, located at 3167 Telegraph Rd., 0.15 miles from the Hospital District. In addition, the Ventura County Medical Center is located 0.22 miles northeast of the Hospital District.

4.2.2 Impact Analysis

a. Methodology and Significance Thresholds. The analysis of the proposed Community Memorial Hospital District Development Code air quality impacts follows the guidance and methodologies recommended in the Ventura County Air Quality Assessment Guidelines (October 2003). Analysis is based on the development projections contained in Table 2-3, within Section 2.0, *Project Description*.

Projects and programs requiring an analysis of consistency with the AQMP include general plan updates and amendments, specific plans, area plans, large residential developments and large commercial/industrial developments. The proposed CMH Code would regulate



development within an area that is about 10 acres. The Project is subject to the AQMP consistency analysis. The consistency analysis evaluates the following questions:

- *Are the population projections used in the plan or project equal to or less than those used in the most recent AQMP for the same area?*
- *Is the rate of increase in vehicle trips and miles traveled less than or equal to the rate of population growth for the same area?*
- *Have all applicable land use and transportation control measures from the AQMP been included in the plan or project to the maximum extent feasible?*

If the answer to all of the above questions is yes, then the proposed project or plan is considered consistent with the AQMP. If the answer to any one of the questions is no, then CMH Code implementation could potentially delay or preclude attainment of the state ozone standard. This would be considered inconsistent with the AQMP.

To analyze Project-generated emissions, the VCAPCD's *Air Quality Assessment Guidelines* recommends significance thresholds for projects proposed in Ventura County. Under these guidelines, projects that generate more than 25 lbs per day of ROG or NO_x are considered to individually and cumulatively jeopardize attainment of the federal ozone standard and thus have a significant adverse impact on air quality. The VCAPCD's 25 pounds per day thresholds for ROG and NO_x do not apply to construction emissions since such emissions are not permanent. Nevertheless, for construction impacts, the VCAPCD recommends imposition of mitigation if emissions of either pollutant exceed 25 pounds per day. The VCAPCD also ~~recommends~~ requires minimizing fugitive dust through various dust control measures as documented in Rule 55.

The VCAPCD has not established numeric thresholds for particulate matter. However, a project that may generate fugitive dust emissions in such quantities as to cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or which may endanger the comfort, repose, health, or safety of any such person, or which may cause or have a natural tendency to cause injury or damage to business or property is considered to have a significant air quality impact by the VCAPCD. This threshold is particularly applicable to the generation of fugitive dust during construction grading operations.

Pursuant to the Initial Study in Appendix A, the Project would have a significant effect if it were to do any of the following.

- *Conflict with or obstruct implementation of the applicable air quality plan.*
- *Violate any air quality standards 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 in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).*
- *Expose sensitive receptors to substantial pollutant concentrations.*



No specific air quality standards have been established for diesel particulate emissions or many other toxic pollutants. Instead, significance thresholds are determined based on an analysis of the number of excess cancers relative to a chosen risk level. Excess cancer risks are defined as those occurring in excess of or above and beyond those risks that would normally be associated with a location or activity if toxic pollutants were not present.

The USEPA considers for risk management those pollutants that could cause carcinogenic risk between one in 10,000 (1.0×10^{-4} or 1.0E-04) and one in one million (1.0×10^{-6} or 1.0E-6), with the latter criteria generally used for development of Preliminary Remediation Goals (PRG's). Passage of Proposition 65 (encoded in California Health and Safety Code Section 25249.6) in 1986 prohibits a person in the course of doing business from knowingly and intentionally exposing any individual to a chemical that has been listed as known to the state to cause cancer or reproductive toxicity without first giving clear and reasonable warning. For a chemical that is listed as a carcinogen, the "no significant risk" level under Proposition 65 is defined as the level which is calculated to result in not more than one excess case of cancer in 100,000 individuals (1×10^{-5}) exposed over a 70-year lifetime. The VCAPCD recommends that this cancer risk level (also reportable as 10 in one million) be used as the significance threshold for toxic air contaminants (VCAPCD, October 2003). To provide a perspective on this risk, it is noted that 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. Given this background carcinogenic risk level in the general population, application of a 10^{-5} excess risk limit means that the contribution from a toxic hazard should not cause the resultant risk for the exposed population to exceed 0.5001 for men and 0.33001 for women. In addition, the VCAPCD recommends that the non-carcinogenic hazards for TACs at ground level should not exceed a hazard index of greater than one.

