APPENDIX F

Air Quality Analysis

Fairview/Gavilan College Air Quality Study

May 16, 2008
Revised August 19, 2008

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Introduction

The air quality impacts of the proposed Gavilan Campus/Fairview Corners Master Plan development in San Benito County, California are described in this report. The project site is located at the northeast corner of Fairview Road and Airline Highway, covering roughly 137 acres of vacant land. The project as proposed consists of a 3,500-student community college campus, 70 on-campus housing units, 35,000 square feet (s.f.) of retail space, and 220 single-family homes.

The college campus and single-family homes will be constructed separately. The college campus would be constructed in two phases. The first phase would include limited site grading, placement of five modular buildings, a 415-car parking lot, and access roads. Full campus build out would occur over a 25-year period. The residential portion of the project would be built out in five phases over 10 years. Each phase would require grading and construction of infrastructure.

This report describes existing air quality, temporary construction-related impacts, potential direct and indirect long-term emissions associated with the project build out scenario, and the impacts of these emissions on both the local and regional scale. Mitigation measures warranted to reduce or eliminate any identified significant impacts are described.

This analysis was conducted following guidance provided by the Monterey Bay Air Pollution Control District (MBAPCD) CEQA Guidelines. Emissions, which are the quantity of pollutant that the project would emit both directly and indirectly, are measured in pounds per day. The amount of pollutant material measured per volumetric unit of air is referred to as the concentration and is typically measured in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). Stationary sources associated with the project, which could result in adverse air quality impacts that would contribute to air quality emissions, have not been identified.

Overall Regulatory Setting

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 (CAA). 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 Monterey Bay Air Pollution Control District (MBAPCD) regulates air quality at the regional level.

<u>United States Environmental Protection Agency</u>

USEPA is responsible for enforcing the Federal CAA. USEPA is also responsible for establishing the National Ambient Air Quality Standards (NAAQS). NAAQS are required under the 1977 CAA and subsequent amendments. USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. The agency has jurisdiction over emission sources outside state waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by CARB.

California Air Resources Board

In California, CARB, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for meeting the state requirements of the Federal CAA, administering the California CAA, and establishing the California Ambient Air Quality Standards (CAAQS). The California CAA, as amended in 1992, requires all air districts in the State to endeavor to achieve and maintain the California Ambient Air Quality Standards (CAAQS). The CARB regulates mobile air pollution sources, such as motor vehicles. The agency is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB has established passenger vehicle fuel specifications. CARB oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county level.

Monterey Bay Unified Air Pollution Control District

The Monterey Bay Unified Air Pollution Control District (MBAPCD) is primarily responsible for assuring that the National and State ambient air quality standards are attained and maintained in the Monterey Bay Area. MBAPCD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities.

National and State Ambient Air Quality Standards

As required by the Federal Clean Air Act, NAAQS have been established for six major air pollutants: carbon monoxide (CO), nitrogen oxides (NO_x), ozone (O_3), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), sulfur oxides, and lead. Pursuant to the California Clean Air Act, the State of California has also established ambient air quality standards. These standards are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles.

Both State and Federal standards are summarized in Table 1. The "primary" standards have been established to protect the public health. The "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation and other aspects of the general welfare. CAAQS are more stringent than the NAAQS. Thus, CAAQS are used as the comparative standard in this analysis.

Table 1 Ambient Air Quality Standards

Table 4.3-2 Federal and State Ambient Air Quality Standards				
Pollutant	**Averaging Time**	**State Standard**	**Federal Standard**	
			Primary	**Secondary**
Ozone	1-Hour 8-Hour	0.09 ppm (180 µg/m³) 0.07 ppm (137 µg/m³)	- - 0.075 ppm (147 µg/m³)	- - --
Carbon Monoxide	8-Hour 1-Hour	9.0 ppm (10,000 µg/m³) 20 ppm (23,000 µg/m³)	9.0 ppm (10 mg/m³) 35.0 ppm (40 mg/m³)	- - - -
Nitrogen Dioxide	Annual 1-Hour	0.030 ppm 0.18 ppm	0.053 ppm (100 µg/m³) - -	0.053 ppm (100 µg/m³) - -
Sulfur Dioxide	Annual 24-Hour 3-Hour 1-Hour	- - 0.04 ppm (105 µg/m³) - - 0.25 ppm (655 µg/m³)	0.03 ppm (80 µg/m³) 0.14 ppm (365 µg/m³) - - - -	- - - - 0.5 ppm (1,300 µg/m³) - -
PM_{10}	Annual 24-Hour	20 µg/m³ 50 µg/m³	- - 150 µg/m³	- - 150 µg/m³
$PM_{2.5}$	Annual 24-Hour	12 µg/m³ no separate state standard	15 µg/m³ 35 µg/m³	- - - -
Lead	Calendar quarter	- -	1.5 µg/m³	1.5 µg/m³
	30-day	1.5 µg/m³	- -	- -
Sulfate	24-Hour	25 µg/m³	- -	- -
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m³)	- -	- -
Vinyl Chloride	24-Hour	0.010 ppm (26 µg/m³)	- -	- -
Visibility Reducing Particles	8-hours (10 am - 6 pm)	Extinction coefficient of 0.23 per km - visibility of ≥ 10 miles due to particles when relative humidity is < 70%.	- -	- -
mg/m³ = milligrams per Cubic Meter µg/m³ = micrograms per Cubic Meter		Annual = annual arithmetic mean ppm = parts per million		
Source: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf				

Air Pollutants and Effect

Air quality studies generally focus on five pollutants that are most commonly measured and regulated: CO, O_3, NO_2, SO_2, and suspended particulate, i.e., PM_{10} and $PM_{2.5}$. These are referred to as "criteria " air pollutants. In addition, there are toxic air contaminants (TACs), which are a broad class of compounds that can have a range of health effects.

Ozone

Ground-level ozone is the principal component of smog. Ozone is not directly emitted into the atmosphere, but instead forms through a photochemical reaction of reactive organic gases (ROG) and nitrogen oxides (NO_X), which are known as ozone precursors. Ozone levels are highest from late spring through autumn when precursor emissions are high and meteorological conditions are warm and stagnant. Motor vehicles create the majority of reactive organic gas and nitrogen oxide emissions in the California. In April 2005, the California Air Resources Board approved a new eight-hour standard of 0.070 ppm and retained the one-hour ozone standard of 0.09 ppm after an extensive review of the scientific literature. The U.S. EPA revised the 8-hour NAAQS for ozone to 0.075 ppm in May 2008. Evidence from the reviewed studies indicate that significant harmful health effects could occur among both adults and children if exposed to levels above these standards. Exposure to levels of ozone above current ambient air quality standards can lead to human health effects such as lung inflammation and tissue damage and impaired lung functioning. Ozone exposure is also associated with symptoms such as coughing, chest tightness, shortness of breath, and the worsening of asthma symptoms. The greatest risk for harmful health effects belongs to outdoor workers, athletes, children and others who spend greater amounts of time outdoors during periods where ozone levels exceed air quality standards. Elevated ozone levels can reduce crop and timber yields, as well as damage native plants. Ozone can also damage materials such as rubber, fabrics and plastics.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate matter (PM) 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 10 microns or less in diameter are defined as "respirable particulate matter" or "PM_{10} ". Fine particles are 2.5 microns or less in diameter ($PM_{2.5}$) and can contribute significantly to regional haze and reduction of visibility. Inhalable particulates found in the region come from smoke, vehicle exhaust, and dust. Although particulates are found naturally in the air, most particulate matter found in the region are emitted either directly or indirectly by wood burning, motor vehicles, construction, agricultural activities, and wind erosion of disturbed areas. Most $PM_{2.5}$ is comprised of combustion products such as smoke or vehicle exhaust. Respirable particulate matter, especially $PM_{2.5}$, is unhealthy to breathe and has been associated with premature mortality and other serious health effects. PM_{10} poses a health concern because these particulates can be inhaled into and accumulate in the respiratory system. $PM_{2.5}$ is believed to pose the greatest health risks. Because of their small size (approximately three percent of the average width of a human hair), fine particles can lodge deeply into the lungs. Extensive research reviewed by CARB indicates that exposure to outdoor PM_{10} 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. PM exposure 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.

The State of California regularly reviews scientific literature regarding the health effects of exposure to particulate matter and other pollutants. On July 5, 2003, CARB adopted new standard for particulate matter, lowering the level of the annual standard for PM_{10} and establishing a new annual standard for $PM_{2.5}$.

Carbon Monoxide. CO, a colorless and odorless gas, interferes with the transfer of oxygen to the brain. It can cause dizziness and fatigue, and can impair central nervous system functions. CO is emitted almost exclusively from the incomplete combustion of fossil fuels. Automobile exhausts release most of the CO in the area. A substantial amount also comes from burning wood in fireplaces and wood stoves. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follows the spatial and temporal distributions of vehicular traffic. The highest CO concentrations measured in the Monterey Bay area are typically recorded during the winter.

Nitrogen Dioxide. NO_2, a reddish-brown gas, irritates the lungs. It can cause breathing difficulties at high concentrations. Like O_3, NO_2 is not directly emitted, but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as nitrogen oxides (NO_x) and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM_{10} (see discussion of PM_{10} below). NO_2 concentrations in the air basin have been well below ambient air quality standards; therefore, NO_2 concentrations from land use projects are not a concern. In February 2007, the California Air Resources Board approved a new annual standard of 0.030 ppm and lowered the existing one-hour standard to 0.25 ppm.

Sulfur Oxides. Sulfur oxides, primarily SO_2, are a product of high-sulfur fuel combustion. The main sources of SO_2 are coal and oil used in power stations, in industries, and for domestic heating. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 concentrations have been reduced to levels well below the state and national standards, but further reductions in emissions are needed to attain compliance with standards for PM_{10}, of which SO_2 is a contributor. Regional SO_2 concentrations have been well below ambient air quality standards; therefore, SO_2 concentrations from land use projects are not a concern.

