4.5 AIR QUALITY

The *FORA Reuse Plan Final Environmental Impact Report* (FORA FEIR) identified on a program level less than significant environmental impacts for air quality as related to potential violations of ambient air quality standards.

Site specific details and project-level information for the EGSP project was not known and not analyzed at the time of the FORA FEIR. New information between the time the FORA FEIR was certified and the release of the Notice of Preparation (NOP) for the currently proposed EGSP project includes changes in land use types and intensities on the project site, a project site plan, and preparation of a project-specific traffic report; thereby allowing the preparation of a project specific air quality analysis. In addition, changes have occurred in Monterey County's compliance with regional emission thresholds and in Monterey Bay Unified Air Pollution Control District policies.

According to the *Monterey County General Plan*, 1982:

> Air Quality is determined by the ability of the environment to disperse, transform, and remove pollutants; the quantity of emissions; the physical location and configuration of emission sources and type and amount of background pollutants present. Air pollution is the result of impurities being introduced into the air basin in such abundance that they cannot be adequately absorbed or removed before they accumulate in harmful concentrations.

This section provides additional analysis of potential impacts not previously analyzed in the FORA FEIR. Giroux & Associates prepared an *Air Quality Analysis for the East Garrison Specific Plan Project, Monterey County* (September 2004) under contract to Monterey County. This section focuses on: 1) Potential short-term air quality impacts associated with construction activity, and 2) Long-term local and regional air quality impacts related to the proposed EGSP. The entire report is included in Appendix F of this DSEIR.

4.5.1 Environmental Setting

CLIMATE AND METEOROLOGY

The project site is located in the North Central Coast Air Basin (NCCAB), which is comprised of Monterey, Santa Cruz, and San Benito counties. The NCCAB lies along the central coast of California covering an area of 5,159 square miles. Basin air quality is regulated by a limited local source of emissions, and by the overall marine character of the climate. A semi-permanent high-pressure cell in the eastern Pacific is the basic controlling factor in the climate of the NCCAB. In the summer, the high-pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. Air descends in the Pacific High forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. The warmer air aloft acts as a lid to inhibit vertical air movement.

The predominant on-shore flow is confined to a series of northwest to southeast trending mountains and valleys. The shallow marine layer is confined within each valley with only limited "spillover." Intrusion of polluted air from more heavily developed areas in the San Francisco Bay area into the basin is normally restricted to only the communities closest to the Santa Clara Valley. Therefore, much of Monterey County enjoys healthful air quality most of the time.

The EGSP site is located on a small bluff above the Salinas Valley. The valley is located between the Sierra de Dalinas extension of the Santa Lucia Range on its west side, and the Gabilan Range to the east. The EGSP site, experiences a "Mediterranean" climate with warm, dry summers and mild, rainy winters. Daily variations in the Salinas Valley climate are influenced by the interaction between ocean and land air masses that create on shore (up valley) winds in the daytime and weak offshore (down-valley) breezes at night. Inversion layers that concentrate pollutants within shallow layers, are present in the Salinas Valley a significant part of the year.

Meteorological conditions in the NCCAB are generally favorable for maintaining relatively good air quality. Onshore winds across Monterey Bay normally bring clean air into the project area. Degraded air quality may sometimes be experienced in San Benito County due to airflow from the Santa Clara Valley; dust and odor may also be experienced around agricultural operations or other localized sources adjacent to the project site. The EGSP site is situated away from any substantial intrusion from polluted airsheds and is located where there are few localized sources of emission. The emissions from the Moss Landing Power Plant—a major stationary source—generally travel up the Salinas Valley north of Salinas and generally do not travel across the EGSP site. Overall, the effects of meteorology and topography typically result in favorable air quality in the EGSP area.

AIR QUALITY MANAGEMENT

Air quality management responsibilities and the establishment of ambient air quality standards exist at local, state, and federal levels of government. Locally, the Monterey Bay Unified Air Pollution Control District (MBUAPCD) has primary responsibility for the control of stationary sources of pollution.