The initial study found that the Project would not have the potential to create objectionable odors that would affect a substantial number of people; therefore, this impact is not discussed in the main body of the EIR.

b. Project Impacts and Mitigation Measures.

Impact AQ-1 Phase I and Phase II redevelopment under the CMH Code would be consistent with the 2005 Ventura General Plan and the Ventura County AQMP population forecasts. Therefore, impacts related to the consistency with the AQMP are Class III, less than significant.

Vehicle use, energy consumption, and associated air pollutant emissions are directly related to population growth. The population forecasts upon which the Ventura County AQMP is based are used to estimate future emissions and devise appropriate strategies to attain state and federal air quality standards. When population growth exceeds the forecasts upon which the AQMP is based, emission inventories could be surpassed. This could affect attainment of standards.



The Ventura County AQMP relies on the most recent population estimates developed by the Metropolitan Planning Organization (MPO). SCAG acts as the MPO for Ventura County. Accordingly, the Ventura County AQMP uses SCAG's 2008 RTP for its population forecasts. SCAG's projected 2025 population for Ventura is 127,032.

The current population for the City of Ventura is 108,787 persons (California Department of Finance, 2009). The projected 2025 population under the 2005 General Plan is 126,153 for the year 2025. This is within the 2007 AQMP population projections for the City. See Table 4.2-3 for a comparison AQMP and 2005 General Plan population forecasts.

**Table 4.2-3
Comparison of 2025 Population Projections**

	Population
Ventura AQMP 2025 Population Projections	127,032
2005 General Plan 2025 Population Projection	126,153
<i>Estimated Persons Below AQMP Projection</i>	879

Source: 2005 City of Ventura General Plan EIR.

The CMH Code is not anticipated to increase growth in the City; rather it would direct infill and intensification that was envisioned under the 2005 General Plan. As indicated in Table 2-3 in Section 2.0, *Project Description*, the Hospital District is anticipated to accommodate primarily medical office and hospital uses, with some retail development. The net increase in development within the Hospital District is forecast at 3,900 square feet of retail use (Phase I), 10 beds in the hospital (Phase I), and 221,444 square feet of medical office development (Phase I and Phase II). Phase I includes construction of the new hospital building, adaptive reuse of the existing hospital (104,000 sf of new leased medical office use and 121,000 sf of backfill with non-essential services), construction of a new 3,900 square foot retail liner building, and construction of the roadway network within the Hospital District. Phase II, includes buildout of the remainder of the Hospital District including construction of 162,950 square feet of medical office uses and the new 570 space parking garage.

Residential uses would be permitted pursuant to Table 2-2; however, CMH is not proposing any residential uses. In the event that a private developer were to propose a mixed use development with upper level live/work or multi-family residential development, the number of units would be limited by the available area. Any redevelopment to incorporate residential uses would be anticipated to contribute towards meeting the overall housing development goals and would be within the parameters of the 8,000 dwelling units forecast under the 2005 General Plan. Since CMH does not specifically propose residential development and because any future potential residential development would be considered as part of the ultimate buildout under the 2005 General Plan, the CMH Code is consistent with the General Plan and the AQMP population forecasts.



