

## 3.4 AIR QUALITY

This section describes existing air quality conditions in the IVMP project area and relevant air quality regulations, assesses potential impacts of the build-out of the IVMP on air quality, and recommends mitigation measures to reduce potentially significant impacts.

### 3.4.1 ENVIRONMENTAL SETTING

#### Regional Climate

The Santa Barbara/Goleta area climate is characterized by relatively low rainfall, with warm summers and mild winters. Average monthly temperatures range from highs in the 70s (Fahrenheit) to lows in the 60s during the summer, to highs in the 60s and lows in the 40s in the winter. Annual precipitation averages 16 inches, with approximately 95 percent of that falling between November and April.<sup>1</sup>

Santa Barbara County's air quality is influenced by both local topography and meteorological conditions. Surface and upper-level wind flow varies both seasonally and geographically in the County, and inversion conditions common to the area can affect the vertical mixing and dispersion of pollutants.

At a large-scale, the regional weather is generally dominated by the Pacific High, a strong high-pressure system that often lies west off the Pacific coast. The Pacific High causes the region's warm dry summers, and during winter months, plays a significant role in the frequency of low-pressure weather systems. At a more local-scale, the daily cycle of sea and land breezes, combined with local topography, influences the direction and intensity of local winds. Night time winds gently move toward the ocean as the land surface cools and air descends from the coastal mountains. Additionally, cool, humid, marine air causes frequent fog and low clouds along the coast, generally during the night and morning hours in the late spring and early summer. The fog and low clouds can persist for several days until broken up by a change in the weather pattern. During the day, the wind speeds generally increase and the direction reverses as the land surface heats up and air rises, resulting in gentle coastal breezes. Due to local topography, typical afternoon winds in the project area come from the west. This daily variation in wind direction and intensity impacts the movement and concentration of pollutants.

Santa Ana winds are northeasterly winds that occur primarily during fall and winter, but occasionally in spring. These are warm, dry winds blown from the high inland desert that descend down the slopes of a mountain range. Wind speeds associated with Santa Ana winds are generally 15 to 20 miles per hour (mph), though they can sometimes reach speeds in excess of 60 mph. During Santa Ana conditions, pollutants emitted in Santa Barbara County, Ventura County, and the South Coast Air Basin (the Los Angeles region) are moved out to sea. These pollutants can then be moved back onshore in what is called a "post-Santa Ana

---

<sup>1</sup> National Oceanic and Atmospheric Administration (NOAA), 1989. Climatological Data Annual Summary.

condition.” The effects of the post-Santa Ana condition can be experienced throughout the County. Not all post-Santa Ana conditions, however, lead to high pollutant concentrations in the County.

Upper-level winds are measured at Vandenberg Air Force Base once each morning and afternoon. These winds are generally from the north or northwest throughout the year, but occurrences of southerly and easterly winds do occur in winter, especially during the morning. Upper-level winds from the south and east are infrequent during the summer. When they do occur, they are usually associated with periods of high ozone levels. As with the surface winds, upper level winds can move pollutants that originate in other areas into the County.

An inversion layer occurs when dense cool air is trapped below a layer of warmer air. Surface temperature inversions occur at 0 to 500 feet above ground surface and are most frequent during the winter. Subsidence inversions occur at 1,000 to 2,000 feet and are most frequent during the summer. During winter months, cooling at the surface often results in a weak inversion. During the summer, subsidence from the Pacific High, coupled with cool surface air off the ocean usually result in a stronger inversion layer. Inversions act like a cap to the pollutants that are emitted below or within them, and ozone concentrations are often higher directly below the base of elevated inversions than they are at the earth’s surface. For this reason, elevated monitoring sites will occasionally record higher ozone concentrations than sites at lower elevations. Generally, the lower the inversion base height and the greater the rate of temperature increase from the base to the top, the more pronounced effect the inversion will have on inhibiting vertical dispersion. The subsidence inversion is very common during summer along the California coast, and is one of the principal causes of air stagnation.

Poor air quality is usually associated with “air stagnation” (high stability/restricted air movement). Therefore, it is reasonable to expect a higher frequency of pollution effects in the southern portion of the County where light winds are frequently observed, as opposed to the northern part of the County where the prevailing winds are usually strong and persistent.

### **Air Quality**

The Clean Air Plan (CAP) for the County is prepared by and updated by the Santa Barbara County Air Pollution Control District (APCD). The 1998 CAP, prepared in response to the requirements of the California Clean Air Act and the Federal Clean Air Act, was adopted as part of the State Implementation Plan. This plan was superseded by the 2001 CAP, which was adopted by the EPA in 2003. A 2004 update of the CAP was adopted in December of 2004. The update does not affect the 2001 CAP, which remains effective for federal requirements.

