

5.4 AIR QUALITY

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Air Quality - Environmental Setting

Regional Air Quality

The unincorporated community of Glen Ellen is located in the southeastern portion of Sonoma County, part of the nine county San Francisco Bay Air Basin. The Federal Clean Air Act governs air quality in the United States. In addition to being subject to federal requirements, air quality in California is also governed by more stringent regulations under the California Clean Air Act. At the federal level, the United States Environmental Protection Agency (USEPA) administers the Clean Air Act. The California Clean Air Act is administered by the California Air Resources Board (CARB) at the State level and by the Air Quality Management Districts at the regional and local levels. The Bay Area Air Quality Management District (BAAQMD) regulates air quality at the regional level, which includes the nine-county Bay Area.

The Bay Area is considered a non-attainment area for ground-level ozone under both the federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for respirable particulates or particulate matter with a diameter of less than 10 micrometers (PM₁₀), and fine particulate matter that has a diameter of less than 2.5 micrometers (PM_{2.5}) under the California Clean Air Act, but not the federal act. The area has attained both state and federal ambient air quality standards for carbon monoxide and other air pollutants regulated under the National Ambient Air Quality Standards or California Ambient Air Quality Standards.

The BAAQMD along with the Association of Bay Area Governments and Metropolitan Transportation Commission have developed the *Bay Area 2005 Ozone Strategy*,¹ which is the region's most recent clean air plan. As part of an effort to attain and maintain ambient air quality standards for ozone and PM₁₀, BAAQMD has established thresholds of significance for air pollutants. These thresholds are for ozone precursor pollutants (reactive organic gases and nitrogen oxides) and PM₁₀.

Air Pollutants

Efforts to combat air pollution began in the Bay Area in 1955 with the formation of the Bay Area Air Pollution Control District, now known as the Bay Area Air Quality Management District (BAAQMD). State and national ambient air quality standards cover a wide variety of pollutants, however, only a few of these pollutants are problems in the Bay Area either due to the strength of the emission or the climate of the region. The BAAQMD has for many years operated a multi-pollutant monitoring site in Santa Rosa, allowing analysis of trends in air quality. Problem air pollutants in Sonoma County include particulate matter (PM_{2.5} and PM₁₀), and toxic air contaminants (TACs). However, emissions in Sonoma County affect ozone levels in other parts of the Bay Area.

¹ *Bay Area 2005 Ozone Strategy*, Metropolitan Transportation Commission, Bay Area Air Quality Management District and Association of Bay Area Governments, January 4, 2006.

Ozone

Ground level ozone, often referred to as smog, is not emitted directly, but is formed in the atmosphere through complex chemical reactions. Ozone levels measured in Sonoma County are relatively low. The monitoring station in Santa Rosa has not measured any exceedances of State or federal standards during the last three years. However, regional emissions from motor vehicle use contribute to high ozone levels in other parts of the Bay Area. Motor vehicles are the largest source of ozone precursors emissions (i.e., nitrogen oxides and reactive organic gases) in the Bay Area. The Bay Area is currently classified as a federal and State nonattainment area for ozone.

Particulate Matter

Particulate matter is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, and dust. Particles ten microns or less in diameter are defined as "respirable particulate matter" or "PM₁₀." Fine particles are 2.5 microns or less in diameter (PM_{2.5}). These particulates can contribute significantly to regional haze and reduction of visibility. Inhalable particulates come from smoke, dust, aerosols, and metallic oxides. Although particulates are found naturally in the air, most particulate matter found in the area is emitted either directly or indirectly by motor vehicles, industry, construction, agricultural activities, and wind erosion of disturbed areas. Most PM_{2.5} is comprised of combustion products such as smoke or formed in the atmosphere from regional emissions of nitrogen oxides. There are many sources of PM₁₀ emissions, including combustion, industrial processes, grading and construction, and motor vehicles. The greatest quantity of PM₁₀ emissions associated with motor vehicle uses is generated by re-suspended road dust. Reductions in motor vehicle miles traveled are necessary to reduce PM₁₀ emissions, rather than changes to motor vehicle technology. Wood burning in fireplaces and stoves is another significant source of particulate matter, primarily PM_{2.5}.