Toxic Air Contaminants (TAC)

TACs are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants listed above. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., benzene near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average). According to CARB, diesel exhaust is a complex mixture of gases, vapors and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the ARB, and are listed as carcinogens either under the state's Proposition 65 or under the federal Hazardous Air Pollutants programs. California has adopted a comprehensive diesel risk reduction program. The U.S. EPA has adopted low sulfur diesel fuel standards that will reduce diesel particulate matter substantially. These went into effect in late 2006.

In cooler weather, smoke from residential wood combustion can be a source of TACs. Localized high TAC concentrations can result when cold stagnant air traps smoke near the ground and, with no wind, the pollution can persist for many hours. This occurs in sheltered valleys during the winter. Wood smoke also contains a significant amount of PM_{10} and $PM_{2.5}$. Wood smoke is an irritant and is implicated in worsening asthma and other chronic lung problems.

Air Quality Planning

Monterey Bay Unified Air Pollution Control District

The Monterey Bay Unified Air Pollution Control District (MBUAPCD) is one of 35 districts established to protect air quality in California. Its jurisdiction is in the North Central Coast Air Basin (NCCAB), comprised of Monterey, Santa Cruz and San Benito counties. NCCAB does not meet the State Ambient Air Quality Standards for ozone or inhalable particulate matter (PM_{10}).

The California Clean Air Act of 1988 required preparation of a 1991 plan showing how the State ozone standard would be met. Air quality plans addressing the California Clean Air Act are developed about every three years. The plans are meant to demonstrate progress toward meeting the more stringent 1-hour O3 CAAQS. The latest plan, which was adopted in September 2004, is called the 2004 Air Quality Management Plan for the Monterey Bay Region. This plan includes a comprehensive strategy to reduce emissions from stationary, area, and mobile sources. The plan objective is to indicate how the region would make progress toward attaining the stricter state air quality standards, as mandated by the California Clean Air Act. The plan is designed to achieve a region-wide reduction of O_3 precursor pollutants through the expeditious implementation of all feasible measures.

The clean air planning efforts for O_3 will also reduce PM_{10} and $PM_{2.5}$, since a substantial amount of this air pollutant comes from combustion emissions such as vehicle exhaust. In addition, attainment of the PM_{10} standard is addressed in the “1998 Report on Attainment of the California Particulate Matter Standards in the Monterey Bay Region.”

Physical Setting

Climate and Topography

The project site is located in an unincorporated area of San Benito County, southeast of the City of Hollister, which lies at the northern portion of the San Benito Valley. This valley is a southern extension of the Santa Clara Valley. Hollister is approximately 20 miles east of Monterey Bay. The Gablian Mountain Range lies to the west and the Diablo Range lies to the east. The Santa Cruz Mountains are to the northwest.

A gap between the Santa Cruz Mountains and the Gablian Mountain Range along the Pajaro River allows the primary marine air penetration into the area. Winds from the west-northwest are most common, since terrain to the west is too low to prevent marine air from penetrating into the valley. Winds from the northwest are also common, since the Santa Clara Valley opens to the San Francisco Bay to the north. Northwest winds blowing down the Santa Clara Valley transport modified marine air as well as air pollutants from the urbanized areas of the southern Bay Area. In the winter, drainage winds tend to flow east or southeastward towards Monterey Bay, but these are generally weak and variable. In the spring, winds tend to blow from the west-northwest (on-shore). In the summer, winds are primarily northwesterly. In the fall, winds flow from the southeast during the night, and at times switch to the west and northwest in the afternoon, but tend to remain light. Stormy periods in winter can bring brief periods of strong southerly winds. However, winds are variable throughout much of late fall and winter. The lightest winds are in fall and winter. Rainfall in the area averages about 15 inches per year, with almost all precipitation occurring between November and April. Although Hollister lies inland, temperatures are modified by the marine influence. Summer maximum temperatures are typically around 80 F. Mean maximum daily temperatures range from around 60 deg F in winter to 81 deg. F in summer. Minimum temperatures range from the high 30's F in winter to the mid 50's F in summer.

Air Monitoring Data

Air quality in the region is controlled by the rate of pollutant emissions and meteorological conditions. Meteorological conditions such as wind speed, atmospheric stability, and mixing height may all affect the atmosphere's ability to mix and disperse pollutants. Certain weather patterns can transport air pollutants from urbanized areas in to the project area. Long-term variations in air quality typically result from changes in air pollutant emissions, while frequent, short-term variations result from changes in atmospheric conditions. While Hollister enjoys fairly good air quality that meets most State and Federal standards, other parts of the air basin does not. Surface winds often move pollutants from their emission source, so levels downwind are higher. This is especially the case for ozone. MBUAPCD and CARB operate a network of air quality monitoring stations throughout the air basin. The monitoring station at Fairview Avenue in Hollister monitors ozone and PM_{10}. A summary of air pollutant concentrations measured in Hollister and the entire air basin are shown in Table 2.

Table 2 Highest Measured Air Pollutant Concentrations

Pollutant	Average Time	Measured Air Pollutant Levels				
		2003	**2004**	**2005**	**2006**	**2007**
Hollister						
Ozone (O_3)	1-Hour	0.09 ppm	0.09 ppm	0.09 ppm	**0.10 ppm**	0.09 ppm
	8-Hour	0.08 ppm	0.07 ppm	**0.07 ppm**	**0.09 ppm**	**0.07 ppm**
Fine Particulate Matter (PM_{10})	24-Hour	36 ug/m^3	41 ug/m^3	37 ug/m^3	46 ug/m^3	40 ug/m^3
	Annual	17 ug/m^3	16 µg/m^3	16ug/m^3	16 ug/m^3	17 ug/m^3
Respirable Particulate Matter ($PM_{2.5}$)	24-Hour	24 µg/m^3	16 ug/m^3	22 ug/m^3	16 ug/m^3	13 ug/m^3
	Annual	9 µg/m^3	7 µg/m^3	7.3 ug/m^3	7.0 ug/m^3	--
North Central Coast Air Basin (Basin Summary)						
Ozone (O_3)	1-Hour	**0.111** ppm	**0.093** ppm	**0.107 ppm**	**0.105 ppm**	**0.100 ppm**
	8-Hour	**0.088 ppm**	0.083 ppm	**0.085 ppm**	**0.085 ppm**	**0.085 ppm**
Carbon Monoxide (CO)	8-Hour	1.1 ppm	1.2 ppm	0.9 ppm	1.0 ppm	1.2 ppm
Nitrogen Dioxide (NO_2)	1-Hour	0.05 ppm	0.14 ppm	0.05 ppm	0.07 ppm	0.05 ppm
	Annual	0.006 ppm	0.007 ppm	0.006 ppm	0.006 ppm	0.006 ppm
Respirable Particulate Matter (PM_{10})	24-Hour	**90** µg/m^3	**83** µg/m^3	**69 µg/m^3**	**65 µg/m^3**	**51 µg/m^3**
	Annual	**32** ug/m^3	**28** ug/m^3	**26 µg/m^3**	**25 µg/m^3**	**25 µg/m^3**

Source: California Air Resources Board Air Quality Data website http://www.arb.ca.gov/aqd/aqdpage.htm.
Note: ppm = parts per million and ug/m^3 = micrograms per cubic meter
Values reported in bold exceed ambient air quality standard
NA = data not available.

Table 3 Annual Number of Days Exceeding Ambient Air Quality Standards

Pollutant	Standard	Monitoring Station	Days Exceeding Standard 2003	2004	2005	2006	2007
Ozone (O_3.)	NAAQS 1-hr	Hollister NCCAB	0 0	0 0	X X	X X	X X
	NAAQS 8-hr	Hollister NCCAB	0 2	0 0	0 1	1 2	0 1
	CAAQS 1-hr	Hollister NCCAB	0 3	0 0	0 2	1 2	0 2
	CAAQS 8-hr	Hollister NCCAB	X X	X X	1 7	5 20	2 17
Fine Particulate Matter (PM_{10})	NAAQS 24-hr	Hollister NCCAB	0 0	0 0	0 0	0 0	0 0
	CAAQS 24-hr	Hollister NCCAB	0 7	0 7	0 2	0 3	0 1
Fine Particulate Matter ($PM_{2.5}$)	NAAQS 24-hr*	Hollister NCCAB	NA NA	NA NA	NA NA	NA NA	NA NA
All Other (CO, NO_2, Lead, SO_2)	All Other	Hollister NCCAB	NA 0	NA 0	NA 0	NA 0	NA 0

* Based on standard of 65 µg/m^3 that was in place until September 21, 2006.
NA = data not available. X = no standard in place at that time.

Air pollutant monitoring data show that the Hollister station has exceeded ozone standards during the last 5 years. The 8-hour NAAQS for ozone was exceeded on one day in 2006. The State 1-hour standard was exceeded that same day, but no other days during the 5-year period. The new State 8-hour standard was exceeded on one to five days per year over the last 3 years (the standard was not in place prior). During that same period, all stations in the air basin combined have exceeded the 8-hour ozone NAAQS on 0 to 2 days annually and the 1-hour CAAQS on 0 to 3 days annually. The new 8-hour CAAQS for ozone has been exceeded on 7 to 20 days per year. Most of these exceedances have occurred at the Pinnacles national Monument station, which lies downwind of this air basin. That station is also affected by transport of air pollutants from other basins, such as the San Joaquin Valley.

CAAQS for PM_{10} was not exceeded on any of the measurement days in Hollister over the last 5 years. Throughout the air basin, PM_{10} CAAQS were exceeded on 1 to 7 measurement days annually. PM_{10} is measured every sixth day, so air-basin wide exceedances were estimated by CARB at 6 to 43 days.

Attainment Status

Areas that do not violate ambient air quality standards are considered to have attained the standard. Violations of ambient air quality standards are based on air pollutant monitoring data and are judged differently for each air pollutant. NCCAB, as a whole, does not meet state ambient air quality standards for PM_{10} and is non-attainment-transitional for the state 1-hour O_3 standard. The area has does not meet the State 8-hour O_3 standard, but an attainment designation has not been formally made. The U.S. EPA considers the region to be a maintenance area since the 8-hour ozone standard has been attained. For all other standards, the U.S. EPA and the State have classified the region as attainment or unclassified/attainment.