The CMH Code directs redevelopment within the developed urban area of the City. The CMH Code allows for redevelopment of the Hospital campus in close proximity to support commercial uses along Main Street, Loma Vista Road and Telegraph Road, with residential areas that are located about one block to the north and one block to the east. The Project's general characteristics of being a redevelopment project within an urban area and enhancing pedestrian connectivity are consistent with the compact development and smart growth principles that are being encouraged to reduce VMT (Steve Winkleman, Center for Clean Air Policy, July 14, 2009). Reducing the number of vehicle trips is the most significant way of conserving energy and lowering air emissions because large amounts of pollutants are emitted each time a cold engine is started and when the vehicle is turned off. Home to work trips comprise 20% to 30% of all personal vehicle trips, and they are especially significant because they tend to be longer trips, and they also occur during peak times of traffic congestion (VMT Reduction Final Report, available at http://www.ventura.org/rma/planning/pdf/studies/vmt_reduction.pdf).

The CMH Code incorporates Smart Growth principles such as pedestrian orientation, infill development, and mixed use development. Therefore, the CMH Code would not be inconsistent with the AQMP and the impact would not be significant.

Mitigation Measures. The impact would be less than significant; therefore, mitigation is not required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Impact AQ-2 Construction of individual projects accommodated under the CMH Code, including the new hospital building, would result in emissions of air pollutants. The Ventura County APCD has not adopted significance thresholds for construction impacts because of they are not permanent; therefore, impacts are Class III, less than significant. Nevertheless, standard conditions of approval are required by the City to reduce dust and ozone precursors during construction.

Construction activity that would be facilitated under the CMH Code would cause emissions of various air pollutants. Ozone precursors NO_x and CO would be emitted by the operation of construction equipment, while fugitive dust (PM₁₀) would be emitted by activities that disturb the soil, such as grading and excavation, road construction and building construction. It is estimated that there would be about 23 truck trips/day during demolition and 20 truck trips/day during site grading. As discussed on page 2-25 of Section 2.0, *Project Description*, Phase I development would include construction of the new hospital, street connections and a new 3,900 square foot retail liner building, occurring between 2010 and 2014. Phase II development would include buildout of the remainder of the Hospital District, including construction of about 162,950 square feet of medical office uses and the new 570 space parking garage. Phase II development would occur over a period of years. Construction emissions estimate for Phase I and Phase II development are shown in Table 4.2-4.



The Project would generate up to 53 lbs/day of NO_x and up to 51 lbs/day of PM₁₀ during construction. As discussed under Section 4.2.2, the VCAPCD's 25 pounds per day thresholds for NO_x does not apply to construction emissions since such emissions are not permanent. Therefore, impacts are not considered significant. Nevertheless, the VCAPCD recommends imposition of mitigation if emissions of either pollutant exceed 25 pounds per day. The VCAPCD also recommends minimizing fugitive dust through various dust control measures. In response, the City imposes a standard condition of approval that requires dust and ozone precursor controls.

**Table 4.2-4
 Maximum Daily Construction Emissions Estimates (lbs/day)**

Phase	ROG	NO _x	PM ₁₀	PM _{2.5}
Phase I (2010-2014) 252 Bed Hospital * 3,900 sf retail liner building 121,000 sf of non-essential services ** 104,000 sf of adaptive reuse (new medical office leases) **	13	53	51	12
Phase II (2014-2025) 162,950 sf medical office 570 space parking garage	11	19	43	10

Source: URBEMIS 2007 v 9.2

Modeling results included in Appendix C.

* Modeling accounts for construction of a 252 bed hospital rather than a 10 bed increase since a new building is proposed.

** 121,000 sf of non-essential services and 104,000 sf of adaptive reuse (new medical office leases) not included in modeling because this building is existing.

Grading of areas for future development would be expected to generate emissions of fugitive dust. For redevelopment areas, the demolition of existing older structures that were constructed with asbestos containing materials (ACMs) may occur. Demolition activity that disturbs friable asbestos could potentially create health hazards for receptors in the vicinity of individual demolition sites. However, all demolition activity involving ACMs is required to be conducted in accordance with VCAPCD Rule 62.7, which requires VCAPCD notification and use of licensed asbestos contractors to remove all ACMs prior to demolition. Compliance with Rule 62.7 on all future construction activity would reduce impacts to a less than significant level.