Extensive research reviewed by CARB indicates that exposure to outdoor PM₁₀ and PM_{2.5} levels exceeding current ambient air quality standards is associated with increased risk of hospitalization for lung and heart-related respiratory illness, including emergency room visits for asthma. Exposure to particulate matter is also associated with increased risk of premature deaths, especially in the elderly and people with pre-existing cardiopulmonary disease. In children, studies have shown associations between PM exposure and reduced lung function and increased respiratory symptoms and illnesses. Besides reducing visibility, the acidic portion of PM (e.g., nitrates and sulfates) can harm crops, forests, aquatic and other ecosystems. In 2002, CARB adopted new ambient air quality standards for PM₁₀ and PM_{2.5}, resulting from an extensive review of the health-based scientific literature. EPA adopted stricter standards for PM_{2.5} in September 2006.

Monitoring data collected in Santa Rosa indicate that PM₁₀ levels exceed State standards on zero to 12 days per year. The 2006 PM_{2.5} standard is exceeded about zero to six days per year. Throughout the Bay Area, PM₁₀ levels exceed the standard somewhere in the Bay Area on an estimated 36 to 60 days per year. PM₁₀ and PM_{2.5} are considered both local and regional air pollutants, so emissions in Sonoma County can affect other parts of the Bay Area.

Toxic Air Contaminants (TACs)

TACs are another group of pollutants of concern in the Bay Area. Common sources of TACs include industrial processes, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Diesel particulate matter from exhaust has been identified as a TAC. Mobile sources,

such as trucks, buses, and construction equipment are by far the largest source of diesel emissions. According to CARB,² the overall inhalation cancer risk in the Sonoma area for the year 2000 was about 100 to 250 excess cancer cases per million people. This is considerably lower than the risk in urban areas, which can exceed 1,000 excess cases per million people. The overall risk is predicted to decrease and the decrease could be substantial if CARB goals to achieve a 75-percent reduction in diesel health risk are met.

In 1998, CARB formally identified particulate matter emitted from diesel-fueled engines (diesel particulate matter [DPM]) as a TAC. Diesel engines emit TACs in both gaseous and particulate forms. Diesel particulate matter is of particular concern since it is distributed over large regions, thus leading to widespread public exposure. The particles emitted by diesel engines include different chemicals, many of which have been identified by EPA as hazardous air pollutants, and by the CARB as TACs. Diesel engines emit particulate matter at a rate much greater than comparable gasoline engines. Much of these particles are very small (i.e., PM_{2.5}), and therefore, can become trapped within the lung if inhaled.

In late 2000, CARB adopted the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.³ The plan outlined more stringent emission standards for new on-road and non-road mobile sources and stationary diesel-fueled engines to reduce particulate matter emissions by 90 percent. The projected emission benefits associated with full implementation of this plan, including existing and new federal measures, are reductions in cancer risks associated with DPM by 75 percent in 2010 and 85 percent by 2020. The measures in the plan would substantially reduce localized risks associated with activities that expose nearby individuals to diesel particulate matter emissions. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the federal on-road and non-road diesel engine emission standards for new engines sold beginning in 2004 and 2007. Diesel fuel with ultra low sulfur content is now required for use in both on-road and non-road engines in California. CARB recently adopted regulations requiring the retrofit or replacement of construction equipment over the next ten years.

Sensitive Receptors

Some groups of people are more affected by air pollution than others. The State has identified the following people who are most likely to be affected by air pollution: children under 14, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks.

Air Quality in the Project Site Vicinity

The air pollution potential in and near Sonoma Valley is quite low due to the proximity to the San Francisco Bay and Pacific Ocean. The constant influence of marine air and lack of nearby or upwind air pollution sources results in low air pollution levels. Air pollutant levels can build up under stable atmosphere conditions, since vertical and horizontal dispersion of air pollutants is limited. However,

² See CARB website (August 20, 2004): <http://www.arb.ca.gov/toxics/cti/hlthrisk/hlthrisk.htm>

³ *California's Plan to Reduce Diesel Particulate Matter Emissions*, California Air Resources Board, October 2000.

neutral or stable conditions are typical at the project site due to the close proximity to the bay waters. As a result, measured air pollutant standards are not often exceeded.