The APCD is required to monitor air pollutant levels to ensure that federal and state air quality standards are being met. The project area is located in the South Central Coast Air Basin (SCCAB). In January 1998, the EPA designated Santa Barbara County as a “serious” ozone nonattainment area for its exceedence of the federal ozone standards. However, the County is now an attainment area for the federal one-hour and eight-hour ozone standard, but

continues to be a nonattainment area for the state ozone and particulate matter 10 microns or less (PM<sub>10</sub>) standards.

The Draft IVMP contains several policies, actions and standards to reduce vehicle miles traveled:

Streets Policy 2: The use of bicycles as an alternate mode of transportation in Isla Vista shall be encouraged.

Streets Action 2.1 The RDA and Public Works shall research Sueno Road as a bike boulevard using appropriate painting, signs, and physical improvements.

Streets DevStd 2.2 Commercial development shall include adequate bicycle racks and storage to accommodate both employees and customers. Community parks should also provide sufficient bicycle racks to accommodate park users

Streets DevStd 2.3 The Form-Based Regulating Code for Isla Vista shall require that all projects in residential zone districts be required to provide two (2) enclosed or unenclosed permanently maintained and secure bicycle storage spaces for each bedroom and/or studio apartment within the development

Streets Policy 3 Walking shall be encouraged as a viable form of alternative transportation in Isla Vista.

Streets Action 3.1-3.6

3.1: The RDA shall work with Public Works to implement sidewalk improvements where feasible on north-south streets and in the commercial core.

3.2: The RDA shall encourage Public Works to, where feasible, prioritize completion of sidewalks on the following streets: Camino Pescadero, Pasado Road, Sabado Tarde Road, Pardall Road, Camino Del Sur, Camino Corto, Embarcadero Del Mar, Embarcadero Del Norte, Sueno Road and Del Playa Drive.

3.4: The RDA, in coordination with Public Works, should establish a streetscape infrastructure improvement program, planting appropriate street trees throughout Isla Vista to enhance pedestrian activity.

3.5: The RDA should encourage Public Works to improve the pedestrian crossing intersection of Abrego Road and Comino Corto, and other major intersections. Improvements may include installing lights, narrowing the intersection, raising the pedestrian crosswalk onto a wide speed table and placing reflectors or flashing lights on the pavement.

3.6: The RDA should encourage Public Works to review and where feasible add pedestrian scale street lighting on north-south streets and primary circulation routes.

Parking and Transit Policy 3 Public transit options should be frequent, reliable and rapid, providing all-day services to make public transit more attractive than driving for most Isla Vista residents.

Parking and Transit Actions 3.1-3.5:

3.1: The RDA, working with Public Works shall continue discussions with the Metropolitan Transportation District (MTD) to increase frequencies in and simplify key routes serving Isla Vista, extend service later into the evening and night, and locate potential future MTD bus stops.

3.2: The RDA, Public Works and MTD shall work with UCSB to provide transit gates at Ocean Road and Sabado Tarde Road to improve bus access between Isla Vista and UCSB.

3.3: The RDA shall study funding mechanisms to provide reduced rate transit passes to all Isla Vista residents.

3.4: The RDA shall encourage MTD and Amtrak to provide timely shuttle service between the Santa Barbara and Goleta Amtrak stations, the Santa Barbara Airport and Isla Vista, especially during and around UCSB quarter breaks.

3.5: The RDA should work with MTD and the Santa Barbara County Association of Governments to seek funding to improve the Goleta train station at the La Patera site that will be easily accessible to the Isla Vista community.

Parking and Transit Policy 4: Car sharing should be studied in the community to reduce the number of automobiles in Isla Vista and to provide residents with a reasonable alternative to owning a car.

Parking and Transit Actions 4.1-4.3:

4.1: The RDA shall research and if feasible establish a funding source to subsidize start-up costs for a car-sharing program in Isla Vista.

4.2: The RDA and Planning and Development should research and if feasible encourage car-sharing firms to establish in Isla Vista, on the UCSB campus and in the surrounding community.

4.3: If a car-sharing program is implemented, their vehicles shall be exempted from parking permit expenses.

Some trip generation rates in the traffic study are reduced by 5% to take into account bike, pedestrian and bus trips that would result from the above policies, actions and standards.

## **Ozone**

Ozone has been monitored at various stations in the County for over 25 years. Ozone is formed in the atmosphere through a series of chemical reactions involving nitrogen oxides

(NO<sub>x</sub>), reactive organic gases (ROG), and sunlight. The major source of NO<sub>x</sub> in the County is combustion of fossil fuels for transportation, energy, and heat. ROG sources include natural seeps of oil and gas, solvents in paints, consumer and industrial products, mobile sources, natural vegetation, and processes in the petroleum industry. Since ozone is not emitted directly into the atmosphere, but is formed as a result of chemical reactions in the atmosphere, it is classified as a “secondary” pollutant and is considered “regional” because it occurs over a wider area than that in which the pollutants are emitted. Because ozone-forming photochemical reactions take time, peak ozone levels are often found several miles or more downwind of major source areas. This is particularly true when winds are persistent from one direction.