Control of mobile sources of air pollution is exercised at the state and federal levels. Vehicular emissions standards are established by the California Air Resources Board (ARB) for vehicles sold in California. ARB establishes statewide ambient air quality standards, monitors air pollutants, designates air basins, and if necessary exercises control of stationary air pollutant sources.

At the federal level, the U.S. Environmental Protection Agency (EPA) is responsible for air pollution control activities. The Federal Clean Air Act authorizes the EPA to establish ambient air quality standards, to establish emission standards for stationary and mobile sources, and to require all states to develop and adopt implementation plans to achieve and maintain the federal standards.

AMBIENT AIR QUALITY STANDARDS

The EPA is the federal agency responsible for administering the Federal Clean Air Act Amendments of 1990. As a regulatory agency, EPA's principle functions include setting national ambient air quality standards (AAQS), which have been established for various air pollutants. These standards define the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect "sensitive receptors" which are members of the public most susceptible to respiratory distress or infection, such as asthmatics, the very young, the elderly, people weak from other illness or disease, or persons in heavy work or exercise.

The ARB is required to designate areas of the state as attainment, non-attainment, or unclassified for any state standard. An "attainment" designation for an area signifies that pollutant concentrations do not violate the standard for that pollutant in that area. A "non-attainment" designation indicates that a pollutant concentration violated the standard at least once, excluding those occasions when a violation

was caused by an exceptional event, as defined in the criteria. An "unclassified" designation signifies that the data does not support either an attainment or non-attainment status.

State and federal ambient air quality standards have been established for the following pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), Lead (Pb), fine particulate matter (PM_{10}) and $PM_{2.5}$). The above-mentioned pollutants are generally knows as "criteria pollutants." The state has also established ambient air quality standards for sulfates, hydrogen sulfide, and visibility protection. Air pollutants may also include toxic air contaminants for which no safe exposure level exists. A description of criteria air pollutants and other air contaminants is contained in the following discussion.

Criteria Pollutants[1]

Ozone (O_3)

Ozone (O_3) is colorless toxic gas that can irritate the lungs and damage materials and vegetation. Levels of O_3 have exceeded federal and state standards throughout the NCCAB. Because O_3 formation is the result of photochemical reactions between Nitrogen Oxides (NOx) and reactive organic compounds (ROC) typically produced by combustion sources, peak concentrations of O_3 occur downwind of precursor emission sources.

Carbon Monoxide (CO)

Carbon Monoxide (CO) is an odorless, colorless, toxic gas, produced almost entirely from combustion sources (automobiles). This pollutant interferes with the transfer of oxygen to the brain and is generally associated with the areas of high traffic density.

Nitrogen Oxides (NO_2 and NOx)

Nitrogen Oxides (NOx), the term used to describe the sum of nitrogen oxide (NO), nitrogen dioxide (NO_2), and other oxides of nitrogen, are produced by high-temperature combustion process (e.g., motor vehicle engines, power plants, refineries, and other industrial operations). NO_2, a term often used interchangeably with NOx, is a reddish-brown gas that can cause breathing difficulties at high concentrations.

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

On July 1, 1987, the EPA replaced the total suspended particulate (TSP) standard with a new fine dust particulate standard knows as PM_{10}. PM_{10} includes particulate matter 10 microns (µ) or less in diameter; a micron is one millionth of a meter. Sources of PM_{10} include agricultural operations, industrial processes, combustion of fossil fuels, construction and demolition and windblown dust and wildfires. On June 20, 2002, ARB adopted amendments for statewide annual ambient particulate matter air quality standards, setting the annual PM_{10} standard to 20 µg/m^3. A new state standard for ultra-fine particulate matter (called $PM_{2.5}$), was established at 12 µg/m^3. A 24-hour average standard for both PM_{10} and $PM_{2.5}$ were retained. These standards were revised/established due to increasing concerns by ARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current state PM_{10} standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging.[2]

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1 Environmental Protection Agency, www.epa.gov.oar/aqtrnd97/brochure/no2.html.