Greenhouse Gas Emissions (GHG)

Gases that trap heat in the atmosphere are called greenhouse gases (GHG). Solar radiation enters the earth's atmosphere from space, and a portion of the radiation is absorbed at the surface. The earth emits this radiation back toward space as infrared radiation. Greenhouse gases, which are mostly transparent to incoming solar radiation, are effective in absorbing infrared radiation and redirecting some of this back to the earth's surface. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This is known as the greenhouse effect. The greenhouse effect, maintains a habitable climate. Greenhouse gases (GHG), are emitted by natural processes and human activities. Emissions from human activities, such as electricity production, motor vehicle use and agriculture are elevating the concentration of GHGs in the atmosphere, and are reported to have led to a trend of unnatural warming of the earth's natural climate, known as global warming or climate change. Other than water vapor, the GHGs contributing to global warming include the following gases:

- Carbon dioxide, primarily a byproduct of fuel combustion.
- Nitrous oxide is a byproduct of fuel combustion and also associated with agricultural operations such as fertilization of crops.
- Methane is commonly created by off-gassing from agricultural practices (e.g. keeping livestock) and landfill operation.
- Chlorofluorocarbons that were widely used as refrigerants, propellants and cleaning solvents but their production has been mostly reduced by international treaty.
- Hydrofluorocarbons are now used as a substitute for chlorofluorocarbons in refrigeration and cooling.
- Perfluorocarbons and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semiconductor manufacturing.

The State of California is concerned about GHG emissions and their effect on global climate change. Extensive research on the effect of human activity on global climate has and continues to occur. Many studies have identified the link between emissions of GHG and rising global temperatures, with the most recent evidence presented by the United Nations Intergovernmental Panel on Climate Change (IPCC) in 2007⁴ that finds overwhelming evidence that human activity is causing global warming. Impacts to California from this climate change could be reduced snow pack, increased risk of large wildfires, increased flooding potential, and reductions in the quality and quantity of agricultural products.

In 2006, the governor of California signed AB 32, the Global Warming Solutions Act, into legislation. The Act requires that California cap its greenhouse gas emissions at 1990 levels by 2020. This

⁴ *Climate Change 2007 - The Physical Science Basis Contribution of Working Group in the Fourth Assessment Report of the IPCC*, Intergovernmental Panel on Climate Change, 2007.

legislation requires CARB to establish a program for statewide greenhouse gas emissions reporting and monitoring/enforcement of that program. CARB recently publish a list of discrete greenhouse gas emissions reduction measures that can be implemented immediately. CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions. CARB's Early Action Plan identified regulations and measures that could be implemented in the near future to reduce GHG emissions.

California emissions of GHG gases or CO₂ equivalent emissions was estimated at 484 million metric tons of equivalent CO₂ emissions (MMTCO₂e), which is about seven percent of the emissions from the entire United States.⁵ It is estimated that the United States contributes up to 35 percent of the world's CO₂ equivalent emissions. Transportation is the largest source of GHG emissions in California, contributing about 40 percent of the emissions. Electricity generation is second at over 20 percent, but California does import electricity during the summer bringing energy sources up to about 25 percent. Industrial activities account for about 20 percent of the State's emissions. Under a "business as usual" scenario, emissions of GHG are estimated to increase to approximately 600 MMTCO₂e. CARB Staff has estimated the 1990 statewide emissions level to be 427 MMTCO₂e; therefore, requiring a reduction of almost 30 percent in emissions by 2020.

Much of the measures to reduce GHG emissions from transportation will come from CARB. AB 1493, the Pavley Bill, directed CARB to adopt regulations to reduce emissions from new passenger vehicles. CARB's AB 32 Early Action Plan released in 2007 included a strengthening of the Pavley regulation for 2017 and included a commitment to develop a low carbon fuel standard (LCFS). Current projections indicate that with implementation of a strengthened Pavley Regulation, including LCFS, California will still fall short of the 1990 Level targets for transportation emission reductions. A recent denial of a waiver to implement an LCFS by the U.S. EPA and pending legal challenges by the automotive industry could further complicate the schedule to achieve emission reduction targets. CARB is considering additional actions to reduce mobile source emissions that will be released in late 2008.