Elevated ozone concentrations aggravate asthma, bronchitis, and other respiratory disorders. Eye irritation, nausea, headaches, coughing, and dizziness are other symptoms of ozone exposure. Ozone also interferes with photosynthesis, thereby damaging natural and ornamental vegetation, and agricultural crops.

Ozone studies prepared by the APCD have shown that ozone exceedences can occur under a wide variety of meteorological conditions. Additionally, based on analyses of ozone episodes occurring from 1990 through 1999, there is an indication that state exceedences may be related to meteorological conditions that are conducive to high ozone formed locally combined with the transport of pollutants from outside the County.

### **PM<sub>10</sub>**

Particulate matter is a respiratory irritant. Large particles are effectively filtered in the upper respiratory tract, but particles smaller than 10 microns can cause serious health effects. (For reference, a human hair is approximately 60 microns in diameter.) The chemical makeup of the particles is an important factor in determining the health effect.

PM<sub>10</sub> is generated by a wide variety of natural and man-made sources including windblown dust from grading, agricultural tilling, road dust, and quarries. PM<sub>10</sub> is produced either by direct emissions of particulates from a source (primary PM<sub>10</sub>), or by the formation of aerosols as a result of chemical reactions in the atmosphere involving precursor pollutants (secondary PM<sub>10</sub>). Based on emissions data, the largest single source of PM<sub>10</sub> emissions in the County is entrained paved road dust. Other major sources include dust from construction, demolition, agricultural tilling, entrained road dust from unpaved roads, natural dust, sea-salt, and particulate matter released during fuel combustion.

The County violates both the state PM<sub>10</sub> 24-hour and annual standards. As a result, the County is currently designated nonattainment for the state PM<sub>10</sub> standard. The County does not exceed the federal PM<sub>10</sub> standards. To investigate the County’s PM<sub>10</sub> problem, the APCD started a specialized sampling and analysis study in 1989 called the Santa Barbara County Particulate Matter Emission Reduction Study. The study collected and analyzed ambient samples of PM<sub>10</sub> at sites located throughout the County to identify chemical constituents, and identified potential source characteristics and assessed control strategies for reducing PM<sub>10</sub> concentrations. The major findings of the study found that: 1) background sources (primarily sea-salt) are major contributors to PM<sub>10</sub> concentrations; 2) on average, 70 percent of the

locally generated PM<sub>10</sub> (primary) is directly emitted; 3) locally generated geological dust and motor vehicle exhaust are the most significant sources of primary PM<sub>10</sub> in the County; and 4) potential control measures should concentrate on these primary sources of PM<sub>10</sub>.

### **Local Air Quality Monitoring**

The APCD has a network of 20 air quality monitoring stations. Prior to July 1998, the Exxon-10 air monitoring station located at the UCSB West Campus just west of the project area, monitored a full complement of criteria air pollutants except carbon monoxide. However, that ambient station was decommissioned, and it was replaced with the “Venoco West Campus” monitoring station which measures only sulfur dioxide, hydrogen sulfide, and total hydrocarbons.

The next closest stations to the project site are the Goleta-Fairview station and the El Capitan monitoring station. The Goleta-Fairview station is located east off Fairview Road between Calle Real and Cathedral Oaks, approximately three miles northeast of the project area. The El Capitan monitoring station is located in an undeveloped coastal setting in El Capitan State Park approximately six miles northwest of the project area. Data for both monitoring stations are presented in Table 4.4-1, representing the maximum values for each station spanning five recent years.

The 2001 smog season was the first in which the County did not exceed the federal one-hour ozone standard (0.12 ppm) since monitoring began in 1971. The state one-hour standard of 0.09 ppm has been exceeded several times during the five-year period, including at the El Capitan and Goleta-Fairview stations as shown in Table 4.4-1.

The state particulate matter standard for PM<sub>10</sub> was exceeded six times in the County in 1999. However, only one exceedence was observed at the El Capitan monitoring station (PM<sub>10</sub> is not measured at the Goleta-Fairview monitoring station).

## **3.4.2 REGULATORY FRAMEWORK**

### **Federal and State Regulations and Administering Agencies**

Air quality is regulated through the 1990 Federal Clean Air Act Amendments and the 1988 California Clean Air Act, which regulate the emissions of airborne pollutants and establish ambient air quality standards. The U.S. Environmental Protection Agency administers the federal air quality regulations and the California Air Resources Board (CARB) administers the state regulations. The CARB establishes air quality standards and regulates mobile emission sources.