2 Staff Report: Public Hearing to Consider Amendments to the Ambient Air Quality Standards for Particulate Matter and Sulfates. California Environmental Protection Agency, Air Resources Board, May 3, 2002.

Sulfur Dioxide (SO_2 and SOx)

Sulfur dioxide (SO_2) is often used interchangeably with sulfur oxides (SOx). These are identified as ozone precursors, which can contribute to the formation of smog. The use of high sulfur fuels in petroleum refining and electricity generation is typically associated with SO_2 emissions.

Lead (Pb), Hydrogen Sulfide (H_2S), Vinyl Chloride and Visibility Reducing Particles

These pollutants (and degraded visibility due to particulate matter) are not routinely monitored in populated areas of Monterey County, nor are standards believed to be violated. Lead levels dropped dramatically over several decades with the introduction of unleaded gasoline. H_2S is associated with "sour" gas fields during petroleum product extraction or from geothermal fields. Such resources are nominal within the County. There are no major plastics manufacturers in the area where vinyl chloride is used. Visibility is a secondary result of high air pollution levels. With generally healthful air quality in Monterey County, visibility is correspondingly quite good except due to fog or sea haze (non-manmade sources).

Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TAC) are another group of pollutants of concern in California. There are many different types of TACs, with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust (e.g., diesel). Public exposure to TACs can result from emissions from normal operations, as well as accidental releases of hazardous materials during upset conditions. Health effects of TACs include cancer, birth defects, neurological damage, and death.

TAC emissions are controlled through federal, state, and local programs. Federally, TACs are regulated by EPA under Title III of the Federal Clean Air Act. At the state level, the ARB regulates hazardous air pollutants. The State Air Toxics Hot Spots Information and Assessment Act requires inventories and public notices for facilities that emit TACs.

The MBUAPCD regulates TACs from new or modified sources under Rule 1000, which applies to any source, that requires a permit to construct or operate pursuant to District Regulation II and has the potential to emit any of 23 carcinogenic TACs or any of several hundred non-carcinogenic TACs listed in Title 8 of the California Administrative Code (§ 5155). Rule 1000 also requires that sources of carcinogenic TACs install "best available control technology" (BACT) and reduce excess cancer risk to less than one incident per 100,000 population.

Odors

While offensive odors rarely cause any physical harm, they still can be unpleasant, leading to considerable distress among the public and often generating citizen complaints to local government and the MBUAPCD. Any project that would expose members of the public to objectionable odors would be deemed to have an adverse effect. Commercial uses may have the potential for creating objectionable odors. These emissions would be comparable to those anticipated with any type of commercial activity (e.g., food service facilities). Some businesses, such as restaurants with exhaust vents, are considered "stationary point sources" and may be subject to further regulatory requirements above and beyond any requisite CEQA mitigation. While emissions from these activities are common and not identified as being particularly hazardous, they may be subject to permitting requirements that call for the use of BACT in order to eliminate or reduce the levels of emissions.

Since California had standards in existence for many of the pollutants described above, before federal AAQS were established, and because of unique meteorological conditions in the state, there is considerable difference between state and federal standards in California (see Table 4.5-1). The state standards are in most cases more stringent than the federal standards.

Table 4.5-1: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Measurement Method	Primary	Secondary	Measurement Method
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	0.12 ppm (235 µg/m^3)	Same as Primary Standard	Ethylene Chemi-luminescence
	8 Hour	—		0.08 ppm (157 µg/m^3)		
Respirable Particulate Matter (PM_{10})	Annual Geometric Mean	20 µg/m^3	Size Selective Inlet Sampler	—	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
	24 Hour	50 µg/m^3		150 µg/m^3		
	Annual Arithmetic Mean	—		50 µg/m^3		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	—	Size selective	65 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
	Annual Arithmetic Mean	12 µg/m^3	Inlet sampler	15 µg/m^3		
Carbon Monoxide (CO)	8 hour	9.0 ppm (10 mg/m^3)	Non-dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—		
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	—	Gas Phase Chemi-luminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemi-luminescence
	1 Hour	0.25 ppm (470 µg/m^3)		—		
Lead	30 Days average	1.5 µg/m^3	AIHL Method 54 (12/74) Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3	Same as Primary Standard	