CARB is targeting other sources of emissions. The main measures to reduce GHG emissions will be contained in the AB 32 Scoping Plan. A draft of that plan was released in June 2008.⁶ This draft plan includes a range of GHG reduction actions. Central to the draft plan is a cap and trade program covering 85 percent of the state's emissions. This program will be developed in conjunction with the Western Climate Initiative, comprised of seven states and three Canadian provinces, to create a regional carbon market. The draft plan also proposes that utilities produce a third of their energy from renewable sources such as wind, solar and geothermal, and proposes to expand and strengthen existing energy efficiency programs and building and appliance standards. The draft plan also includes full implementation of the Pavley standards to provide a wide range of less polluting and more efficient cars and trucks to consumers who will save on operating costs through reduced fuel use. It also calls for development and implementation of the Low Carbon Fuel Standard, which will require oil companies to make cleaner domestically produced fuels. A final draft of the plan will be considered for adoption in November 2008. Once adopted, the regulatory process will begin to implement the plan. This will last two years.

⁵ *Climate Change Draft Scoping Plan a framework for change*, prepared by the California Air Resources Board for the State of California, June 2008.

⁶ *Climate Change Draft Scoping Plan a framework for change*, prepared by the California Air Resources Board for the State of California, June 2008.

Pursuant to Senate Bill 97, the Governor's Office of Planning and Research (OPR) is in the process of developing CEQA guidelines addressing GHGs. OPR is required to "prepare, develop, and transmit" the guidelines to the Resources Agency on or before July 1, 2009. In June 2008, OPR issued interim guidance for addressing climate change through CEQA.⁷ OPR recommends that each agency develop an approach to addressing GHG emissions that is based on best available information. The approach includes three basic steps: (1) identify and quantify emissions; (2) assess the significance of the emissions; and (3) if emissions are significant, identify mitigation measures or alternatives that will reduce the impact to a less than significant level. At this time, neither Sonoma County nor the BAAQMD have identified a significance threshold for GHG emissions.

⁷ *Technical Advisory CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act*, Governor's Office of Planning and Research, State of California, June 19, 2008.

Air Quality - Significance Criteria

The air quality analysis uses criteria from the *State CEQA Guidelines*. According to these criteria, the project would have a significant air quality impact if it 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 area is non-attainment under an applicable Federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

Air Quality - Impacts and Mitigation Measures

LESS-THAN-SIGNIFICANT IMPACTS

Based on the findings of the Initial Study (*Appendix A Initial Study*) together with additional analyses completed as a part of this EIR it has been determined that the proposed *Wolf House Inn* would have no or less-than-significant impacts for the following significance criteria.

- *Violate any air quality standard or contribute substantially to an existing or projected air quality violation.*

The unincorporated community of Glen Ellen and Sonoma County are part of a region-wide nonattainment area, in which concentrations of ground-level ozone and inhalable particulate matter exceed respective State or federal air quality standards. Standards for other air pollutants, such as carbon monoxide, are met. Ozone and particulate matter are the pollutants of primary concern when evaluating projects. Since these air pollutants are not directly emitted to the atmosphere, the significance of a project's impact is evaluated through comparison of overall project emissions to thresholds of significance established by the BAAQMD. The BAAQMD generally does not recommend a detailed air quality analysis for projects generating less than 2,000 vehicle trips per day. The proposed project is a relatively small development, involving 46 new hotel rooms, which would generate less than 500 daily traffic trips. This is well below the BAAQMD project-screening threshold. Based on the size of the project, emissions of ground-level ozone precursor pollutants and particulate matter would be well below significance thresholds and would not be expected to violate any air quality standards or contribute substantially to an existing or projected air quality violation. Therefore, a less than significant impact would occur.