State and federal agencies have set ambient air quality standards for certain criteria air pollutants. National Ambient Air Quality Standards (NAAQS) have been established for carbon monoxide (CO), ozone, sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), PM<sub>10</sub>, particulate matter that is 2.5 microns in diameter or less (PM<sub>2.5</sub>), and lead. The state standards for these criteria pollutants are more stringent than the corresponding federal standards. In addition, the state has also established standards for sulfates, hydrogen sulfide, vinyl chloride,

and visibility reducing particles. All applicable state and federal standards are presented in Table 3.4-2.

**Table 3.4-1  
Project Area Air Quality Data (parts per million)**

<b>Pollutant</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>Ozone</b>					
<u>1-Hour</u>					
<i>El Capitan</i>	0.094	0.092	0.075	<b>0.098</b>	<b>0.109</b>
Exceedences (Federal Std.)	0	0	0	0	0
Exceedences (State Std.)	0	0	0	1	1
<i>Goleta - Fairview</i>	0.082	0.082	0.070	<b>0.097</b>	0.092
Exceedences (Federal Std.)	0	0	0	0	0
Exceedences (State Std.)	0	0	0	1	0
<u>8-Hour</u>					
<i>El Capitan</i>	0.068	0.078	0.068	0.078	<b>0.099</b>
<i>Goleta - Fairview</i>	0.067	0.066	0.060	0.071	<b>0.087</b>
Exceedences (Federal Std. - both sites)	0	0	0	0	<b>1/1</b>
<b>NO<sub>2</sub></b>					
<u>1-Hour</u>					
<i>El Capitan</i>	0.047	0.046	0.045	0.055	0.043
<i>Goleta - Fairview</i>	0.057	0.054	0.063	0.051	0.043
Exceedences (State Std. - both sites)	0	0	0	0	0
<u>8-Hour</u>					
<i>El Capitan</i>	0.008	0.008	0.008	N/A	N/A
<i>Goleta - Fairview</i>	0.012	0.010	0.011	N/A	N/A
Exceedences (both sites)	0	0	0	N/A	N/A
<b>Carbon Monoxide (ppm)</b>					
<u>1-Hour</u>					
<i>Goleta - Fairview</i>	3.1	5.1	2.7	N/A	N/A
Exceedences	0	0	0	N/A	N/A
<u>8-Hour</u>					
<i>Goleta - Fairview</i>	1.55	1.94	1.13	1.13	0.95
Exceedences (State & Federal Stds.)	0	0	0	0	0
<b>Sulfur Dioxide (ppm)</b>					
<u>1-Hour</u>					
<i>El Capitan</i>	0.005	0.007	N/A	N/A	N/A
<i>Goleta-Fairview</i>	0.009	0.010	N/A	N/A	N/A
<i>West Campus</i>	0.013	0.007	N/A	N/A	N/A
Exceedences (all sites)	0	0	N/A	N/A	N/A
<u>24-Hour</u>					
<i>El Capitan</i>	0.001	0.002	0.001	0.001	0.001
<i>Goleta-Fairview</i>	0.001	0.003	0.001	0.003	0.001
<i>West Campus</i>	0.002	0.002	0.001	0.001	0.001
Exceedences (State & Federal - all sites)	0	0	0	0	0

**Table 3.4-1 (cont.)  
Project Area Air Quality Data (parts per million)**

Pollutant	2000	2001	2002	2003	2004
<b>PM<sub>10</sub> (micrograms per cubic meter)</b>					
<u>24-Hour Average (Federal)</u>					
<i>El Capitan</i>	45.8	40.3	38.6	38.6	50.4
Measured Exceedences (Federal Std.)	0	0	0	0	0
Estimated Exceedences <sup>1</sup> (Federal Std.)	0	0	0	0	0
<u>24-Hour Average (State)</u>					
<i>El Capitan</i>	46.3	41.1	39.4	39.3	<b>51.3</b>
Measured Exceedences (State Std.)	0	0	0	0	<b>1</b>
Estimated Exceedences (State Std.)	0	0	0	0	<b>6.1</b>
<u>Annual Geometric (State)</u>					
<i>El Capitan</i>	<b>21.9</b>	19.7	20.0	19.2	19.7
Exceedences	0	0	0	0	
<u>Annual Arithmetic (Federal)</u>					
<i>El Capitan</i>	21.2	19.1	19.3	18.5	19.2
Exceedences	0	0	0	0	

**Bold** indicates exceedence of standard

<sup>1</sup> Number represents the estimated number of days in the year that the California and national 24-hour PM<sub>10</sub> standards would have been exceeded had sampling occurred every day of the year. Sampling typically occurs once every 6 days.