Mitigation Measures. Mitigation is not required because there are no thresholds that have been exceeded; however, the following standard condition of approval will be imposed by the City for Phase I and Phase II development to reduce the Project's contribution of ozone precursors and particulate matter.

AQ-2 Construction Air Quality. The Ventura County Air Quality Assessment Guidelines (October 2003) recommend various techniques to reduce construction-related emissions associated with



individual developments. Individual developers within the Hospital District, including the Hospital, shall include techniques to limit emissions of both ozone precursors (NO_x and ROC), diesel PM and fugitive dust (PM₁₀) in compliance with AQMD Rule 55 and ARB adopted ATCM (13 CCR § 2449.2). At a minimum, these measures shall include, but not be limited to the following as identified below:

- Use Tier 2 or Tier 3 engines
- Contract with an off-road construction equipment provider that has documented compliance with Air Toxics Control Measure (ATCM) PM reduction goals in response to the California Air Resources Board adopted ATCM (13 CCR § 2449.2)
- *Minimize equipment idling time.*
- *Maintain equipment engines in good condition and in proper tune as per manufacturers' specifications.*
- *Lengthen the construction period during smog season (May through October), to minimize the number of vehicles and equipment operating at the same time.*
- *Use catalyzed diesel particulate filters and low-sulfur diesel fuel*
- *The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to reduce dust.*
- *Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.*
- *Fugitive dust produced during grading, excavation, and construction activities shall be controlled by the following activities:*
 - a) *All trucks shall be required to cover their loads as required by California Vehicle Code §23114.*
 - b) *All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally-safe soil stabilization materials, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed water shall be used whenever possible.*
- *Graded and/or excavated inactive areas of the construction site shall be monitored by the City Building Inspector at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally-safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area should be seeded and watered until grass growth is evident, or periodically treated with environmentally-safe dust suppressants, to prevent excessive fugitive dust.*



- *Signs shall be posted on-site limiting traffic to 15 miles per hour or less.*
- *During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off-site or on-site. The site superintendent/supervisor shall use his/her discretion in conjunction with the APCD in determining when winds are excessive.*
- *Adjacent streets and roads shall be swept at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.*
- *Personnel involved in grading operations, including contractors and subcontractors, should be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.*

Significance after Mitigation. Construction impacts would be less than significant because of they are not permanent. The City imposed standard condition of approval requiring measures that would reduce the generation of diesel PM₁₀ dust and ozone precursors would further reduce construction emissions.

Impact AQ-3 Phase I and Phase II development facilitated by the proposed CMH Code would generate air pollutant emissions. Phase I emissions would not exceed VCAPCD thresholds; however, combined Phase I and Phase II emissions would exceed the VCAPCD thresholds for ROG and NO_x. Increasing energy efficiency and payment of fees pursuant to Ordinance 93-37 would mitigate the impact. This is a Class II, significant but mitigable impact.

As discussed on page 2-23 of Section 2.0 *Project Description*, Phase I development would include the new hospital, street connections and a new 3,900 square foot retail liner building between 2010 and 2014. Phase II development would include buildout of the remainder of the Hospital District, including about 162,950 square feet of medical office uses and the new 570 space parking garage. Phase II development would occur over a period of years. Both phases of development were modeled in the URBEMIS Program (version 9.2.4). Table 4.2-5 shows the modeled daily operational emissions estimates for Phase I and Phase II development.

As indicated in Table 4.2-5, Phase I development of CMH is anticipated to result in about 19 lbs of ROG, and about 20 lbs of NO_x per day. The VCAPCD threshold of 25 lbs/day would not be exceeded under Phase I. Under Phase II, individual projects would be undertaken separately by individual owners/and or developers; however, to show the total emissions estimate for Phase II, the development estimates were modeled together. As indicated, the Phase II development would result in about 20 lbs of ROG/day and 21 lbs of NO_x/day. Therefore, Project emissions would exceed the thresholds by 14 lbs of ROG/day and by 16 lbs of NO_x/day. This is a significant impact.