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

As discussed above, the unincorporated community of Glen Ellen and Sonoma County are part of a region-wide nonattainment area, in which concentrations of ground-level ozone and inhalable particulates exceed respective State or federal air quality standards. The proposed *Wolf House Inn* would not have a significant impact to regional air quality since the project would generate air pollutant emissions well below the BAAQMD significance thresholds of 80 pounds per day for ozone precursor pollutants (i.e., reactive organic gases and nitrogen oxides) and PM₁₀. Since project emissions of these pollutants are below the thresholds, they would not significantly contribute toward regional progress in attaining and maintaining ambient air quality standards. As a result, the project would have a less-than-significant impact to air quality.

- *Create objectionable odors affecting a substantial number of people.*

Construction activities would include diesel-powered equipment and trucks that would produce noticeable odors at times. These temporary odors would be localized and not expected to be continuous. Operation of this type of project is not expected to generate odors. Trash or

decomposing materials would be removed from the site with regular waste pickup services. Therefore, a less than significant impact would occur.

IMPACT ANALYSIS

Impact 5.4-1 Expose Sensitive Receptors to Substantial Air Pollutant Levels

Air pollutants emitted during construction could expose nearby sensitive receptors to unhealthy levels of particulate matter and possibly TACs. This would be a significant impact.

Operation of the project would not result in air pollutant emissions that would expose sensitive receptors to substantial air pollutant levels. The primary source of air pollutant emissions from the project would be traffic. The project may include fireplaces; however, Sonoma County building regulations restrict the installation of open-burning fireplaces. During construction, emissions of dust and equipment exhaust would produce localized elevated air pollutant levels.

According to the preliminary grading plan, project development would require grading in the form of removal and recompaction to provide a suitable building pad area. Site grading would require approximately ten feet or 4,800 cubic yards of cut and minimal amounts of fill to accommodate the placement of the ground floor below the grade of the existing parking lot. The remaining cut would be transported and disposed of off-site. Subsequent to grading, construction activities would be expected to take between 13 to 17 months. The total estimated time to go from ground breaking to occupancy would be 14 to 18 months.

Although grading, and construction activities would be temporary, they would occur over a 14- to 18-month period and would create air emissions that would have the potential to cause both nuisance and health impacts. Much of the activity would occur over a 12- to 16-month period. Grading activities, that are anticipated to last about one month, would generate the greatest emissions of dust and exhaust. PM₁₀ is the pollutant of greatest concern associated with dust generation. If uncontrolled, PM₁₀ levels downwind of actively disturbed areas could create a nuisance. Most of the dust generation would result during grading activities or frequent vehicle travel on unpaved or dusty roads. The amount of dust generated would be highly variable and is dependent on the size of the area disturbed, amount of activity, soil conditions and meteorological conditions. Typical winds during late spring through summer are from the south. Nearby businesses and residences, especially those located to the north, could be adversely affected by dust generated during construction activities. If uncontrolled, dust generated by clearing, grading, and construction activities would represent a significant impact.

The heavy-duty construction equipment used primarily for site grading and trucks used to deliver or remove materials would be mostly diesel-fueled. The pollutants from this equipment that pose the most concern are diesel particulate matter or DPM, that has been identified as a TAC.

During the grading phases, approximately one to five pieces of equipment could be used simultaneously with some truck trips to import or export materials or equipment. Most of this activity would be over 100 feet from residences. Closest activities would be about 50 feet from the residence to the north and about 100 feet from a residence to the west-southwest. The most truck trips generated are likely to be during material export, paving and concrete pours. Trucks traveling near residences would have the most notable air quality impact, since much of the project activity would be a considerable distance from residences.

Truck travel and construction equipment exhaust may result in elevated levels of DPM for short time periods. However, these activities would occur for a relatively short period and the increased exposure

to TACs would be so small that it would for all intents and purposes be immeasurable at any one particular residence or sensitive receptor.

The level of exposure from this activity would be dependent on the types of equipment and controls employed to reduce emissions. Older construction equipment can emit DPM at much greater rates than late model construction equipment that utilize particulate filters and newer engine technologies.

The BAAQMD approach to evaluating air quality impacts from construction is to emphasize appropriate control measures. BAAQMD does not recommend that lead agencies quantify impacts. A list of feasible PM₁₀ control measures for construction sites has been developed by BAAQMD. In addition, the District recommends that construction projects include measures to minimize diesel particulate emissions. Without implementation of appropriate control measures, the project would have a significant impact on air quality during construction.