Source: California Air Resources Board database

**Table 3.4-2  
Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards <sup>1</sup>	National Standards <sup>2</sup>	
		Concentration <sup>3</sup>	Primary <sup>2,4</sup>	Secondary <sup>2,5</sup>
Ozone	1 Hour	0.09 ppm (180 µg/m <sup>3</sup> )	0.12 ppm (235 µg/m <sup>3</sup> )	Same as Primary
	8 Hour	--	0.08 ppm (157 µg/m <sup>3</sup> )	Same as Primary
CO	8 Hour	9 ppm (10 mg/m <sup>3</sup> )	9 ppm (10 mg/m <sup>3</sup> )	Same as Primary
	1 Hour	20 ppm (23 mg/m <sup>3</sup> )	35 ppm (40 mg/m <sup>3</sup> )	
NO <sub>2</sub>	Annual Average	--	0.053 ppm (100 µg/m <sup>3</sup> )	Same as Primary
	1 Hour	0.25 ppm (470 µg/m <sup>3</sup> )	--	--
SO <sub>2</sub>	Annual Average	--	80 µg/m <sup>3</sup> (0.03 ppm)	--
	24 Hour	0.04 ppm <sup>6</sup> (105 µg/m <sup>3</sup> )	365 µg/m <sup>3</sup> (0.14 ppm)	--
	3 Hour	--	--	1,300 µg/m <sup>3</sup> (0.5 ppm)
	1 Hour	0.25 ppm (655 µg/m <sup>3</sup> )	--	--
PM <sub>10</sub>	Annual Average	20 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>	--
	24 Hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	Same as Primary
PM <sub>2.5</sub>	Annual Average	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	Same as Primary
	24 Hour	--	65 µg/m <sup>3</sup>	Same as Primary
Sulfates	24 Hour	25 µg/m <sup>3</sup>	--	--
Lead	30 Day Average	1.5 µg/m <sup>3</sup>	--	--
	Calendar Quarter	--	1.5 µg/m <sup>3</sup>	Same as Primary
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )	--	--
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 µg/m <sup>3</sup> )	--	--
Visibility Reducing Particles	1 Observation	Insufficient amount to reduce the prevailing visibility <sup>7</sup> to less than 10 miles when the relative humidity is less than 70%	--	--

<sup>1</sup> California standards for ozone, CO, SO<sub>2</sub> (1-hr), NO<sub>2</sub>, PM<sub>10</sub>, and visibility-reducing particles are values that are not to be exceeded. The SO<sub>2</sub> (24-hr), sulfates, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded.

<sup>2</sup> National standards, other than ozone, are those based on annual averages or annual arithmetic means, and are not to be exceeded more than once a year. The ozone standard is attained when the expected number of

days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

<sup>3</sup> Concentration is expressed first in units in which it was promulgated. Equivalent units given in parenthesis are based upon a reference temperature of 25°C and a reference pressure of 750 mm of mercury. All measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar). ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas,  $\mu\text{g}/\text{m}^3$  (micrograms per cubic meter).

<sup>4</sup> National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than three years after that state's implementation plan is approved by the EPA.

<sup>5</sup> National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the implementation plan is approved by the EPA.

<sup>6</sup> This number applies at locations where the state standards for ozone and/or suspended particulate matter are violated. National standards apply elsewhere.

<sup>7</sup> This standard is intended to limit the frequency and severity of visibility impairment due to regional haze, and is equivalent to a 10-mile nominal visual range when relative humidity is less than 70%.

---

From 2004 Clean Air Plan.

Areas are classified under the Clean Air Act as either "attainment" or "nonattainment" for each criteria pollutant depending on whether or not the NAAQS have been achieved. States are required to prepare Implementation Plans, which outline County-specific enforceable limitations set to maintain attainment status, including air quality monitoring plans, resource requirements, and air permitting regulatory updates. These plans are submitted to the EPA and adopted at the state level.

### Local Policies and Administering Agencies

Locally, the APCD has jurisdiction in the project area. The APCD regulates stationary sources, updates clean air plans, adopts, administers and enforces plans and regulations necessary to demonstrate attainment of federal and state air quality standards, and oversees a network of air quality monitoring stations. In addition, the APCD acts as lead agency, responsible agency or a concerned agency under CEQA and reviews environmental documents for air quality impacts.