The new hospital building would include three rooftop cooling towers and two emergency generators. According to the Ventura County APCD, cooling towers are not direct sources of air pollutant emissions as they operate on electricity, rather than, for example, diesel generators. To ensure that all project impacts have been analyzed, the DEIR’s analysis of global climate change accounts for the project’s secondary emissions associated with the electricity usage pursuant to inpatient health care electricity usage statistics published by the Department of Energy (DOE, 2003). With regard to the emergency generators, this equipment would generate air pollutant emissions, but CMH must obtain Ventura County APCD permits for this equipment that would include specific limitations on emissions. Permits will be required for any new diesel generators, boilers or ethylene oxidize sterilizers. An Authority to Construct (ATC) must be obtained prior to installation. Public notice may be required before issuing the ATC. The APCD recommends that CMH contact the APCD prior to purchasing any equipment requiring a permit.

According to the Ventura County APCD Air Quality Assessment Guidelines, emissions from permitted equipment is not to be counted toward the air quality significance thresholds. This is because stationary equipment is already regulated by Rules and the local permitting process.

**Table 4.2-5
Operational Emissions Estimates (lbs/day)**

Net Increase in Development by Phase	ROG	NOx
Phase I 10 beds 104,000 sf new medical office use 3,900 sf retail	19	20
Phase II 117,444 sf medical campus *	20	21
Total Emissions	39	41
VCAPCD Threshold	25	25
Significant Impact	yes	yes

Source: URBEMIS V.9.2.2, see Appendix C

* Total calculated by subtracting 45,506 sf of existing development to be removed from 162,950 sf of new development.

Notes. Emissions estimates reflect the URBEMIS mitigated totals to account for the developed environment, including: local serving retail, mix of uses (900 jobs and 850 residences within ½ mile radius), 70 buses/day within ¼ mile, bike lanes on 60% of arterials, 100% of streets with sidewalks. These are existing conditions in the Project vicinity.

Mitigated totals also account for the energy efficiency associated with mitigation measure AQ-3(a).

The URBEMIS 2007 v.9.2 program evaluates long-term emissions based on area sources and vehicle emissions. Area source emissions are evaluated based on natural gas consumption, hearth combustion, landscape equipment, consumer products and application of architectural



coatings for maintenance purposes. Area source emissions are typically a much smaller portion of the overall long-term emissions associated with a project, while vehicular emissions tend to comprise the majority of long term emissions. This is because the majority of regulated emissions are generated during combustion and driving automobiles is the greatest source of combustion as compared with the amount of natural gas that is combusted for heating water, cooking on stoves and heating space. The URBEMIS 2007 v. 9.2 program default assumptions are that 25% of workers will commute to the hospital for work, while 75% of trips are Primary (sourced specifically to the hospital), 25% of trips are diverted link trips (associated with another stop) and that there are no pass-by trips (impulse stop). Of the overall emissions generated by Phase I and Phase II of the project, about 95% are from vehicular emissions, while about 5% are from area source emissions (see Appendix C, Operational Emissions output summaries).

The increase in traffic associated with the project would incrementally increase CO concentrations at study area intersections. However, as discussed in Section 4.2, *Traffic and Parking*, levels of service would remain at D or better at all study intersections, even with project and cumulative traffic increases. The Ventura County APCD's Air Quality Assessment Guidelines indicate that CO "hot spot" analysis needs to be conducted only when the level of service would be E or F. In addition, as noted in Table 4.2-2, no violations of state or federal CO standards have occurred in the past three years. Therefore, project traffic would not result in CO concentrations exceeding state or federal standards.

Mitigation Measures. The following mitigation measure would reduce the impact to a level that is less than significant.