Mitigation Measure 5.4-1 A Construction Management Plan shall be prepared and shall incorporate the following measures:

Dust Control Measures

- Prevent visible dust clouds from extending beyond construction sites.
- Water all active construction areas at least twice daily and more often during windy periods. Keep active areas adjacent to residences damp at all times.
- Cover all haul trucks or maintain two feet of freeboard.
- Pave, apply water three times daily, or apply non-toxic soil stabilizers on all unpaved roads, parking, and staging areas.
- Sweep daily (with water sweepers) all paved access roads, parking areas, staging areas, and nearby streets where soil material deposits are visible.
- Hydroseed or apply non-toxic soil stabilizers to inactive construction areas (previously disturbed areas that are inactive for more than ten days).
- Enclose, cover, water twice daily, or apply non-toxic soil binders to all exposed stockpiles.
- Limit traffic speeds on unpaved parts of the site to 15 miles per hour (mph).
- Prevent visible tracking of mud or dirt on to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.
- Suspend any grading or excavation activities during strong winds that cause dust plumes visible to nearby sensitive (residential) land uses and that cannot be controlled by watering or other dust control measures.

Measures to Reduce Exhaust Emissions

- Any diesel-powered equipment larger than 50 horsepower and used on site for more than two days shall be (1) manufactured during or after 1996 meeting the California Tier I emissions standard;

(2) equipped with diesel particulate filters; or (3) use alternative fuels (e.g., biodiesel) that result in lower particulate matter emissions that are at least 20 percent lower than the statewide fleet average reported by the California Air Resources Board.

- Prohibit the use of “dirty” equipment. Opacity is an indicator of exhaust particulate emissions from off-road diesel-powered equipment. The project shall ensure that emissions from all construction diesel-powered equipment used on the project site do not exceed 40-percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40-percent opacity (or Ringelmann 2.0) shall be repaired immediately. In essence, any piece of equipment that emits dark smoke for more than 3 minutes would be in violation of this mitigation measure.
- All diesel equipment standing idle for more than five minutes shall be turned off. This would include trucks waiting to deliver or receive soil, aggregate, or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were on-site.
- A disturbance coordinator shall be designated to ensure that these measures are implemented. In addition, the disturbance coordinator shall respond to all complaints regarding construction-related air quality impacts within two working days. The phone number to contact the disturbance coordinator shall be conspicuously posted at the construction site.

Significance after Mitigation Implementation of this mitigation measure would reduce the impact to a less-than-significant level, since the project would implement all BAAQMD recommended PM₁₀ control measures for construction activities and would include appropriate measures to reduce DPM emissions. The control measures would reduce construction-period dust and diesel exhaust emissions so that nearby sensitive receptors would not be subject to unhealthy levels of air pollution caused by the project.

Responsibility and Monitoring Building/grading permits for ground disturbing activities shall not be approved for issuance by PRMD until the Construction Management Plan is prepared and made a part of the building, grading and improvement plans. The applicant shall be responsible for notifying construction contractors about the requirement for air quality control measures to be implemented during construction. If complaints pertaining to air quality are received, PRMD staff shall conduct an on-site investigation. If it is determined by PRMD staff that complaints are warranted, the permit holder shall implement additional control measures as determined by PRMD or PRMD may issue a stop work order.

Impact 5.4-2 Conflict With or Obstruct Implementation of the Applicable Air Quality Plan

The proposed project could generate a higher rate of vehicle miles traveled than buildout of a project under the existing Limited Commercial General Plan designation. This could lead to a higher rate of ozone precursor emissions than considered in regional clean air planning efforts. This would be a less-than-significant impact.

The most current Clean Air Plan (CAP), the *Bay Area 2005 Ozone Strategy*, was adopted by BAAQMD in 2006. This plan is based on population projections through 2020 compiled by the Association of Bay Area Governments (ABAG) and traffic information compiled by the Metropolitan Transportation Commission (MTC). The plan addresses the more stringent nonattainment requirements of the California Ambient Air Quality Standards. All feasible control measures to show progress toward meeting these standards are included in the plan. The plan essentially includes measures contained in the *2001 Ozone Attainment Plan* that addresses nonattainment of the national ambient air quality standards (NAAQS) for the one-hour ozone. Although the one-hour ozone NAAQS was revoked in 2005, the commitments in that plan apply toward reaching attainment of the

eight-hour ozone NAAQS. The Bay Area does not have a clean air plan that addresses PM₁₀, although measures in the *Bay Area 2005 Ozone Strategy* would help reduce PM₁₀ emissions.