Table 4.5-1 (Cont): Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	—	Fluorescence	0.030 ppm (80 µg/m^3)	—	Pararosoaniline
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)	—	
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	1 Hour	0.25 ppm (655 µg/m^3)		—	—	
Visibility Reducing Particles	8 Hour (10 AM to 6 PM PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer - visibility of 10 miles or more (0.07 - 30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent. Method: ARB Method V (8/18/89).		No Federal Standards		
Sulfates	24 Hour	25 µg/m^3	Turbidimetric Barium Sulfate (AIHL Method 61 (2/76)			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Cadmium Hydroxide STRactan			
Vinyl Chloride	24-Hour	0.10 ppm (26 ug/m^3)	Gas Chomotography			

Source: California Air Resources Board and Environmental Protection Agency, 2003.

The EPA in 1997 announced new ambient air quality standards for O_3 and PM_{10}. These standards are intended to provide greater protection to public health. EPA will phase out the 1-hour O_3 standard and replace it with an 8-hour standard in 2005. With respect to PM_{10}, EPA also adopted a standard for the smaller particles, $PM_{2.5}$, or particulates less than 2.5 microns in diameter. Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the ARB to recommend adoption of the statewide $PM_{2.5}$ standard that is more stringent than the federal standard. This standard was adopted on June 20, 2002. California's $PM_{2.5}$ standard is more of a goal because it does not have specific attainment planning requirements, as is found in the federal clean air standard.

Planning and enforcement of the federal standards for $PM_{2.5}$ and for ozone (8-hour) had been put on hold through a series of legal challenges in February 2001, the U.S. Supreme Court ruled that the EPA did not require specific congressional authorization to adopt national clean air standards. The EPA agreed in November 2002 to downgrade the attainment designation for a large number of communities to "nonattainment" for the 8-hour ozone standard. Because the NCCAB meets both the

1- and 8-hour federal ozone standards, the EPA action did not substantially alter the attainment planning process for the region. $PM_{2.5}$ data collection began in 1999 in the air basin. Based upon all data collected, the basin will be designated as being in attainment for the state and federal $PM_{2.5}$ standards. The closest air monitoring station to the EGSP area is in downtown Salinas.

In the last five years, only one state measurement and no federal measurements exceeded ambient air quality standards at the Salinas monitoring station (see Table 4.5-2). The only recorded violation was the state standard for PM_{10} in 1999, which was likely associated with the wildfires in the Los Padres National Forest. The wildfires are not considered representative of normal ambient conditions. Therefore, since the air quality in the project area is generally good, the goal is to maintain the air quality status rather than implementing control programs to achieve attainment.

Table 4.5-2: Project Area (Salinas) Air Quality Summary (Days Exceeding Standards and Maximum Observed Concentrations)

Pollutant/Standard	No. of Days in 1998	No. of Days in 1999	No. of Days in 2000	No. of Days in 2001	No. of Days in 2002
Ozone					
1-Hour > 0.09 ppm (S)	0	0	0	0	0
1-Hour > 0.12 ppm (F)	0	0	0	0	0
8-Hour > 0.09 ppm (F)	0	0	0	0	0
Max. 1-Hour Concentration (ppm)	0.06	0.06	0.08	0.08	0.08
Carbon Monoxide					
1-Hour > 20 ppm (S)	0	0	0	0	0
8-Hour > 9 ppm (S,F)	0	0	0	0	0
Max. 1-Hour Concentration (ppm)	3.8	3.8	3.5	3.3	2.3
Max. 8-Hour Concentration (ppm)	2.2	1.8	1.4	1.6	1.4
Nitrogen Dioxide					
1-Hour > 0.25 ppm (S)	0	0	0	0	0
Max. 1-Hour Concentration (ppm)	0.08	0.05	0.07	0.04	0.05
Inhalable Particulates (PM_{10})					
24-Hour > 50 $\mu g/m^3$ (S)	1/61	1/60	0/62	1/75	0/63
24-Hour > 150 $\mu g/m^3$ (F)	0/61	0/60	0/62	0/75	0/63
Max. 24-Hour Concentration ($\mu g/m^3$)	53.	51.	37.	51.	46.
Ultra-Fine Particulates ($PM_{2.5}$)					
24-Hour > 65 $\mu g/m^3$ (F)	—	0/102	0/73	0/58	0/61
Max. 24-Hour Concentration	—	30.8	26.4	25.6	23.5