- AQ-3(a) Increase Energy Efficiency.** For all new construction, increase energy efficiency by 20% beyond Title 24 requirements.
- AQ-3(b) Air Quality Mitigation Fees.** Phase I and II developers within the Hospital District shall contribute fees to the Citywide Transportation Demand Management Program for respective incremental contributions to air quality emissions in excess of 25 lbs/day threshold prior to occupancy. Fees shall be based and paid in accordance with Ordinance 93-37.

Significance after Mitigation. Impacts would be less than significant after mitigation as implementation of Measure AQ-3(a-b) would offset emissions pursuant to City standard practice. The types of improvements that can be funded using the city's Air Quality Mitigation Fees include the following:

- Express transit services
- Public transit services
- Bus Stop improvements
- Vanpools
- Alternate fuels fleet vehicles
- Bike Trails
- Park-n-ride lots



These improvements are recognized by the regional agencies such as the Ventura County Air Pollution District and the Ventura County Transportation Commission as projects that will contribute to significant improvements in air quality. Refer to the extracts from the 2009 Ventura County Congestion management Program that are included near the end of Appendix C.

The following are some of the projects that have been completed as Capital Improvement Projects using the City's Air Quality Mitigation Fees:

- Bus Transfer Center at Mall - \$121,978.70
- Transit Stop Upgrades - \$50,000
- Bus Shelters - \$50,000
- Highway 126 Bike Path Gap Closure Phase I - \$541,029.62
- Telegraph Road Bike/Sidewalk Upgrade - \$343,480.45

With contribution of funds pursuant to Ordinance 93-37, the project's contribution to cumulative impacts is less than significant due to implementation of improvements such as those already completed under the program.

Impact AQ-4 The health risks associated with onsite grading would not exceed the health risk assessment criteria for sensitive receptors in the vicinity of the Project Area. This is a Class III, less than significant impact.

Diesel particulate emissions would occur primarily during project construction because of heavy-duty vehicle operations and construction equipment during the grading and building phases of project construction. The majority of Project emissions will be associated with the early phase of construction for grading and construction of the hospital pad. Subsequent development of Phase II projects would occur on an intermittent basis as individual projects are undertaken. These projects are anticipated to range from about 12,000 sf to 41,000 sf and individually would result in substantially less diesel exhaust emissions as compared with Phase I, which includes demolition, construction of 3,900 sf of retail and a 252 bed hospital. Thus, the Phase I scenario was evaluated with respect to health risks from diesel PM emissions, since it is the most intensive construction scenario and would occur for a period of about four years.

Based on the URBEMIS 2007 v.9.2.4 output for PM₁₀ diesel exhaust emissions, the SCREEN3 model was run for an area source scenario. SCREEN3 is a screenline model intended to determine under a worst-case basis whether or not emissions have the potential to result in concentrations of concern. Typically, this model will predict concentrations an order of magnitude (10 times) or greater than if a more detailed and complex model were used. This level of accuracy is considered sufficient for the purpose of this CEQA analysis.

The diesel particulate emissions that would be associated with Phase I construction of the Hospital District were quantified based on the sum of the tons/year PM₁₀ diesel exhaust generated during construction for all four years, and then averaged to provide a daily exposure rate. The daily average was reduced by 63% to account for the use of alternative fuels and



retrofitted filters as required under AQ-2, which is a condition of approval for the project. These controls can reduce generation of PM₁₀ by 63-80%; however, to be conservative, a reduction of 63% was applied.

Grading is estimated to cause diesel particulate emissions of 0.0087grams/second within the grading area (see Appendix C for calculations). The SCREEN3 model was then used to determine concentration levels in micrograms/cubic meter [$\mu\text{g}/\text{m}^3$] generated during construction (see Appendix C for model output). The maximum one-hour concentration was calculated at 7.990 $\mu\text{g}/\text{m}^3$ at a distance of 358 feet. This concentration estimate is conservative, and is not a specific prediction of the actual concentration that would occur at any one point over the course of the construction period. Actual average concentrations are dependent on many variables, particularly the number and type of equipment working at specific distances during time periods of adverse meteorology. The SCREEN3 estimates are intended to be a conservative estimate of the concentration that is unlikely to be exceeded for use in the health risk computation.