Projects that increase the rate of population and vehicle miles traveled at a greater rate than those assumed in the latest CAP projections, may interfere with regional efforts to attain or make progress toward attaining ozone standards. ABAG relies on general plans to develop population and employment projections that are used by MTC to develop travel demand forecasts. These projections and forecasts are used to develop future emissions inventories.

The project proposes to construct a 46-room condominium hotel on a site with a *1989 General Plan Limited Commercial* designation. This designation is used to provide “areas for retail sales and services necessary for the daily self-sufficiency of urban and rural areas in keeping with their character...” Examples of permitted uses include neighborhood retail businesses that supply household commodities on the premises (e.g., groceries, drugs, and hardware); personal service establishments that perform services on the premises for persons residing in adjacent residential areas (e.g., shoe repair, dry cleaning shops, tailor shops, and hairdressers). The project would require a General Plan Amendment to change the land use designation from Limited Commercial to General Commercial.

The proposed project is not expected to change population projections, since it does not include a residential development. The project could affect regional vehicle miles traveled (VMT). A commercial project could be developed under the Limited Commercial designation. The range of VMT associated with current allowable uses would vary considerably. The proposed project is predicted to generate 464 daily trips. This would equate to about three pounds of ROG and three pounds of NO_x per day. These emissions would be minor and not affect the Bay Area as a whole. Build out of a commercial use at the site under the current General Plan designation could generate emissions that would be slightly lower or higher. As a result, the project is not considered to conflict with the regional Clean Air Plan. This would be a less than significant impact.

Mitigation Measure 5.4-2 No mitigation would be required.

Impact 5.4-3 Cumulative Greenhouse Gas Emissions

Construction of cumulative projects in the project area would be an additional source of GHG emissions, primarily through consumption of energy for transportation and building operation. No accepted methodology or standards exist for determining the significance of these emissions.

Carbon dioxide, the primary man-made greenhouse gas of concern, would be generated by the proposed project primarily from mobile sources and energy usage. Thresholds of significance have not been developed for projects to evaluate their contribution to global warming. Currently, neither CARB, BAAQMD, nor Sonoma County, have established regulations, guidance, methodologies, or other means that would require the implementation of measures that would reduce GHG emissions from projects. The Governor’s OPR has recently recommended that lead agencies quantify emissions, assess the significance, and mitigate significant emissions. The BAAQMD encourages projects to reduce GHG emissions. Reducing greenhouse gas emissions from the project would benefit the environment.

Emissions associated with the development of a 46-room condominium hotel were calculated. The California Air Pollution Control Officers Association (CAPCOA) has provided some guidance for

addressing project impacts.⁸ Emissions from area, mobile and electricity usage are recommended by CAPCOA. Area and mobile source emissions were calculated using the URBEMIS2007 model. A hotel land use with 46 rooms and a spa with approximately 3,800 square feet were selected in the model. Indirect source emissions from electricity usage were based on rates recommended by the California Climate Action Registry General Reporting Protocol⁹ and electricity emission rates recommended by EPA. CAPCOA and CCAR recommend an annual electricity usage rate of 16.7 kilowatts per square foot for commercial spaces (there are no suggested rates for hotel uses). CO2 emission rates for electricity use in California are 878.7 pounds per megawatt-hour or 0.8787 pounds per kilowatt-hour. An adjustment of eight percent for electricity losses during generation and distribution was applied. CO2 is the primary GHG emitted from this type of project. Although there are emissions of methane and nitrous oxide, which are more potent GHGs, their emissions are very small compared to CO2 (i.e., less than three percent equivalent CO2). As a result, these emissions are not calculated. **Exhibit 5.4-1** shows the annual GHG emissions in tons per year.