The Goleta Community Plan (GCP) contains several policies and development standards that address air quality for the project area:

- **Policy AQ-GV-1:** The County shall impose appropriate restrictions and control measures upon construction activities associated with each future development project, in order to avoid significant deterioration of air quality.
- **DevStd AQ-GV-1.1:** Future project construction should follow all requirements of the SBCAPCD, and should institute Best Available Control Technology (BACT) where necessary to reduce emissions below APCD threshold levels.
- **DevStd AQ-GV-1.2:** Project construction shall minimize the generation of pollution and fugitive dust during construction.

- **Policy AQ-GV-2:** The County shall strive to maintain the consistency of all land use planning with the Air Quality Attainment Plan.
- **Policy AQ-GV-3:** The County shall implement those land use patterns and transportation programs which will serve to reduce vehicle trips and total vehicle miles traveled.
- **Policy AQ-GV-4:** The County shall make mixed use development, which would encourage less commuting, a priority of land use planning.
- **Policy AQ-GV-5:** The County shall require the use of techniques designed to conserve energy and minimize pollution.
- **DevStd AQ-GV-5.1:** The County shall consider the following energy-conserving techniques to implement Policy AQ-GV-5:
  - a. the installation of low-NOx residential and commercial water heaters and space heaters per specifications in the 1991 SBCAPCD Air Quality Attainment Plan;
  - b. the installation of heat transfer modules in furnaces;
  - c. the use of light colored water based paint and roofing materials;
  - d. the installation of solar panels for residential water heating systems and other facilities and/or the use of water heaters that heat only on demand;
  - e. the use of passive solar cooling/heating;
  - f. the use of natural lighting;
  - g. use of concrete or other non-pollutant materials for parking lots instead of asphalt;
  - h. installation of energy efficient appliances;
  - i. installation of energy efficient lighting;
  - j. use of landscaping to shade buildings and parking lots;
  - k. installation of sidewalks and bikepaths;
  - l. installation of covered bus stops to encourage use of mass transportation.

### 3.4.3 THRESHOLDS OF SIGNIFICANCE

The County's Environmental Thresholds & Guidance Manual lists the following criteria for determining whether or not a significant air quality impact would occur as a result of a particular project:

- The project would interfere with progress toward the attainment of the ozone standard by releasing emissions which equal or exceed the established long-term quantitative thresholds for NO<sub>x</sub> and ROG;
- Emissions equal or exceed the state or federal ambient air quality standards for any criteria pollutant (as determined by modeling).

The County no longer has quantitative emission significance thresholds for short-term construction activities, as construction emissions from land development projects have been

accounted for in the 2004 CAP. However, since the County currently violates the state standard for PM<sub>10</sub>, construction-related activities that generate PM<sub>10</sub> from fugitive dust emissions would be required to implement standard dust control measures based on the 1979 Air Quality Attainment Plan to ensure that these emissions remain less than significant.

Long-term air quality impacts occur during project operation and include emissions from any equipment or process used in the project, e.g., residential water heaters, engines, boilers, and operations using paints or solvents and motor vehicle emissions associated with the project. The County APCD provides the following thresholds of significance for operational project-related air quality impacts:

Operation of the project will have a significant air quality impact if:

- Emissions from both mobile and stationary sources exceed 25 pounds per day of ROG or NO<sub>x</sub>
- Causes or contributes to a violation of any California or NAAQS (except ozone)
- Exceeds the APCD health risk public notification thresholds adopted by the APCD Board
- Is not consistent with the adopted federal and state air quality plans for Santa Barbara County
- Causes, by adding to the existing background CO levels, a CO “hotspot” where the California one-hour standard of 20 parts per million CO or the 8-hour CO standard of 9 ppm is exceeded. This typically occurs at severely congested intersections. A “hotspot” impact would occur and modeling is required if:
  - If the total cumulative traffic contribution (existing + proposed project + reasonably foreseeable projects in the area) at an affected intersection is more than 800 peak hour trips per lane
  - If traffic levels exceed 800 peak hour trips (vehicles per hour per lane under a cumulative scenario) at an existing congested intersection at LOS D or below, or causes an intersection to reach LOS D or below, CO modeling may be required. However, projects that will incorporate intersection modifications to ease traffic congestion are not required to perform modeling, unless there are other unusual circumstances.

#### **3.4.4 IMPACTS AND MITIGATION MEASURES**

##### **Impact AIR-1: Short-term PM<sub>10</sub> construction emissions.**

Adoption of the Draft IVMP would result in the implementation of projects that would generate construction-related PM<sub>10</sub> from fugitive dust and vehicle/equipment emissions. The County does not have a quantitative threshold for short-term construction related PM<sub>10</sub>. The

County exceeds the state standard for PM<sub>10</sub> and additional emissions could result in a significant impact. Therefore, dust mitigation measures are required for all discretionary construction activities. Furthermore, dust control measures are required for most projects under the County's Grading Ordinance.