Sensitive Receptors

Some groups of people are more affected by air pollution than others. CARB 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. Undeveloped, open grassland lies to the east of the project site and large rural residential parcels lie to the north of the project site. The Ridgemark Golf and Country Club is located to the south of the project across Airline Highway and the Cielo Vista subdivision is located to the west across Fairview Road.

Environmental Impacts and Mitigations

Thresholds of Significance

The project site is located within the jurisdictional boundary of the Monterey Bay Unified Air Pollution Control District (MBUAPCD). Based on the *CEQA Air Quality Guidelines* adopted by the MBUAPCD, significant impacts would occur if the project: [1]

- Conflicts with or obstructs implementation of the applicable air quality plan;
- affects the attainment and maintenance of regional ozone levels by emitting 137 pounds per day (lb/day) or more of an ozone precursor air pollutant, which are VOC or NO_x;
- locally affects particulate matter levels by emitting greater than 82 lbs/day of PM_{10} on site and cause an exceedance of the State PM_{10} standard at an existing or reasonably foreseeable receptor as averaged over 24 hours;
- causes or contributes to an exceedance of a CO standard as measured by Level of Service (LOS) degradation at a project-effected intersection and confirmed by dispersion modeling. This applies to project-affected intersections with substantial traffic that are degraded from a LOS of E or worse;

[1] *CEQA Air Quality Guidelines*, Monterey Bay Unified Air Pollution Control District, 1995, with revisions through July 2004.

- exposes sensitive receptors or the general public to substantial levels of toxic air contaminants; and

- creates or exposes a substantial number of people to objectionable odors or nuisances.

For cumulative impacts, MBUAPCD recommends that the project be assessed for consistency with the 2004 Air Quality Management Plan for the North Central Coast Air Basin. This was done by requesting a formal consistency determination from AMBAG.

The project does not include siting of sensitive receptors (e.g., residences) near roadways with sufficient volumes to expose sensitive receptors to unhealthy air pollution levels. CARB recommends a buffer of 500 feet between sensitive receptors and freeways or rural roads with an average of 50,000 vehicles or more per day[2].

<u>Air Quality Impacts</u>

Impact AQ-1 ***Construction Period Impacts –PM_{10} from Fugitive Dust***
Construction activities, such as clearing, grading operations, construction vehicle traffic on unpaved ground, and wind blowing over exposed earth would generate dust and particulate matter. This would be a **significant impact.**

Construction activities would occur at times over a 10-year or longer period on the 137-acre undeveloped site. The college and residential portion of the site would be constructed separately, and possibly concurrently. The first phase of the college is likely to involve fairly minor grading to develop pads for the modular buildings, access roads and a parking lot. More grading would occur in the future as the site is developed into the college campus. About 40% of the site would be developed with single-family residences, open space/park/buffer and infrastructure such as roadways. This portion of the site would be developed in five separate phases over 10 years.

Site grading would primarily be accomplished using diesel powered heavy equipment. Dust is generated from a variety of project construction activities that include grading, import/export of fill material, and vehicle travel on unpaved surfaces. Dust from construction includes PM_{10}. Soil can also be tracked-out onto paved roads where it is entrained in the air by passing cars and trucks. Additionally, dust can be generated by wind erosion of exposed areas. The rate of dust emissions is related to the type and size of the disturbance, meteorological conditions, and soil conditions. Construction activities can result in localized high concentrations of PM_{10} and affect regional levels of PM_{10}. High levels of PM_{10} can lead to adverse health effects, nuisance concerns, and reduced visibility. Detailed development plans or construction plans for these sites have not been developed.

MBUAQMD CEQA Guidelines consider on-site emissions of 82 pounds per day or greater of PM_{10} from construction activity to be significant if the emissions would lead to exceedances of ambient air quality standards. The emissions threshold defines significance where specific

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[2] *Air Quality and Land Use Handbook: A Community Health Perspective*, California Air Resources Board. April 2005.

construction activity is not known to conduct a detailed analysis to model PM_{10} concentrations. Due to the variables that affect construction emissions, quantification of construction period emissions is difficult. The initial phases of construction that generate the highest emissions of PM_{10} from fugitive dust would be of most concern. As previously mentioned, the site would be constructed phases, over the next 10 to 25 years. Grading and construction activities could begin in 2010 and continue to occur intermittently at various times out beyond the 2018-20 period. During other construction phases, additional material would be imported to the site. This would include base rock, select soil/gravel for trenches and building pads, concrete, and asphalt for paving. Building materials would also be imported to the site.

Fugitive dust emissions would occur during each of the construction phases. The greatest amount of dust emissions would be generated during the initial grading phase where the soil disturbance activities would be the most intense (i.e., cut and fill activities involving scrapers and other equipment). The other construction phases would generate dust emissions, but of a lesser degree than grading since the intensity of soil disturbance activities would be reduced.

Uncontrolled daily fugitive dust emissions can be approximated for grading construction activities using emission factors developed as part of a study conducted for the South Coast Air Quality Management District (MRI, 1996). This study developed fugitive dust (PM_{10}) emission factors for construction activities at seven sites in Las Vegas, Coachella Valley, the South Coast area, and in the San Joaquin Valley. A general overall emission factor of 10 pounds per acre per day was found to represent typical daily emissions. On the most active days during grading, emissions would be higher. The identified a worst-case overall emission factor that would apply to the most intense construction sites was 38.2 pounds per acre per day. However, the worst-case overall rate for a California site was 4.1 pounds per acre per work hour, or 32.8 pounds per acre per day. These emission factors include emissions associated with general construction activities, as well as those from intensive earth-moving activities. The study developed specific emission factors that require specific construction information, such as the amount of earthwork and the detail of control measures. Since that type of information is generally not available, overall emission factors were used to estimate daily emissions.

Using emission factors of 10 pounds per acre per day would result in significant emissions if over 8.2 acres were disturbed on a typical day. For very active periods (worst-case), emissions would be significant if over 2.5 acres were disturbed in one day. Grading activity that encompasses more than 2.5 acres in a single day could result in on-site PM_{10} emissions that would be significant. When specific project details and grading activities are known, better emission estimates could be made to refine construction plans and possibly remain below the 82 pound per day threshold with a larger area of disturbance.

In addition, PM_{10} emissions would occur as a result of wind erosion over disturbed areas during dry windy conditions and from vehicle track out. These emissions are not accounted for in the emission factors applied to grading and construction activities. Ordinarily, these emissions would be considerably small in comparison with grading activities. Emissions from wind erosion are difficult to predict since one has to know the area that is disturbed enough so that wind could cause erosion and then a wind speed above a certain threshold has to occur for a known duration. Wind erosion emissions would vary considerably, but could be effectively controlled through active watering of the site or use of soil stabilization methods throughout the construction period. To greatly reduce wind erosion, disturbed areas would have to also be controlled on weekends or holidays that construction is not occurring.

The closest sensitive receptors to the site are the single-family residences Cielo Vista subdivision to the west across Fairview Road. These homes would be about 150 to 200 feet or further from the closest construction activities. Typically, winds blow from the west during the daytime, so these homes would be normally upwind of construction activities. This would especially be the case during spring and summer.

Given the size of the project area to be graded, daily activity areas could exceed 2.5 acres per day. Onsite PM_{10} emissions, therefore, may exceed the MBUAPCD thresholds of 82 pounds per day. This would result in a ***significant impact*** to air quality.

Mitigation

Prior to start of construction, the project applicant or contractor shall submit to the County of San Benito Public Works Department a construction dust mitigation plan. This plan shall specify the methods of dust control that would be utilized, demonstrate the availability of needed equipment and personnel, use reclaimed water for dust control, and identify a responsible individual who, if needed, can authorize implementation of additional measures. The construction dust mitigation plan shall, at a minimum, include the following measures:

- Limit grading activity to a maximum of 2.5 acres daily. As more detailed construction information becomes available, emissions from grading activities could be reassessed to determine if the area of grading could be increased. Such an assessment would have to be conducted using appropriate assumptions and mitigation measures.
- Water all active construction areas at least twice daily and more often during windy periods. Active areas adjacent to existing businesses should be kept damp at all times. If necessary, during windy periods, watering is to occur on all days of the week regardless of onsite activities.
- Cover all trucks hauling trucks or maintain at least two feet of freeboard.
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Sweep daily all paved access roads, parking areas and staging areas at construction sites.
- Sweep streets daily if visible soil material is deposited onto the adjacent roads.
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for ten days or more).
- Enclose, cover, water twice daily or apply (non-toxic) soil binders to exposed stockpiles.
- Limit traffic speeds on unpaved roads to 15 mph.
- Replant vegetation in disturbed areas as quickly as possible.
- Suspend excavation and grading activity when hourly-average winds exceed 15 mph and visible dust clouds cannot be contained within the site.

The combined effect of the above measures, including the use of a dust suppressant, which represent Best Management Practices, and limiting the size of the grading area would reduce project impacts to a l*ess-than-significant* level only if emissions can be limited to 82 pounds per day or subsequent dispersion modeling of construction activities demonstrates that PM_{10} concentrations from construction activity would not cause an exceedance of the State ambient air quality standard, as averaged over 24 hours. Use of the measures above and limiting size of areas to be graded during a single day would reduce the impact to a less-than-significant level.

Impact AQ-2 **Heavy-Duty Off-Road Equipment**

Construction activities would involve use of the heavy-duty off-road equipment and large trucks that use diesel fuel resulting in emissions of diesel particulate matter that can cause health effects to nearby residences. This is a ***significant impact*** that can be reduced to a less-than-significant level with implementation of the following mitigation.

The California Air Resources Board has identified diesel particulate matter as a toxic air contaminant. It is one of many toxic air contaminants; however, it is estimated to contribute about 70% to the overall potential inhalation cancer risk. Improved diesel engine technologies along with reformulated diesel fuel are expected to substantially lower the risk from diesel exhaust. In addition, CARB recently adopted an Air Toxics Control Measure that will require replacement or retrofit of existing construction equipment to reduce both diesel particulate matter and NOx.