Exhibit 5.4-1
Annual CO2 Emissions from Proposed Project in Tons Per Year (tpy)

Source Type	Basis for Calculation	Annual Emissions
Area Source	Natural gas and landscape equipment from URBEMIS2007 – 46-room hotel, 3,800 ft ² Spa	89 tpy
Mobile Sources	Traffic from URBEMIS2007 – 46-room hotel, 3,800 ft ² Spa	496 tpy
Electricity Usage	37,594 ft ² of commercial space using 16,770 kW per 1,000 ft ² year	301 tpy
Total		886 tpy

Source: Illingworth & Rodkin, 2008.

The largest majority of GHG emissions associated with the project would come from motor vehicle use. The project would be located within walking distance of services for proposed project users, such as restaurants and tasting rooms. The project site is not adequately served by public transit, but people using the proposed project are not likely to use public transit.

Energy usage (natural gas and electricity usage combined) would generate about 44 percent of the proposed project GHG emissions. Features that reduce energy consumption and waste can be included in new development that would reduce emissions. These would include energy-efficient construction methods, inclusion of solar photovoltaic panels to produce energy, solar water heaters, passive solar design, appropriate landscape and water recycling systems.

⁸ *CEQA & Climate Change*, California Air Pollution Control Officers Association, January 2008.

⁹ *California Climate Action Registry General Reporting Protocol - Reporting Entity-Wide Greenhouse Gas Emissions*, California Climate Action Registry, April 2008.

As discussed in *Chapter 3.0 Description of the Proposed Project*, the *Wolf House Inn* would incorporate energy conservation and sustainability principles into project design. Such systems and materials contemplated for the proposed project include:

- Solar domestic hot water and solar voltaic electrical system;
- Use of thick exterior walls, insulation, and earth to minimize heat loss / gain during summer / winter months;
- Six-foot roof overhangs and sun shades to reduce heat gain;
- Deciduous trees that provide shade / light in summer / winter months;
- Operable windows to permit natural cooling and air flow;
- Day lighting concepts to reduce the need for artificial light; and
- Green building materials that have been produced in a way that preserves raw materials or those that are manufactured with rapidly renewable resources or recycled content.

These measures have not, however, been adequately described in the applicant's application submitted to Sonoma County to quantify their effect on reducing GHG emissions.

Since there are no developed significance thresholds for GHG emissions, it is difficult to determine the significance of a single project. The State is currently preparing plans through AB 32 to reduce CO2 emissions to 1990 levels by 2020. This plan will require statewide emissions to be reduced by 30 percent from "business as usual" emissions. Business as usual means the emissions that would occur in 2020 with anticipated growth and no new measures that would reduce GHG emissions. As previously discussed, many of the measures in the State's plan will come from industry (through cap and trade programs), controls on new cars and trucks, reformulations of gasoline, and renewable energy sources. The State's plan will be relying on projects, such as the proposed project, to include design measures that will reduce emissions from indirect sources. Without such measures included, the project could be considered inconsistent with the State's efforts to reduce GHG emissions through AB 32.

Mitigation Measures 5.4-3 Although the determination of significance in regard to GHG emissions is speculative the design of individual cumulative projects in the project area (including the proposed project) shall incorporate measures to reduce a project's contribution to GHG emissions. These measures shall include the following:¹⁰

- Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use;
- Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings;

¹⁰ These measures are based on a list of measures developed by the California State Attorney General's Office that could reduce global warming impacts. *Fact Sheet - The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*, California Department of Justice, May 2008.

- Install light colored “cool” roofs, cool pavements, and strategically placed shade trees;
- Install energy efficient heating and cooling systems, appliances and equipment, and control systems;
- Install light emitting diodes (LEDs) for traffic, street and other outdoor lighting;
- Limit the hours of operation of outdoor lighting;
- Use solar heating, automatic covers, and efficient pumps and motors for pools and spas;
- Install solar and wind power systems, solar and tankless hot water heaters, and energy-efficient heating ventilation and air conditioning.
- Create water-efficient landscapes;
- Install water-efficient irrigation systems and devices; and
- Limit idling time for commercial vehicles, including delivery and construction vehicles.