Final 2003 data was not yet published at the time of this analysis.
Numbers expressed as ratios are the number of days exceeding the standards to the number of samples taken.
— Missing data or no measurements.
(S)=State Standard (F)=Federal Standard
Source: Giroux & Associates, September 2004.

AIR QUALITY PLANNING

The federal 1-hour ozone standard was achieved in 1990 in the NCCAB. Consistent with federal attainment planning guidelines, the MBUAPCD prepared a Re-designation Request and Maintenance Plan for the NCCAB.

The EPA redesignated the basin to a "maintenance area" in March 1997, for the 1-hour federal ozone standard. The basin is an attainment or unclassified area for all other national AAQS.

The air basin is classified as a moderate non-attainment air basin for the more stringent 1-hour state ozone standard. The basin is also in non-attainment for the state PM_{10} standard. As noted above, these standards are typically met in the project area. Ozone violations occur mainly at the Pinnacles air monitoring station due to pollution spillover from Santa Clara County. PM_{10} violations are more widespread, but occur most frequently at Davenport and Moss Landing due to agricultural operations in close proximity to the monitoring stations.

Planning for attainment of state standards is embodied in the MBUAPCD's *1991 Air Quality Management Plan* (AQMP). The 1997 update demonstrates that the 20 percent reduction target in ozone precursor emissions from the 1987 baseline has been met and that no new control measures (contingency measures) are needed beyond those already in the plan. The 2000 AQMP update for state standards concluded that the NCCAB will remain on the borderline between attainment and nonattainment of the state 1-hour ozone standard. A combination of meteorological variability, pollution transport from outside the air basin and local sources will all contribute to a continuing small number of violations.

Planning for PM_{10} attainment is conducted separately from ozone planning. Reports by the MBUAPCD indicate that basin-wide attainment of the PM_{10} standard due to in-basin sources was likely within this decade. The effects of local contamination and "natural" sources such as sea salt or smoke may maintain isolated PM_{10} "hot spots" beyond 2010.

A general development project such as the EGSP relates to the air quality planning process through consistency with growth projections for the region. If the project represents an increment of growth that has been forecast by the Association of Monterey Bay Area Governments (AMBAG), then the project will not interfere with regional attainment of state air quality standards and maintenance of federal standards. Therefore, consistency with growth projections is a threshold of significance that must be evaluated during the CEQA process.

4.5.2 Project Impacts and Mitigation Measures

THRESHOLDS OF SIGNIFICANCE

The EGSP project is considered to have a significant impact upon air quality if it will:

- Conflict with or obstruct implementation of the applicable air quality plan,;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality

standard (including releasing emissions which exceed quantitative thresholds for ozone precursors;

- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people; or
- Many air pollutants require additional chemical transformations to reach their most unhealthful form. Emissions from any single project are diluted to immeasurably small levels by the time this process is completed. The MBUAPCD has therefore developed emissions-based threshold guidelines as defining "substantial" even if the actual resulting ambient air quality is typically not directly quantifiable. The following daily project-related emissions are considered individually and cumulatively significant.

Particulate Matter (PM_{10}) ..... 82 lb
Reactive Organic Gases (ROG)..... 137 lb
Nitrogen Oxides (NOx) ..... 137 lb
Sulfur Oxides (SOx) ..... 150 lb
Carbon Monoxide (CO)..... 550 lb

METHODOLOGY

Giroux & Associates prepared an *Air Quality Analysis* for the EGSP project. Projects such as the EGSP, generally impact air quality through generation of additional automotive emissions. As such, Giroux & Associates obtained data from TJKM Transportation Consultants, the traffic consultant for this DSEIR (see Section 4.4, Transportation and Circulation). Data included level of service (LOS), average daily vehicle trips, and turning movements at project area intersections. This information was used to determine the operational emissions of the proposed project. In addition, Giroux & Associates analyzed secondary emissions during the short-term construction phases of the proposed project.