The heavy construction equipment utilized to construct this project would be diesel fueled. Grading of the site is expected to result in the highest emissions of diesel particulate matter during the construction period. Grading plans are not known at this time, therefore, the amount and types of equipment and their schedule cannot be determined. There are typically two different periods of grading: a “rough” grading phase that requires excavators, dozers and water trucks and then a “fine” grading phase that may include motor graders, rollers, scrapers, and loaders. This equipment is typically used from 4 to 8 hours per day. Other phases of construction use smaller sized equipment (e.g., some loaders, forklifts, etc.), but include numerous heavy-duty truck deliveries for cement, asphalt, building materials, and landscape materials.

Construction equipment can emit substantial amounts of NOx that could have a small, but cumulative affect on ozone concentrations. MBUAPCD CEQA guidelines do not have thresholds that apply to these emissions. Therefore, the impact is considered less than significant if reasonable and feasible measures to reduce emissions are employed.

Diesel exhaust includes air contaminants that can cause health effects. The increased health risk from these types of emissions (i.e., increased cancer risk) are calculated over a 70-year continuous exposure period at locations of sensitive receptors. Truck travel and construction equipment exhaust may result in elevated levels of diesel particulate matter for short time periods. However, these activities would occur for a relatively short period. In addition, the closest sensitive receptors would be 150 to 200 feet from the closest construction activities, and typically more than 500 feet away from active construction areas. New homes constructed by the project could be located closer to future construction phases, but future phases would likely have smaller construction sites and include newer construction equipment that has lower emissions. As a result, the impact would be considered as less-than-significant provided that mitigation measures are implemented to minimize exposure to sensitive receptors.

Mitigation

Projects developed under the Master Plan should be evaluated for individual construction period air quality impacts. Project-specific mitigation measures would be identified at that time. However, the following mitigation measures should be implemented for all projects to reduce diesel particulate emissions from on-site construction equipment:

- The project shall reduce exhaust NOx and particulate matter emissions by implementing one of the following measures:
    - The project shall provide a plan, acceptable by the lead agency MBUAPCD, demonstrating that the heavy-duty (> 50 horsepower) off-road vehicles and equipment to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 20 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average for the time of construction; or
    - All off-road construction vehicles/equipment greater than 50 horsepower that will be used on site for more than one week shall: 1) be manufactured during or after 1996, 2) shall meet the NOx emissions standard of 6.9 grams per brake-horsepower hour, and 3) shall be equipped with diesel particulate matter filters.
- The contractors shall install temporary electrical service whenever possible to avoid the need for independently powered equipment (e.g. compressors).
- Signs at the construction site shall be clearly visible to advise that that diesel equipment standing idle for more than 5 minutes shall be turned off. This would include trucks waiting to deliver or receive soil, aggregate or other bulk materials. Rotating drum concrete trucks may keep their engines running continuously if onsite and staged away from residential areas.
- Properly tune and maintain equipment for low emissions.
- Stage large diesel powered equipment at least 200 feet from any active land uses (e.g., residences).

The combined effect of the above measures would reduce project impacts to a *less-than-significant* level.

Impact AQ-3: **Truck Emissions Associated with Export of Soil Prior to Construction**
A large volume of soil may be exported from the site and transported to another project location. This would result in ROG and NOx emissions that would not exceed significance thresholds established by the MBUAPCD. This represents a significant impact.

Prior to project construction, up to 450,000 cubic yards of soil may be exported from the project site by truck. There are no specific plans to export this soil, but preliminary estimates are that it would require several years. This assessment assumes that 100 truckloads of material would be exported per day. This soil would be exported to Coyote Valley, about a 38-mile one way trip. The anticipated route for this soil export would cross two air basins: the North Central Coast Air Basin and the San Francisco Bay Area Basin. The Bay Area Air Quality Management District (BAAQMD) has jurisdiction over the San Francisco Bay Area Air Basin. Only about 17 miles of that trip would be within the North Central Coast Air Basin, while the remaining 21 miles would be in the San Francisco Bay Area Air Basin. Each truckload would include two trips: a trip to export the material and a return trip.

Emissions from these truck trips were computed using the URBEMIS2007 model. An emission rate for a Heavy Heavy Duty Diesel Truck was used, assuming a speed of 50 miles per hour. Emissions are reported in Table 4. Truck hauling was assumed to occur beginning 2012 and would last about 300 workdays.

Table 4 Truck Hauling Emissions Based on URBEMIS2007 Modeling

Description	Daily Emissions (lbs/day)	
	ROG	**NOx**
- Hauling through SF Bay Area Air Basin	10	133
- Hauling through North Central Coast Air Basin	8	108
Air District Operational Thresholds MBAQMD/BAAQMD	137 / 80	137 / 80

Temporary emissions from this activity would occur over two different air basins that have two different sets of significance thresholds for project emissions. Daily emissions of ROG and NOx from truck hauling through the North Central Coast Air Basin would be less than the significance thresholds established by the MBUAQMD. Therefore, the effect of these emissions to that air basin would be less than significant. Daily emissions of NOx from travel through the San Francisco Bay Area Air Basin would be above the daily significance threshold for NOx. Traditionally, the BAAQMD has not applied these thresholds to construction emissions. However, these emissions would occur for 300 days and discussions with the BAAQMD indicate that they would be considered significant. The BAAQMD is now recommending that projects quantify construction period emissions and compare them to the significance thresholds[3]. As a result, hauling of export material would represent a *significant* impact.

Mitigation Measure: None Available, other than Mitigation Measures for Impacts AQ-1 and AQ-2. The applicant or the County cannot control emissions from independent trucks used to haul fill material.

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[3] Email exchange with Gregory Tholen, Senior Environmental Planner for the Bay Area Air Quality Management District and James Reyff of Illingworth & Rodkin, Inc. August 19, 2008.

Impact AQ-4: Plan Generated Operational Impacts

Build out of the project would result in increases in long-term operational emissions of ozone precursor pollutants. These emissions of ROG and NOx would not exceed significance thresholds established by the MBUAPCD. This represents a less-than-significant impact.

The Master Plan proposes development of college campus, retail uses, student housing and 200 single-family homes. The college project would require at least 20 years for complete build out. The campus would be developed in two phases. The first phase could occur in the near term, where modular classrooms are placed on the site and infrastructure to support those classrooms are developed. The campus would be completely developed after reaching certain student enrollment goals. Development of the single-family homes could occur simultaneous with the campus. The homes would be built out in about 5 phases, so it would also require about 10 years or longer to fully develop the site. The Master Plan's traffic analysis forecasts 7,433 new daily vehicle trips at full build out. This estimate includes reductions for trip internalization, applied by the Traffic Consultant. Emissions from these trips would affect regional air quality in terms of contributing to possible exceedances of ambient air quality standards for ozone. For emissions modeling purposes, full build out was assumed to be 2035 for the college and 2020 for the residential.

Operational emissions associated with the Master Plan build out were predicted using URBEMIS2007 model (version 9.2.4). The model predicts direct and indirect emissions from projects. Direct emissions are from sources on site such as natural gas combustion for space and water heating, landscape equipment, evaporative emissions from consumer products, and wood burning. Indirect emissions are those produced off site from motor vehicle use. The model predicts daily emissions associated with land use developments. The model combines predicted daily traffic activity associated with the different land use types, with emission factors from the State's mobile emission factor model (i.e., EMFAC2007). The project size and estimated traffic generation were input to the URBEMIS2007 model to predict daily emissions of ROG, NOx, CO, and $PM_{10.}$ The Master Plan traffic generation provided by Hexagon Transportation Consultants for the DEIR, was used in the model to provide daily traffic generation estimates based on selected land uses. URBEMIS2007 model default for passby trips was not used. Instead, trip reduction percentages provided by the traffic engineer based on the reduction of internal trips due to mixed uses were utilized. This was only applied to the conditions representing full build out of the campus and residential components of the project in 2035.

URBEMIS2007 model also predicted area source emissions associated with build out of the project. Area source emissions of ROG and NOx were predicted for summer, and the area source emissions of CO and PM_{10} were predicted for winter in accordance with MBUAPCD CEQA Guidelines. This included wood smoke from potential fireplaces. The project emissions were predicted for a normal day representative of the traffic generation used for the traffic study. Daily emissions from the build out of the specific plan are reported in Table 4. Model output is provided in Attachment 1.

Table 5 Daily Master Plan Emissions Based on URBEMIS2007 Modeling

Scenario	Reactive Organic Gases (ROG) - Summer	Nitrogen Oxides (NOx) - Summer	Carbon Monoxide (CO) - Winter	Respirable Particulates (PM_{10}) - Winter
Residential Component (2020)				
Area Emissions	14.9 lbs	2.9 lbs	11 lbs	27.8 lbs
Operational Emissions	14.4 lbs	23.1 lbs	--	--
Total	29.3 lbs	26.0 lbs	11 lbs	28 lbs
Campus Component (2035)				
Area Emissions	6.6 lbs	4.2 lbs	3 lbs	8.6 lbs
Operational Emissions	28.3 lbs	20.6 lbs		
Total	35 lbs	25 lbs	3 lbs	9 lbs
Campus plus Residential Component (2035)				
Area Emissions	21.5 lbs	7.1 lbs	20 lbs	36.4 lbs
Operational Emissions	34.4 lbs	26.8 lbs	--	--
Total	56 lbs	34 lbs	20 lbs	36 lbs
MBUAPCD Significance Thresholds	*137 lbs*	*137 lbs.*	*550 lbs**	*82 lbs***

* For stationary sources only **Applies only to on-site emissions
Source: URBEMIS2007 Air Emissions From Land Use Ver. 9.2.4 in the year 2020 and 2035

NOx and ROG emissions are predicted to be below MBUAPCD significance thresholds. The majority of NOx emissions (over 90%) would come from traffic. On the other hand, VOC emissions are affected both by use of consumer products and new motor vehicle trips. VOC emissions would occur from increased emissions of consumer products associated with new residential development as well as increased automobile traffic. However, the project would have a l*ess-than-significant* impact to regional air quality, with respect to emissions of ozone precursors is predicted.