The closest receptors are patients and employees of the hospital, located about 70 feet north of the grading area. However, the hospital air is filtered at the intake units and patients are not exposed to diesel particulate emissions. Consequently, the health risk analysis considered those most likely affected by the highest concentrations of pollutants, which would be residences located about 358 feet to the east along Joanne Avenue. A health risk computation was done to determine the potential risk that may result from the maximum one-hour concentration as calculated above and assuming that it would occur at this level for the entire four year period. In addition, the chronic health risk associated with the diesel particulates was estimated based on the reference dose for chronic oral exposure for diesel engine emissions (USEPA, IRIS, 2001). The chronic risk is separate from the carcinogenic risk in that it considers impacts to the respiratory system, such as the buildup of material in the lungs and inflammation of lung tissue. The carcinogenic and non-carcinogenic health risks at the most affected sensitive receptors are shown in Table 4.2-6.

**Table 4.2-6
 Construction Health Risks**

Scenario	Excess Cancer Risk	Chronic Health Risk
Phase 1 Construction adult	3.26 E-06	3.80 E-02
child	7.60 E-06	8.87 E-02
<i>Significance Threshold</i>	<i>>1.0E-05</i>	<i>≥1</i>
<i>Exceeds Threshold?</i>	<i>No</i>	<i>No</i>

Scientific notation is sometimes expressed as E (for exponent) as in 1.12E-4 (meaning 1.12 x 10 raised to the negative 4).

As indicated in the table, children are more affected by diesel emissions because of the relatively greater amount of air that they breathe on a daily basis as compared to their body weight. Nonetheless, the health risks associated with onsite grading given the standard measures for construction operations do not exceed the health risk assessment criteria. Impacts



to the most affected sensitive receptors would be less than significant. Likewise, impacts to other sensitive receptors, including residences located about 200 feet to the east and to the southeast of the hospital, as well as students at Saint Bonaventure School, located about 0.15 miles to the east would be less than significant.

Mitigation Measures. Impacts would be less than significant without mitigation, though it is noted that the analysis assumes implementation of standard condition AQ-2, which requires the use of low-sulfur diesel fuel and catalyzed particulate filters.

c. Cumulative Impacts. The Ventura County Air Basin is currently a non-attainment area for both the federal and state standards for ozone and the state standards for PM₁₀. When population growth exceeds the forecasts upon which the AQMP is based, emission inventories could be surpassed, which could affect attainment of standards as a result of past and ongoing urban and rural development that has caused emissions to exceed the air basin's capacity for dispersal and removal of the air pollutants. Buildout under the 2005 General Plan is estimated to accommodate 8,000 dwelling units and five million sf of non-residential development. However, as indicated in AQ-1, the 2005 General Plan development forecasts (2025) do not exceed the AQMP forecasts for the City, and would therefore not result in delayed attainment of air quality standards. Cumulative impacts would therefore be less than significant and the Project's contribution to cumulative air quality impacts would not be cumulatively considerable.

With respect to cumulative construction impacts, there is only one building that is located close enough to contribute to localized adverse air quality conditions, including an increased localization of diesel particulates. This is the Cancer Center, which is located at the southeast corner of Loma Vista Road and Brent Street, about 240 feet from the grading area. The Cancer Center is anticipated for completion later this year and would not occur concurrently with the hospital given the current schedule, which would not allow commencement of construction until 2011. All other pending projects in the vicinity, as mentioned in Table 3-2, are located between 0.5 and one mile from the site. Subsequent Phase II projects would occur independently and are thus not likely to generate substantial amounts of emissions. Thus cumulative construction impacts with respect to air quality would be less than significant.



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