IMPACT ANALYSIS AND MITIGATION MEASURES

Air Quality Management Plan

Impact 4.5-A **Implementation of the EGSP is considered consistent with applicable air quality plans and policies. (Less than Significant)**

Determination of project consistency with the 2000 AQMP is necessary to identify project impacts on air quality and to meet CEQA requirements. The AQMP incorporates population forecasts that are based on vacant land, General Plan land use designations, development potential, and expected annual rates of growth. For a primarily residential project, consistency with the AQMP is determined by comparing the project population with the population forecasts for the applicable jurisdiction and year of project completion. A proposed project is consistent with the AQMP if the population increase resulting from the project will not cause the estimated cumulative population to be exceeded for the year of project completion.

The AMBAG's population forecasts for the NCCAB for the unincorporated portion of Monterey County are shown below:

Years	Increased Number of Residents
2000 to 2005	9,831
2005 to 2010	-4,598
2010 to 1015	9,291
2015 to 2020	9,291
2000 to 2020	23,815
Yearly average	**1,191/year**

The proposed development of 1,470 homes and up to an additional 4,337 residents, when phased over several years, is consistent with overall growth projections. The project represents slightly over 20 percent of the anticipated growth in unincorporated areas of Monterey County in the next 15 years. The EGSP project will result in a population increase that is within the growth accommodated for by the AQMP between 2005 and 2020. Therefore, the EGSP project is consistent with the 2000 AQMP. By virtue of such consistency, the project is not considered to have a cumulatively significant impact in conjunction with all anticipated regional growth.

Mitigation Measures

4.5-A-1 No mitigation measures are necessary.

Significance After Mitigation

Less than significant.

Short-Term Construction Emissions

Impact 4.5-B	**Implementation of the EGSP will result in the generation of temporary air emissions from earth moving activities (i.e., excavation, grading, demolition, and vehicle travel) and vehicle and equipment exhaust. (Significant and Unavoidable)**

Development of roads, driveways, building pads, and structures will create temporary emissions of fugitive dust from soil disturbance and combustion emissions from onsite construction equipment and from offsite trucks moving dirt, delivering construction materials, and from worker travel to and from the site during construction. The MBUAPCD, in its *CEQA Air Quality Guidelines Revised 2002*, states that construction equipment emissions have been incorporated and are accounted for in the 2000 AQMP as a specific source category. The only recommended analysis element for construction in the MBUAPCD's guidelines is for dust created by soil disturbance and off-road equipment travel.

The air district recommends use of a detailed evaluation of PM_{10} emissions during construction that breaks down various activities into miles of travel on paved or unpaved surfaces, and amount of material handled, stockpiled, or transported on any given day. This breakdown involves information on soil silt content, vehicle speed, equipment weight, wind speed, drop heights, and other details that vary from minute to minute and day by-day. There is not enough project-specific information on proposed site development that would allow for such a detailed assessment without a great deal of speculation. Therefore, "default" assumptions on dust generation have been used to assess construction-related PM_{10} emissions.

MBUAPCD guidelines distinguish between projects with major earthwork versus those with minimal required grading. Implementation of the EGSP, because of its size, will be a "major grading" project. The daily PM_{10} emissions from an earthmoving project of this size are estimated to be 38 pounds per day, per acre disturbed. A disturbance area exceeding 2.2 acres may cause the daily PM_{10} significance threshold of 82 pounds per day to be exceeded. The disturbance area threshold is based

upon the use of routine watering as the only dust mitigation measure. With the use of best available control measures (BACM) for PM_{10}, a somewhat larger area could be under daily disturbance while maintaining PM_{10} emissions at less than 82 pounds per day. With the use of BACMs, ARB's emissions estimates[3] suggest that the major earthmoving emission factor of 38 pounds per day could be reduced to the "minimal earthmoving" factor of 10 pounds per day. The ARB uses the 10 pound per day estimate for all construction projects in the NCCAB assuming that use of BACMs is a standard requirement.