MBUAPCD thresholds for PM_{10} only apply to onsite emissions of PM_{10}. These would mostly include wood smoke emissions. The addition of new residences would result in less than significant emissions from wood burning in open-type fireplaces. Use of low-emitting wood burning devices should be encouraged to reduce the potential for the project to add wood smoke emissions on unhealthy air quality nights during winter.

Impact AQ-5 ***Local Carbon Monoxide Concentrations***

Development of the project would result in higher traffic volumes that could increase carbon monoxide concentrations. This would be a **less-than-significant impact.**

Emissions thresholds established for carbon monoxide apply to direct or stationary sources. Emissions of carbon monoxide (CO) emitted from traffic generated by the project are first evaluated by assessing the impacts of specific plan-generated traffic on existing and future traffic conditions. MBUAPCD guidelines require CO hotspot analysis under the following project conditions:

- Intersections where the Level of Service (LOS) would degrade below D
- Volume to capacity ratio increases by 0.05 at LOS E or F intersections
- The delay at LOS E or F intersections increases by 10 seconds or more
- Reserve capacity at unsignalized LOS E or F intersection decrease by 50 or more

Highest CO concentrations typically occur during the winter where there is traffic congestion occurs. Congested intersections with high volumes of traffic could cause CO “hot spots”, where localized high concentrations of CO occur. The highest CO level measured in the District, which is representative of more urban settings, is 1 ppm for 8-hour exposures. This level is well below the State standards.

Modeling of CO concentrations associated with project related traffic conditions was conducted. The traffic study for the Master Plan evaluated operations at intersections in the area affected by the project. The intersection of Airline Highway and Union Road is predicted to have conditions in the future that meet the criteria for a possible CO hot spot. This signalized intersection is anticipated to operate at Level of Service F in the future with or without the Master Plan build out. Under future Master Plan build out conditions, vehicle delay would increase by up to 19 seconds. CO concentrations at and near this intersection were predicted using the Caline4 model following the Transportation Project Level Carbon Monoxide Protocol, developed by UC Davis. This assessment involved predicting CO emission rates from the EMFAC2007 model and using those along with peak-hour traffic and screening meteorological conditions in the Caline4 model to predict roadside CO levels. These levels were adjusted to 8-hour average levels using a persistence factor of 0.7 and added to the 1-hour background concentration of 1.0 parts per million (ppm). Modeling information is provided in Attachment 2. Under build out of the Master Plan and cumulative traffic conditions, the highest CO concentrations would be 2.5 ppm. This level would be well below the California ambient air quality standard of 9.0 ppm or the national ambient air quality standard of 9 ppm. As a result, the impact on local air quality resulting from the Master Plan is considered to be ***less than significant***.

Mitigation Measure: None required.

Impact: Cumulative Air Quality Impacts

The project consists of a junior college campus, some retail and residential uses that were found by AMBAG to be consistent with the 2004 regional forecasts and the Air Quality Management Plan; therefore, it would not conflict with regional efforts to attain and maintain ambient air quality standards. Temporary emissions from soil hauling to San Jose would result in a significant impact to the San Francisco Bay Area Air Basin. As a result, the proposed project would contribute significantly to a cumulative *air quality impact.*

Projects are evaluated for cumulative impacts both by determining the consistency of the proposed project with the applicable regional air quality plan and the specific project's individual impacts to air quality.

The MBUAPCD *2004 Air Quality Management Plan for the Monterey Bay Region* (AQMP) addresses attainment of the State ozone standard. MBUAPCD has included emissions related to population growth in the AQMP using projections adopted by the Association of Monterey Bay Area Governments (AMBAG). For this project, consistency with population forecasts is determined by comparing project build-out population at the year of project completion with the appropriate five-year forecast increment for the jurisdiction that the project is located (i.e., Monterey County). Projects or plans that would not cause the estimated cumulative population to exceed forecasts are considered consistent with air quality planning efforts. According to AMBAG, this project is consistent with the 2004 regional forecasts for Monterey County and the Air Quality Management Plan. A letter from AMBAG documenting the consistency determination is included in Attachment 3.

As described in impact Air-3, the project direct and indirect emissions of ozone precursor pollutants would be below MBUAPCD significance thresholds. Therefore, project emissions are not anticipated to affect attainment and maintenance of ambient air quality standards for ozone. Short-term impacts to air quality from on site construction would be less-than-significant with mitigation. These impacts are anticipated to be localized and not cumulatively contribute to other air quality impacts in the project area. However, a significant, but temporary impact to air quality from hauling of soil was identified. This significant impact would occur for about one year. This significant impact would not occur within the project air basin.

Attachment 1

URBEMIS2007 MODEL OUTPUT

See PDF attachment

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\I&R Docs\07-199 Gavilan Hollister Campus\AQ\ResidentialFairviewGavilan.urb924

Project Name: Gavilan Fairview - Residential

Project Location: San Benito County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2007 TOTALS (lbs/day unmitigated)	15.59	84.71	44.92	0.01	376.66	5.23	381.89	78.67	4.81	83.48	6,840.86
2008 TOTALS (lbs/day unmitigated)	322.45	113.94	111.28	0.05	376.86	7.13	383.99	78.74	6.55	85.29	13,048.87

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	14.91	2.94	11.30	0.00	0.04	0.04	3,631.30

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	14.43	23.08	136.10	0.19	33.41	6.69	20,491.70

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	29.34	26.02	147.40	0.19	33.45	6.73	24,123.00

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.22	2.83	1.21	0.00	0.01	0.01	3,615.10
Hearth - No Summer Emissions							
Landscape	1.82	0.11	10.09	0.00	0.03	0.03	16.20
Consumer Products	11.06						
Architectural Coatings	1.81						
TOTALS (lbs/day, unmitigated)	14.91	2.94	11.30	0.00	0.04	0.04	3,631.30

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	14.43	23.08	136.10	0.19	33.41	6.69	20,491.70
TOTALS (lbs/day, unmitigated)	14.43	23.08	136.10	0.19	33.41	6.69	20,491.70

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 70 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	75.33	9.57	dwelling units	226.00	2,162.82	19,167.56
					2,162.82	19,167.56

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	36.2	0.0	99.7	0.3
Light Truck < 3750 lbs	18.1	0.0	96.7	3.3
Light Truck 3751-5750 lbs	19.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	8.8	0.0	98.9	1.1
Lite-Heavy Truck 8501-10,000 lbs	2.0	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.1	0.0	18.2	81.8
Heavy-Heavy Truck 33,001-60,000 lbs	4.3	0.0	2.3	97.7
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	7.6	40.8	59.2	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.2	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	8.3	7.1	11.8	4.4	4.4

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Rural Trip Length (miles)	11.8	8.3	7.1	11.8	4.4	4.4
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\I&R Docs\07-199 Gavilan Hollister Campus\AQ\CampusFairviewGavilan.urb924

Project Name: Fairview CornersGavilan College Master Plan

Project Location: San Benito County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2007 TOTALS (lbs/day unmitigated)	9.57	61.07	34.88	0.01	107.23	3.75	110.98	22.40	3.45	25.85	4,849.30
2008 TOTALS (lbs/day unmitigated)	432.17	83.28	92.76	0.04	107.41	5.15	112.56	22.46	4.73	27.19	10,042.11

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	6.55	4.18	8.06	0.00	0.02	0.02	4,997.37

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	28.25	20.63	167.46	0.32	58.85	11.53	35,267.88

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	34.80	24.81	175.52	0.32	58.87	11.55	40,265.25

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.30	4.12	3.25	0.00	0.01	0.01	4,989.13
Hearth							
Landscape	0.39	0.06	4.81	0.00	0.01	0.01	8.24
Consumer Products	3.42						
Architectural Coatings	2.44						
TOTALS (lbs/day, unmitigated)	6.55	4.18	8.06	0.00	0.02	0.02	4,997.37

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Apartments low rise	2.38	2.42	19.87	0.04	7.22	1.41	4,321.07
Junior college (2 yrs)	20.08	12.22	99.10	0.19	34.71	6.80	20,804.64
Strip mall	5.79	5.99	48.49	0.09	16.92	3.32	10,142.17
TOTALS (lbs/day, unmitigated)	28.25	20.63	167.46	0.32	58.85	11.53	35,267.88

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

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Analysis Year: 2035 Temperature (F): 70 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments low rise	4.38	6.72	dwelling units	70.00	470.40	4,168.83
Junior college (2 yrs)		1.20	students	3,500.00	4,200.00	20,034.00
Strip mall		42.94	1000 sq ft	50.00	2,147.00	9,764.56
					6,817.40	33,967.39

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	36.4	0.0	100.0	0.0
Light Truck < 3750 lbs	18.3	0.0	99.5	0.5
Light Truck 3751-5750 lbs	19.7	0.0	100.0	0.0
Med Truck 5751-8500 lbs	8.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	81.0	19.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	58.3	41.7
Med-Heavy Truck 14,001-33,000 lbs	1.1	0.0	18.2	81.8
Heavy-Heavy Truck 33,001-60,000 lbs	3.3	0.0	3.0	97.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	7.6	32.9	67.1	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.2	0.0	91.7	8.3

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	8.3	7.1	11.8	4.4	4.4
Rural Trip Length (miles)	11.8	8.3	7.1	11.8	4.4	4.4
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Junior college (2 yrs)				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\I&R Docs\07-199 Gavilan Hollister Campus\AQ\Campus&ResidentialFairviewGavilan.urb924

Project Name: Fairview CornersGavilan College Master Plan

Project Location: San Benito County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	21.54	7.11	19.75	0.00	0.05	0.05	8,628.59

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	34.40	26.84	218.75	0.43	77.68	15.23	46,536.67

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	55.94	33.95	238.50	0.43	77.73	15.28	55,165.26

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.52	6.96	4.45	0.00	0.01	0.01	8,604.23
Hearth - No Summer Emissions							
Landscape	2.29	0.15	15.30	0.00	0.04	0.04	24.36
Consumer Products	14.48						
Architectural Coatings	4.25						
TOTALS (lbs/day, unmitigated)	21.54	7.11	19.75	0.00	0.05	0.05	8,628.59