**Mitigation Measure AIR-1:** Dust generated by project construction shall be kept to a minimum by following the dust control measures listed below:

- Water trucks or sprinkler systems shall be used during construction to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, such areas shall be watered down in the late morning and after completion of work at the end of the day. The frequency of watering shall be increased when wind speeds exceed 15 miles per hour if soils are not completely wet. If wind speeds increase to the point that the dust control measures cannot prevent dust from leaving the site, construction activities shall be suspended. Reclaimed water shall be used whenever possible.
- Vehicle speeds on the construction site shall be limited to 15 miles per hours or less.
- Gravel pads shall be installed at all access points to prevent tracking of mud onto public roads.
- Trucks transporting fill material/soil to and from the site shall be tarped from the point of origin. Soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation.
- After clearing, grading, earth moving, or excavation is completed, the disturbed area shall be treated by watering, revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.
- A person or persons shall be designated by the contractor or builder to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Such monitoring responsibilities shall include holiday and weekend periods when work may not be in progress. The contractor shall provide the name and telephone number of such person to the APCD and the County prior to approval of any land use clearance for any project grading or construction activities.

**Residual Impacts:** The above mitigation measures meet the APCD standards for construction related PM<sub>10</sub> emissions. Residual impacts would be considered potentially significant, but *mitigated to less than significant (Class II)*.

#### **Impact AIR-2: Short-term construction related ozone precursor emissions**

The use of heavy equipment during construction activities would produce NO<sub>x</sub> and ROG emissions. Development under the IVMP would be phased, occurring over a 25 year implementation period. Consequently, construction related emissions would be spread out over many years and not concentrated over a period of a few years.

The County has no thresholds for short-term NO<sub>x</sub> and ROG emissions from construction equipment because construction operations constitute a small percentage of the total annual emissions. NO<sub>x</sub> emissions from construction equipment in the County were estimated to comprise approximately six percent of the 1990 county-wide NO<sub>x</sub> emissions, which is generally considered to be insignificant.<sup>2</sup> Emissions from the construction of development projects have been accounted for in the County ozone attainment planning process. Therefore, impacts from ROG and NO<sub>x</sub> emissions from construction operations would be *adverse, but less than significant (Class III)*.

### **Impact AIR-3: Operational emissions.**

Air quality impacts from build-out of the IVMP would occur from vehicle emissions and area sources (i.e., fuel combustion and consumer products). The URBEMIS2002 (Version 8.7.0) model was used to estimate daily operational emissions associated with build-out of the IVMP. This analysis assumes that the project would be fully built-out by the year 2030. The model was used to estimate both vehicle and area source emissions. Input data to URBEMIS2002 included vehicle trips, vehicle fleet mix, winter and summer temperatures, trip characteristics, variable start information, emission factors, and trip distances. The model default data were conservatively used as the input data for the analysis with the exception of using the trip generation rates that were calculated for build out of the IVMP (see section 3.13 Traffic and Circulation).<sup>3</sup> Estimated vehicle and area source emissions were combined for total operational emissions. Upon instruction from APCD, only summer season emission rates were used. The Technical Appendix includes data and assumptions used to estimate operational emissions from the project area.

Table 4.4-3 summarizes the total daily operational emissions (vehicle + area) associated with full build-out of the proposed IVMP. Emission thresholds for ROG and NO<sub>x</sub> would be exceeded. Emissions for individual catalyst projects are assessed in Section 5.0. Because the IVMP has yet to be adopted, build-out of the IVMP was not included in the 2004 CAP growth assumptions. This means that the growth in motor vehicle and area source emissions associated with build-out of the IVMP have not been accounted for and is not consistent with the 2004 CAP. The IVMP would add 51,485 sf of commercial space and 801 more residential units than were previously accounted for in build-out under current zoning. Therefore, operational impacts from ROG and NO<sub>x</sub> emissions under build-out would be considered potentially significant and unavoidable.

Individual projects allowed by the land use changes in the proposed project will be separately permitted over time project. Those individual projects will be required to meet the standards prescribed in the CAP. In addition, as the CAP is updated, the new build-out numbers for Isla Vista will incorporated into future versions of the CAP.

---

<sup>2</sup> APCD and Santa Barbara County Association of Governments, *1993 Rate of Progress Plan: Federal Ozone Standard Countywide*, 1993, as cited in *Santa Barbara County Environmental Thresholds and Guidelines Manual*, 2002.

<sup>3</sup> Associated Transportation Engineers, *Isla Vista Master Plan – County of Santa Barbara, Traffic and Circulation Study*, August, 2004.