The Monterey County Planning and Building Inspection Department (MCPBID) requires that the monthly maximum grading disturbance area of a project shall be maintained at 8.1 acres or less. The MCPBID is responsible for monitoring this mitigation measure. This limited acreage is feasible for smaller projects, but would not be feasible for construction of the EGSP.

In addition to smaller particles that will remain suspended in the air semi-indefinitely, construction dust comprises large diameter inert silicates that are chemically non-reactive and are filtered out by human breathing passages. They settle out again soon after they are released into the air. These fugitive dust particles are, therefore, more of a potential soiling nuisance as they settle out on parked cars, landscape foliage or outdoor furniture rather than any adverse health hazard.

Construction equipment exhaust emissions have been included in the basin inventory of off-road sources, and thus are not "new" emissions. Diesel-powered equipment, however, generates small amounts of diesel particulate matter (DPM), especially for poorly tuned equipment. DPM is a potent carcinogen. Excess cancer risk from TACs is calculated based upon an outdoor exposure for 24 hours per day, 365 days per year, for the next 70 years. Construction equipment DPM will be released for only a limited time with a large distance buffer to the nearest homes under predominant winds from the northwest. Daytime ventilation in the project vicinity is very strong. The combined effects of limited duration, a large buffer distance and excellent daytime mixing will maintain DPM impacts at less-than-significant.

Mitigation Measures

4.5-B-1 The use of best available control measures (BACMs) shall be required during grading operations. BACMs that shall be incorporated into the project, as approved by the MCPBID, are described below. The MCPBID is responsible for monitoring the following BACMs, associated with this measure:

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 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, with water sweepers, all paved access roads, parking areas and staging areas at construction sites.

[3] www.arb.ca.gov/emisinv/areasrc.

- Sweep streets daily, with water sweepers, if visible soil materials are carried onto adjacent public streets.
- Enclose, cover, water twice daily, or apply non-toxic soil binders to exposed stockpiles, such as dirt, sand, etc.
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.

Significance After Mitigation

Even with implementation of the above mitigation measures, project grading would be greater than 8.1 acres per month; therefore, this impact would be significant and avoidable.

Long-Term Operational Emissions

Impact 4.5-C	**Implementation of the EGSP will result in an increase in air emissions (i.e., vehicle and operational) within the project area, which will contribute to an exceedance in Monterey Bay Unified Air Pollution Control District (MBUAPCD) thresholds for four of the five "criteria pollutants." (Significant and Unavoidable)**

Total operational emissions include all emissions from motor vehicle use associated with the proposed project and area source emissions (including offsite emissions), which is based on land use data in the EGSP.

Stationary source emissions (i.e., area source emissions) would be generated due to an increased demand for electrical energy and natural gas consumption with the operation of the proposed project. This assumption is based on the supposition that those power plants supplying electricity to the site continue to use fossil fuels. Electric power generating plants are found in the NCCAB and western United States and their emissions contribute to the total regional pollutant burden. The primary use of natural gas by the proposed land uses would be for combustion space heating and water heating. As shown on Table 4.5-3, stationary source emissions generated directly from the natural gas consumption or indirectly from the power plant would not exceed MBUAPCD "criteria pollutant" thresholds. Area sources also include a variety of miscellaneous residential sources from household products, paints and solvents, herbicides/pesticides, landscape maintenance equipment and recreational fires for cooking, warmth, or ambiance.