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Single family housing	8.33	8.53	70.13	0.14	25.49	4.99	15,253.81
Apartments low rise	1.86	1.86	15.25	0.03	5.54	1.09	3,317.61
Junior college (2 yrs)	18.97	11.04	89.55	0.17	31.36	6.15	18,800.23
Strip mall	5.24	5.41	43.82	0.09	15.29	3.00	9,165.02
TOTALS (lbs/day, unmitigated)	34.40	26.84	218.75	0.43	77.68	15.23	46,536.67

Operational Settings:

Does not include correction for passby trips

8/18/2008 3:45:10 PM

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 23.22   Nonresidential Trip % Reduction: 9.63

Analysis Year: 2035 Temperature (F): 70 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	75.33	7.35	dwelling units	226.00	1,660.56	14,716.37
Apartments low rise	4.38	5.16	dwelling units	70.00	361.16	3,200.72
Junior college (2 yrs)		1.08	students	3,500.00	3,795.35	18,103.83
Strip mall		38.80	1000 sq ft	50.00	1,940.15	8,823.79
					7,757.22	44,844.71

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	36.4	0.0	100.0	0.0
Light Truck < 3750 lbs	18.3	0.0	99.5	0.5
Light Truck 3751-5750 lbs	19.7	0.0	100.0	0.0
Med Truck 5751-8500 lbs	8.9	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.1	0.0	81.0	19.0
Lite-Heavy Truck 10,001-14,000 lbs	1.2	0.0	58.3	41.7
Med-Heavy Truck 14,001-33,000 lbs	1.1	0.0	18.2	81.8
Heavy-Heavy Truck 33,001-60,000 lbs	3.3	0.0	3.0	97.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Motorcycle	7.6	32.9	67.1	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.2	0.0	91.7	8.3

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	8.3	7.1	11.8	4.4	4.4
Rural Trip Length (miles)	11.8	8.3	7.1	11.8	4.4	4.4
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Junior college (2 yrs)				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0

Attachment 2

Caline4 and EMFAC2007 Model Output

See PDF attachment

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Gavilan-Hollister 2020
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5 M/S	Z0=	100. CM	ALT=	0. (M)
BRG=	WORST CASE	VD=	.0 CM/S		
CLAS=	7 (G)	VS=	.0 CM/S		
MIXH=	1000. M	AMB=	.0 PPM		
SIGTH=	10. DEGREES	TEMP=	4.0 DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. EB Cruise In	-1000	-2	-150	-2	AG	833	4.5	.0	13.4
B. EB In	-150	-2	0	-2	AG	833	4.5	.0	13.4
C. EB Out	0	-2	150	-2	AG	1117	4.5	.0	13.4
D. EB Cruise Ou	150	-2	1000	-2	AG	1117	4.5	.0	13.4
E. WB Cruise In	-1000	2	-150	2	AG	1104	4.5	.0	13.4
F. WB In	-150	2	0	2	AG	1104	4.5	.0	13.4
G. WB Out	0	2	150	2	AG	802	4.5	.0	13.4
H. WB Cruise Ou	150	2	1000	2	AG	802	4.5	.0	13.4
I. SB Cruise In	-2	-1000	-2	-150	AG	1584	4.5	.0	13.4
J. SB In	-2	-150	-2	0	AG	1584	4.5	.0	13.4
K. SB Out	-2	0	-2	150	AG	1122	4.5	.0	13.4
L. SB Cruise Ou	-2	150	-2	1000	AG	1122	4.5	.0	13.4
M. NB Cruise In	2	-1000	2	-150	AG	1018	4.5	.0	13.4
N. NB In	2	-150	2	0	AG	1018	4.5	.0	13.4
O. NB Out	2	0	2	150	AG	1448	4.5	.0	13.4
P. NB Cruise Ou	2	150	2	1000	AG	1448	4.5	.0	13.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: Gavilan-Hollister 2020
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	X	Y	Z
1. Recpt 1	9	9	1.8
2. Recpt 2	9	50	1.8
3. Recpt 3	9	100	1.8
4. Recpt 4	-9	9	1.8
5. Recpt 5	-9	50	1.8
6. Recpt 6	-9	100	1.8
7. Recpt 7	9	-9	1.8
8. Recpt 8	9	-50	1.8
9. Recpt 9	9	-100	1.8
10. Recpt 10	-9	-9	1.8
11. Recpt 11	-9	-50	1.8
12. Recpt 12	-9	-100	1.8
13. Recpt 13	50	9	1.8
14. Recpt 14	100	9	1.8
15. Recpt 15	50	-9	1.8
16. Recpt 16	100	-9	1.8
17. Recpt 17	-50	9	1.8
18. Recpt 18	-100	9	1.8
19. Recpt 19	-50	-9	1.8
20. Recpt 20	-100	-9	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: Gavilan-Hollister 2020
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	186.	2.1	.0	.0	.3	.0	.0	.0	.2	.0
2. Recpt 2	186.	1.9	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	186.	1.9	.0	.0	.0	.0	.0	.0	.0	.0
4. Recpt 4	174.	2.2	.0	.2	.0	.0	.0	.3	.0	.0
5. Recpt 5	174.	1.8	.0	.0	.0	.0	.0	.0	.0	.0
6. Recpt 6	174.	1.8	.0	.0	.0	.0	.0	.0	.0	.0
7. Recpt 7	354.	2.1	.0	.0	.3	.0	.0	.0	.2	.0
8. Recpt 8	354.	1.8	.0	.0	.0	.0	.0	.0	.0	.0
9. Recpt 9	354.	1.7	.0	.0	.0	.0	.0	.0	.0	.0
10. Recpt 10	6.	2.1	.0	.2	.0	.0	.0	.3	.0	.0
11. Recpt 11	6.	1.9	.0	.0	.0	.0	.0	.0	.0	.0
12. Recpt 12	6.	1.9	.0	.0	.0	.0	.0	.0	.0	.0
13. Recpt 13	264.	1.5	.1	.2	.2	.0	.1	.3	.3	.0
14. Recpt 14	264.	1.4	.0	.1	.3	.0	.1	.1	.5	.0
15. Recpt 15	276.	1.6	.1	.2	.5	.0	.1	.3	.1	.0
16. Recpt 16	276.	1.5	.0	.1	.6	.0	.1	.2	.2	.0
17. Recpt 17	96.	1.6	.0	.1	.3	.1	.0	.5	.2	.1
18. Recpt 18	96.	1.5	.0	.2	.2	.1	.0	.6	.1	.0
19. Recpt 19	84.	1.5	.0	.4	.3	.1	.0	.2	.2	.1
20. Recpt 20	84.	1.4	.0	.5	.1	.1	.0	.3	.1	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: Gavilan-Hollister 2020
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE) (CONT.)

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P
1. Recpt 1	.2	.5	.0	.0	.2	.6	.1	.0
2. Recpt 2	.2	.4	.2	.0	.1	.3	.6	.0
3. Recpt 3	.2	.2	.3	.0	.0	.1	.8	.0
4. Recpt 4	.2	.8	.1	.0	.2	.4	.0	.0
5. Recpt 5	.2	.4	.5	.0	.1	.3	.2	.0
6. Recpt 6	.1	.2	.6	.0	.1	.2	.4	.0
7. Recpt 7	.0	.0	.4	.2	.0	.0	.8	.2
8. Recpt 8	.0	.2	.3	.1	.0	.4	.4	.2
9. Recpt 9	.0	.4	.2	.1	.0	.6	.2	.1
10. Recpt 10	.0	.2	.6	.2	.0	.0	.5	.2
11. Recpt 11	.0	.6	.3	.1	.0	.1	.4	.2
12. Recpt 12	.0	.9	.1	.1	.0	.3	.2	.1
13. Recpt 13	.0	.0	.0	.0	.0	.0	.1	.0
14. Recpt 14	.0	.0	.0	.0	.0	.0	.0	.0
15. Recpt 15	.0	.1	.0	.0	.0	.0	.0	.0
16. Recpt 16	.0	.0	.0	.0	.0	.0	.0	.0
17. Recpt 17	.0	.0	.0	.0	.0	.0	.1	.0
18. Recpt 18	.0	.0	.0	.0	.0	.0	.0	.0
19. Recpt 19	.0	.1	.0	.0	.0	.0	.0	.0
20. Recpt 20	.0	.0	.0	.0	.0	.0	.0	.0

Title : Gavilan-Hollister
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 5/16/2008 9:33:50
Scen Year: 2020 -- All model years in the range
Season : Winter
Area : San Benito
****

Year: 2020 -- Model Years 1976 to 2020 Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average San Benito County Average

Table 1:00 Running Exhaust Emissions (grams/mile)

Pollutant Name: Total Organic Gases Temperatu 40F Relative Humidity: 50%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	ALL	
	MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	DSL	ALL
	5	11.214	0.169	0.249	0.17	9.147	0.252	0.22	0.253	4.236	1.175

Pollutant Name: Carbon Monoxide Temperatu 40F Relative Humidity: 50%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	ALL	
	MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	DSL	ALL
	5	149.416	1.906	2.182	1.914	240.341	3.231	2.125	3.262	7.313	4.537

Pollutant Name: Oxides of Nitrogen Temperatu 40F Relative Humidity: 50%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	ALL	
	MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	DSL	ALL
	5	3.171	0.228	2.258	0.23	2.909	0.394	2.258	0.431	12.874	2.996

Pollutant Name: Carbon Dioxide Temperatu 40F Relative Humidity: 50%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	ALL	
	MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	DSL	ALL
	5	1313.986	932.827	348.035	932.22	1350.271	1172.517	346.262	1156.584	3437.405	1622.216

Pollutant Name: Sulfur Dioxide Temperatu 40F Relative Humidity: 50%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	ALL	
	MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	DSL	ALL
	5	0.015	0.009	0.003	0.009	0.017	0.011	0.003	0.011	0.033	0.016

Pollutant Name: PM10 Temperatu 40F Relative Humidity: 50%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	ALL	
	MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	DSL	ALL
	5	0.104	0.058	0.148	0.058	0.077	0.068	0.123	0.07	0.46	0.166

Pollutant Name: PM10 - Tire Wear Temperatu 40F Relative Humidity:

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	ALL	
	MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	DSL	ALL
	5	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.032	0.013