**Table 3.4-3  
Estimated IVMP Trip Generation and Operational and Area Emissions (Mitigated)**

Land Use	Units	ADT Trips	ROG (lbs/day)		NO <sub>x</sub> (lbs/day)		PM <sub>10</sub> (lbs/day)	
			Vehicle	Area	Vehicle	Area	Vehicle	Area
Student Condo/Townhouse <sup>a</sup>	441	2,456	6.60		7.20		40.33	
Student Apartment <sup>a</sup>	752	4,798	12.66		14.12		79.12	
Affordable Housing Site	241	1,412	3.77		4.14		23.23	
Downtown Commercial	51,485 sf	2,240	5.12		6.21		34.15	
I.V. Community Center <sup>b</sup>	42,550 sf	248	0.67		0.70		3.84	
Single-Family Housing	13	124	0.31		0.37		2.07	
<b>Total</b>			<b>29.14</b>	<b>95.90</b>	<b>32.73</b>	<b>11.48</b>	<b>182.74</b>	<b>182.74</b>
<i>Emission Threshold</i>			25	-	25	-	None	-
<b>Total Operational Emissions (vehicle + area)</b>			<b>125.04</b>		<b>44.21</b>		<b>182.76</b>	

<sup>a</sup> ADT rate discounted 5% and P.M. peak hour trip rate discounted 20% to account for bike/pedestrian/bus trips

<sup>b</sup> Trip generation as reported in the I.V. Community Center traffic study (ATE, May 2004)

sf – square feet

**Mitigation Measure AIR-3.1:** The following energy conservation measures shall be incorporated into project building plans unless the applicant proves that incorporation of a specific measure is infeasible:

- Will meet the California Title 24 Energy Code or exceed for all relevant applications
- Heat transfer modules shall be installed in all furnaces
- Installation of solar panels for water heating systems for residential and other facilities where feasible
- Passive solar cooling/heating design elements shall be included in building designs where feasible
- New development must include design elements that maximize the use of natural lighting where feasible
- New development must include provisions of the installation of energy efficient appliances and lighting

**Mitigation Measure AIR-3.2:** To reduce daily ROG, NO<sub>x</sub> and PM<sub>10</sub> emissions during winter days from combined project sources, only advanced combustion or natural gas fireplaces shall be allowed.

**Residual Impacts:** The above mitigation measures would reduce area source emissions. However, because growth and associated air emissions that would occur as a result of build-out of the IVMP have not been accounted for in the most recent CAP, residual impacts would remain *significant and not feasibly mitigated to a level of insignificance (Class I)*.

### **Cumulative Impacts**

The pending and approved projects identified in Chapter 3, will result in cumulative impacts to air quality. Together, these cumulative projects will ultimately generate 3,351,485 sf of commercial and industrial development and 3,313 new residential units throughout the Goleta Valley, UCSB and Isla Vista area. This will result in a cumulatively significant amount of reactive organic gasses, carbon monoxide, nitrogen oxides, and particulate matter that has the potential to affect air quality in the project area.

**ROG, NO<sub>x</sub> and PM<sub>10</sub> Emissions.** Cumulative development in the vicinity of the project area is listed in 3.1-8 of Section 3.0. Projects include approved and pending developments in the City of Goleta, unincorporated County, projects in the City of Santa Barbara Airport area, and build-out of the UCSB campus according to the 1990 Long Range Development Plan. Since the expected IVMP growth has not been accounted for in the CAP, the plan's contribution to cumulative ROG, NO<sub>x</sub> and PM<sub>10</sub> emissions would be considered *significant and unavoidable (Class I)* due to the County's nonattainment status for these pollutants.

**CO Emissions.** Cumulative traffic levels would exceed 800 peak hour trips and operate at less than LOS D at four intersections: HWY 101 SB Ramp/Los Carneros Road, Hollister Avenue/Storke Road, Mesa Road/Los Carneros Road, and El Colegio Road/Camino Pescadero. Two of these intersections, U.S. 101 SB Ramp/Los Carneros Road and Hollister Avenue/Storke Road, presently exceed 800 peak hour trips and operate at LOS D. All of these intersections have proposed modifications to ease traffic congestion (see section 4.15 Traffic and Circulation for more information). These modifications would reduce traffic impacts and resultant CO impacts at these intersections to less than significant levels, except Hollister Avenue/Storke Road which would remain at LOS D. The cumulative traffic levels at this intersection would exceed 800 peak hour trips and LOS D even without implementation of the IVMP. Although the IVMP would only add 13 peak hour trips to the center northbound lane on Storke Road, this would still be considered a significant impact according to the County threshold. No further mitigation measures are available and impacts would remain *significant and unavoidable (Class I)*.

The IVMP will contribute a significant amount of this cumulative growth to the area by providing 1,447 housing units and 51,485 sf of commercial development. As a result, the project's cumulative impacts to air quality are significant and unavoidable (Class I).