Pollutant Name: PM10 - Brake Wear Temperatu 40F Relative Humidity:

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	ALL	
	MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	DSL	ALL

5	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.026	0.015

Pollutant Name: Gasoline - mi/gal Temperatu 40F Relative Humidity: 50%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 DSL	ALL ALL
5	5.6	9.464	0	9.464	5.048	7.52	0	7.52	0	8.38

Pollutant Name: Diesel - mi/gal Temperatu 40F Relative Humidity: 50%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 DSL	ALL ALL
5	0	0	28.962	28.962	0	0	29.11	29.11	4.258	4.258

Title : Gavilan-Hollister
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 5/16/2008 9:33:50
Scen Year: 2020 -- All model years in the range
Season : Winter
Area : San Benito
****
Year: 2020 -- Model Years 1976 to 2020 Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average San Benito County Average

Table 2:00 Starting Emissions (grams/trip)

Pollutant Name: Total Organic Gases Temperatu 40F Relative Humidity: ALL

Time	LDA min	LDA NCAT	LDA CAT	LDA DSL	LDT1 ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT2 ALL	ALL DSL	ALL
	5	5.079	0.043	0	0.044	4.111	0.074	0	0.073	0	0.124
	10	5.036	0.085	0	0.085	4.076	0.144	0	0.141	0	0.205
	20	5.084	0.163	0	0.163	4.115	0.275	0	0.269	0	0.356
	30	5.312	0.234	0	0.234	4.3	0.393	0	0.384	0	0.495
	40	5.721	0.297	0	0.297	4.631	0.498	0	0.486	0	0.622
	50	6.31	0.354	0	0.354	5.108	0.59	0	0.575	0	0.736
	60	6.561	0.404	0	0.404	5.31	0.669	0	0.652	0	0.833
	120	3.479	0.516	0	0.516	2.816	0.723	0	0.704	0	0.882
	180	3.787	0.261	0	0.261	3.066	0.408	0	0.397	0	0.556
	240	4.095	0.277	0	0.277	3.315	0.431	0	0.421	0	0.59
	300	4.404	0.292	0	0.292	3.564	0.455	0	0.443	0	0.623
	360	4.712	0.307	0	0.307	3.814	0.477	0	0.465	0	0.655
	420	5.02	0.322	0	0.322	4.063	0.5	0	0.487	0	0.687
	480	5.328	0.336	0	0.336	4.313	0.521	0	0.508	0	0.718
	540	5.636	0.351	0	0.35	4.562	0.542	0	0.529	0	0.749
	600	5.944	0.364	0	0.364	4.811	0.563	0	0.549	0	0.779
	660	6.252	0.378	0	0.378	5.061	0.583	0	0.568	0	0.809
	720	6.56	0.391	0	0.391	5.31	0.602	0	0.587	0	0.838

Pollutant Name: Carbon Monoxide Temperatu 40F Relative Humidity: ALL

Time	LDA min	LDA NCAT	LDA CAT	LDA DSL	LDT1 ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT2 ALL	ALL DSL	ALL
	5	15.613	0.533	0	0.533	25.076	0.965	0	0.946	0	1.389
	10	13.826	1.049	0	1.048	22.206	1.896	0	1.851	0	2.648
	20	10.673	2.033	0	2.03	17.142	3.659	0	3.563	0	5.036
	30	8.082	2.951	0	2.947	12.98	5.29	0	5.147	0	7.248
	40	6.053	3.805	0	3.799	9.722	6.788	0	6.602	0	9.284
	50	4.586	4.593	0	4.586	7.366	8.154	0	7.929	0	11.144

	60	3.682	5.316	0	5.308	5.914	9.387	0	9.127	0	12.828
	120	14.778	7.353	0	7.343	23.735	11.112	0	10.811	0	12.77
	180	23.351	3.789	0	3.785	37.504	6.361	0	6.196	0	7.231
	240	31.014	4.044	0	4.04	49.813	6.71	0	6.54	0	7.69
	300	37.77	4.274	0	4.27	60.663	7.034	0	6.859	0	8.109
	360	43.617	4.48	0	4.476	70.054	7.331	0	7.151	0	8.489
	420	48.555	4.661	0	4.657	77.985	7.603	0	7.418	0	8.83
	480	52.585	4.818	0	4.814	84.457	7.849	0	7.659	0	9.131
	540	55.706	4.95	0	4.946	89.471	8.068	0	7.874	0	9.393
	600	57.919	5.057	0	5.053	93.024	8.262	0	8.064	0	9.615
	660	59.223	5.14	0	5.136	95.119	8.43	0	8.228	0	9.798
	720	59.619	5.198	0	5.194	95.755	8.572	0	8.367	0	9.942

Pollutant Name: Oxides of Nitrogen Temperatu 40F Relative Humidity: ALL

Time	LDA min	LDA NCAT	LDA CAT	LDA DSL	LDT1 ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT2 ALL	ALL DSL	ALL
	5	1.02	0.137	0	0.137	0.935	0.179	0	0.175	0	0.365
	10	1.109	0.151	0	0.151	1.017	0.205	0	0.199	0	0.409
	20	1.27	0.175	0	0.175	1.165	0.25	0	0.243	0	0.487
	30	1.41	0.196	0	0.196	1.293	0.287	0	0.279	0	0.553
	40	1.528	0.213	0	0.213	1.401	0.316	0	0.308	0	0.605
	50	1.625	0.225	0	0.225	1.49	0.338	0	0.329	0	0.644
	60	1.7	0.234	0	0.234	1.559	0.352	0	0.343	0	0.67
	120	1.79	0.251	0	0.251	1.641	0.379	0	0.369	0	0.719
	180	1.747	0.278	0	0.278	1.602	0.414	0	0.403	0	0.755
	240	1.69	0.276	0	0.276	1.55	0.411	0	0.4	0	0.75
	300	1.62	0.273	0	0.273	1.485	0.406	0	0.396	0	0.742
	360	1.536	0.269	0	0.269	1.408	0.401	0	0.39	0	0.73
	420	1.438	0.264	0	0.263	1.318	0.393	0	0.383	0	0.716
	480	1.326	0.257	0	0.257	1.216	0.384	0	0.374	0	0.698
	540	1.2	0.249	0	0.249	1.1	0.374	0	0.364	0	0.678
	600	1.06	0.24	0	0.24	0.972	0.362	0	0.352	0	0.655
	660	0.907	0.23	0	0.23	0.831	0.348	0	0.339	0	0.628
	720	0.739	0.219	0	0.219	0.678	0.333	0	0.324	0	0.599

Pollutant Name: Carbon Dioxide Temperatu 40F Relative Humidity: ALL

Time	LDA min	LDA NCAT	LDA CAT	LDA DSL	LDT1 ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT2 ALL	ALL DSL	ALL
	5	111.902	11.723	0	11.712	114.997	14.251	0	13.894	0	13.597
	10	121.432	13.353	0	13.341	124.79	16.482	0	16.066	0	15.735
	20	139.927	17.08	0	17.064	143.797	21.496	0	20.946	0	20.521
	30	157.671	21.431	0	21.409	162.031	27.245	0	26.542	0	25.982
	40	174.663	26.405	0	26.377	179.493	33.731	0	32.853	0	32.121
	50	190.904	32.002	0	31.966	196.183	40.952	0	39.878	0	38.936
	60	206.393	38.223	0	38.179	212.1	48.909	0	47.619	0	46.429
	120	279.289	87.453	0	87.339	287.013	109.911	0	106.945	0	103.433
	180	279.509	99.469	0	99.337	287.238	125.267	0	121.873	0	117.79
	240	279.728	111.421	0	111.271	287.464	140.484	0	136.666	0	132.009
	300	279.948	123.308	0	123.14	287.689	155.563	0	151.324	0	146.091
	360	280.167	135.13	0	134.945	287.915	170.503	0	165.847	0	160.035
	420	280.387	146.888	0	146.684	288.141	185.304	0	180.236	0	173.841
	480	280.606	158.581	0	158.36	288.366	199.966	0	194.489	0	187.51
	540	280.826	170.209	0	169.971	288.592	214.49	0	208.608	0	201.04
	600	281.045	181.773	0	181.517	288.817	228.875	0	222.592	0	214.434
	660	281.265	193.273	0	192.999	289.043	243.121	0	236.44	0	227.689
	720	281.484	204.707	0	204.417	289.268	257.228	0	250.154	0	240.807

Pollutant Name: Sulfur Dioxide Temperatu 40F Relative Humidity: ALL

Time	LDA min	LDA NCAT	LDA CAT	LDA DSL	LDT1 ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT2 ALL	ALL DSL	ALL
	5	0.001	0	0	0	0.002	0	0	0	0	0
	10	0.002	0	0	0	0.002	0	0	0	0	0
	20	0.002	0	0	0	0.002	0	0	0	0	0
	30	0.002	0	0	0	0.002	0	0	0	0	0
	40	0.002	0	0	0	0.002	0	0	0	0	0

	50	0.002	0	0	0	0.002	0.001	0	0.001	0	0.001
	60	0.002	0	0	0	0.002	0.001	0	0.001	0	0.001
	120	0.003	0.001	0	0.001	0.003	0.001	0	0.001	0	0.001
	180	0.003	0.001	0	0.001	0.003	0.001	0	0.001	0	0.001
	240	0.003	0.001	0	0.001	0.004	0.001	0	0.001	0	0.001
	300	0.003	0.001	0	0.001	0.004	0.002	0	0.002	0	0.002
	360	0.003	0.001	0	0.001	0.004	0.002	0	0.002	0	0.002
	420	0.004	0.001	0	0.001	0.004	0.002	0	0.002	0	0.002
	480	0.004	0.002	0	0.002	0.004	0.002	0	0.002	0	0.002
	540	0.004	0.002	0	0.002	0.004	0.002	0	0.002	0	0.002
	600	0.004	0.002	0	0.002	0.004	0.002	0	0.002	0	0.002
	660	0.004	0.002	0	0.002	0.004	0.002	0	0.002	0	0.002
	720	0.004	0.002	0	0.002	0.004	0.003	0	0.003	0	0.002

Pollutant Name: PM10 Temperatu 40F Relative Humidity: ALL

Time	LDA min	LDA NCAT	LDA CAT	LDA DSL	LDT1 ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT2 ALL	ALL DSL	ALL
	5	0.011	0.001	0	0.001	0.008	0.001	0	0.001	0	0.001
	10	0.01	0.001	0	0.001	0.007	0.001	0	0.001	0	0.002
	20	0.008	0.002	0	0.002	0.006	0.003	0	0.003	0	0.003
	30	0.006	0.003	0	0.003	0.004	0.004	0	0.004	0	0.005
	40	0.004	0.004	0	0.004	0.003	0.005	0	0.005	0	0.006
	50	0.003	0.005	0	0.005	0.002	0.007	0	0.006	0	0.007
	60	0.003	0.006	0	0.006	0.002	0.008	0	0.007	0	0.009
	120	0.007	0.01	0	0.01	0.005	0.012	0	0.012	0	0.014
	180	0.011	0.011	0	0.011	0.008	0.013	0	0.013	0	0.015
	240	0.015	0.012	0	0.012	0.011	0.014	0	0.014	0	0.017
	300	0.018	0.013	0	0.013	0.014	0.015	0	0.015	0	0.018
	360	0.021	0.014	0	0.014	0.016	0.016	0	0.016	0	0.019
	420	0.023	0.014	0	0.014	0.018	0.017	0	0.016	0	0.02
	480	0.025	0.015	0	0.015	0.019	0.018	0	0.017	0	0.02
	540	0.027	0.015	0	0.015	0.02	0.018	0	0.018	0	0.021
	600	0.028	0.015	0	0.015	0.021	0.018	0	0.018	0	0.021
	660	0.029	0.015	0	0.015	0.021	0.019	0	0.018	0	0.022

	720	0.029	0.016	0	0.016	0.022	0.019	0	0.018	0	0.022

Title : Gavilan-Hollister
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 5/16/2008 9:33:50
Scen Year: 2020 -- All model years in the range
Season : Winter
Area : San Benito
****
Year: 2020 -- Model Years 1976 to 2020 Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average San Benito County Average

Table 4:00 Hot Soak Emissions (grams/trip)

Pollutant Name: Total Organic Gases Temperatu 40F Relative Humidity: ALL

Time	LDA min	LDA NCAT	LDA CAT	LDA DSL	LDT1 ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT2 ALL	ALL DSL	ALL
	5	0.432	0.037	0	0.037	0.777	0.046	0	0.045	0	0.036
	10	0.801	0.068	0	0.068	1.43	0.084	0	0.082	0	0.066
	20	1.378	0.116	0	0.116	2.427	0.144	0	0.14	0	0.113
	30	1.787	0.149	0	0.149	3.099	0.184	0	0.18	0	0.145
	40	1.944	0.161	0	0.161	3.342	0.199	0	0.195	0	0.156

Hot soak results are scaled to reflect zero emissions for

Title : Gavilan-Hollister
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 5/16/2008 9:33:50
Scen Year: 2020 -- All model years in the range
Season : Winter
Area : San Benito
****

Year: 2020 -- Model Years 1976 to 2020 Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average San Benito County Average

Table 5a: Partial Day Diurnal Loss Emissions (grams/hour)

Pollutant Name: Total Organic Gases Temperatu ALL Relative Humidity: ALL

Temp degF	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	ALL ALL
40	0	0	0	0	0	0	0	0	0	0

Title : Gavilan-Hollister
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 5/16/2008 9:33:50
Scen Year: 2020 -- All model years in the range
Season : Winter
Area : San Benito
****

Year: 2020 -- Model Years 1976 to 2020 Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average San Benito County Average

Table 5b: Multi-Day Diurnal Loss Emissions (grams/hour)

Pollutant Name: Total Organic Gases Temperatu ALL Relative Humidity: ALL

Temp degF	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	ALL ALL
40	0	0	0	0	0	0	0	0	0	0

Title : Gavilan-Hollister
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 5/16/2008 9:33:50
Scen Year: 2020 -- All model years in the range
Season : Winter
Area : San Benito
****
Year: 2020 -- Model Years 1976 to 2020 Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average San Benito County Average

Table 6a: Partial Day Resting Loss Emissions (grams/hour)

Pollutant Name: Total Organic Gases Temperatu ALL Relative Humidity: ALL

Temp degF	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	ALL ALL
40	0	0	0	0	0	0	0	0	0	0

Title : Gavilan-Hollister
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 5/16/2008 9:33:50
Scen Year: 2020 -- All model years in the range
Season : Winter
Area : San Benito
****
Year: 2020 -- Model Years 1976 to 2020 Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average San Benito County Average

Table 6b: Multi-Day Resting Loss Emissions (grams/hour)

Pollutant Name: Total Organic Gases Temperatu ALL Relative Humidity: ALL

Temp degF	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	ALL ALL	
	40	0	0	0	0	0	0	0	0	0	0

Title : Gavilan-Hollister
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 5/16/2008 9:33:50
Scen Year: 2020 -- All model years in the range
Season : Winter

Area : San Benito
****
Year: 2020 -- Model Years 1976 to 2020 Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average San Benito County Average

Table 7:00 Estimated Travel Fractions

Pollutant Name: Temperatu ALL Relative Humidity: ALL

	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	ALL ALL
%VMT	0	0.323	0	0.324	0	0.173	0.003	0.176	0	1
%TRIP	0	0.348	0.001	0.348	0	0.164	0.005	0.169	0	1
%VEH	0	0.373	0.001	0.374	0	0.179	0.005	0.184	0	1

Title : Gavilan-Hollister
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 5/16/2008 9:33:50
Scen Year: 2020 -- All model years in the range
Season : Winter
Area : San Benito
****
Year: 2020 -- Model Years 1976 to 2020 Inclusive --
Emfac2007 Emission Factors: V2.3 Nov 1 2006

County Average San Benito County Average

Table 8:00 Evaporativ Running Loss Emissions (grams/minute)

Pollutant	Name:	Total	Organic	Gases	Temperatu	40F	Relative	Humidity:	ALL		
Time	LDA min	LDA NCAT	LDA CAT	LDA DSL	LDT1 ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT2 ALL	ALL DSL	ALL
	1	1.291	0.012	0	0.012	1.555	0.358	0	0.352	0	0.158
	2	0.96	0.011	0	0.011	0.878	0.187	0	0.184	0	0.085
	3	0.851	0.013	0	0.013	0.653	0.132	0	0.13	0	0.062
	4	0.797	0.016	0	0.016	0.541	0.107	0	0.105	0	0.053
	5	0.766	0.017	0	0.018	0.474	0.092	0	0.09	0	0.047
	10	0.708	0.023	0	0.023	0.344	0.064	0	0.063	0	0.037
	15	0.695	0.025	0	0.025	0.304	0.058	0	0.057	0	0.036
	20	0.692	0.027	0	0.027	0.286	0.057	0	0.056	0	0.036
	25	0.694	0.029	0	0.029	0.277	0.058	0	0.057	0	0.038
	30	0.702	0.03	0	0.03	0.285	0.061	0	0.06	0	0.039
	35	0.709	0.031	0	0.031	0.293	0.064	0	0.062	0	0.041
	40	0.716	0.032	0	0.032	0.3	0.066	0	0.065	0	0.043
	45	0.723	0.033	0	0.033	0.307	0.069	0	0.067	0	0.044
	50	0.698	0.034	0	0.034	0.313	0.071	0	0.069	0	0.045
	55	0.66	0.035	0	0.035	0.32	0.073	0	0.072	0	0.047
	60	0.629	0.035	0	0.035	0.326	0.075	0	0.074	0	0.048

Attachment 3

AMBAG CONSISTENCY LETTER

AMBAG
ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

May 12, 2008

Julie Mier
David J. Powers & Associates
1885 The Alameda, Suite 204
San Jose, CA 95126

Dear Ms. Mier:

This letter is in response to your May 6, 2008 request for a determination of consistency of the Gavilan College San Benito Campus/Fairview Corners Master Plan project with the *Air Quality Management Plan for the Monterey Bay Region* (AQMP).

Consistency of the commercial portion of this project is determined by comparing the estimated current population of the county in which the project is located with the applicable population forecast in the AQMP. If the estimated current population does not exceed the forecast, indirect emissions associated with the project are deemed to be consistent with the AQMP.

The current population of San Benito County is 57,784 (1/1/08 Department of Finance estimate). The forecasted population of San Benito County in the year 2010, the next forecasted year, is 63,890. As the current population of San Benito County is less than the forecasted population, the retail portion of the Gavilan College San Benito Campus/Fairview Corners Master Plan project is **consistent** with the AQMP.

AMBAG staff surveyed each jurisdiction in San Benito County to determine the number of housing units that have received a building permit since 1/1/08. A total of 5 housing units have received building permits between January 2008 and April 2008. The California Department of Finance estimates there are 17,769 dwelling units in San Benito County as of 1/01/08. Combined, there are 17,774 existing, and or permitted housing units in San Benito County.

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445 RESERVATION ROAD, SUITE G ✦ P. O. BOX 809 ✦ MARINA, CA 93933-0809
(831) 883-3750 ✦ FAX (831) 883-3755 ✦ www.ambag.org

The Gavilan College San Benito Campus/Fairview Corners Master Plan project consists of a total of 691 residential units phased at 40 units every two years over 10 years. Occupancy of the first housing units is estimated to take place by 2010. The *2004 Population, Housing Unit, and Employment Forecast* forecasts there will be 19,455 housing units in San Benito County by the year 2010.

The combination of the existing and permitted housing units in San Benito County (17,774) plus the 20 housing units in the Gavilan College San Benito Campus/Fairview Corners Master Plan project is less then the regional forecasts for San Benito County (19,455.) The continuing phases of construction out to 2018 are also under the regional forecasts for the intervening years. Therefore the Gavilan College San Benito Campus/Fairview Corners Master Plan project is **consistent** with the 2004 regional forecasts and the Air Quality Management Plan.

Please feel free to contact me if you have any questions about this determination.

Sincerely,

David Roemer
Associate Planner

cc: Jean Getchell, MBUAPCD