However, the primary source of long-term operational emissions associated with the proposed project is motor vehicle trips to, from, and within the site. Generally, vehicle trips associated with the project are home-work trips, home-shopping trips, home-school trips, visitors, and deliveries. The number of trips associated with proposed land uses on the site is approximately 13,690 trips per day at full project buildout. The emissions associated with this level of trip-making, and the associated "area source" emissions, were calculated using the ARB's URBEMIS2002 computer model assuming a year 2005 as a worst-case buildout scenario. This model predicts ROG, NOx, and PM_{10} emissions from motor vehicle traffic associated with new or modified land uses (see Appendix E). Project trip

generation rates were based on the *Traffic Impact Study for the East Garrison Development*, July 2004, prepared by TJKM Transportation Consultants (see Appendix E,) and the URBEMIS2002 default settings. Emissions associated with motor vehicles include tailpipe and evaporative emissions. Depending upon the pollutant being addressed, the potential air quality impact may be of either regional or local concern. For example, ROG, NOx, and PM_{10} are all pollutants of regional concern (NOx and ROG react with sunlight to form O_3 or photochemical smog, and PM_{10} is readily transported by wind currents). The results for anticipated regional mobile source emissions of the proposed project are summarized in Table 4.5-3.

Table 4.5-3: Project Operational Source Emissions (2005)

Source	Emissions (pounds per day)				
	ROG	NOx	CO	PM_{10}	SOx
Mobile	188.6	191.1	1,976.7	148.3	1.6
Area Sources	75.4	18.7	25.8	0.1	0.5
TOTAL	**264.0**	**209.8**	**2,002.5**	**148.4**	**2.1**
MBUAPCD Threshold	137.0	137.0	550.0	82.0	150.0
Source: Giroux & Associates, September 2004, URBEMIS2002 Computer Model, 1470 dwelling units.					

As shown on Table 4.5-3, mobile source emissions for 4 of the 5 "criteria pollutants" analyzed are above the MBUAPCD CEQA-significance threshold. Project-related mobile emissions plus area sources range from less than 2 percent of the threshold for SOx to a maximum of 364 percent of the CO threshold. However, buildout will not occur by 2005, rather it will be phased over a number of years, with buildout estimated to be in 2012. Thus, buildout will occur with a "cleaner" vehicle fleet than in 2005. In 2012, emissions will be lower, but still not fully reduced to less-than-significant, as identified in Table 4.5-4.:

Table 4.5-4: Project Operational Source Emissions (2012)

Source	Emissions (pounds per day)				
	ROG	NOx	CO	PM_{10}	SOx
Mobile	94.0	109.0	1,020.7	148.1	1.1
Area Sources	75.4	18.7	25.8	0.1	0.6
TOTAL	**169.4**	**127.7**	**1,046.5**	**148.2**	**1.7**
MBUAPCD Threshold	137.0	137.0	550.0	82.0	150.0
Source: Giroux & Associates, September 2004, URBEMIS2002. Average of 2010 and 2015 build-out.					

Mitigation Measures

4.5-C-1 There are no mitigation measures that will create sufficient emissions reductions to achieve a less-than-significant impact. Impacts should nevertheless be mitigated to the maximum extent feasible. The following measures are recommended:

- Encourage future site access by transit or para-transit systems,
- Incorporate bicycle connections between amenities in the EGSP area,

- Wire homes with 220 volts for electrical vehicle charging,
- Wire homes with multiple data channel access to assist in-home employment.

Significance After Mitigation
Significant and unavoidable.

Local Carbon Monoxide Concentrations

Impact 4.5-D **Implementation of the EGSP will result in generating carbon monoxide (CO) emissions above established thresholds, but ambient CO levels will not exceed standards. (Less than Significant)**

Although CO emissions will be well in excess of MBUAPCD thresholds, CO is the one criterion pollutant that allows for a direct calculation of ambient exposures. A CO impact analysis, called a "hot spot" analysis, was thus performed for the project. A hot spot analysis is generally required if daily project-related CO emissions exceed 550 pounds per day, or if they cause intersections levels of service (LOS) to substantially worsen at intersections that already operate at a degraded level of service. A micro-scale CO screening procedure described in the *MBUAPCD CEQA Air Quality Guidelines* was thus conducted for any project area intersections where congestion effects may possibly create CO "hot spots." Intersections were selected based on the following criteria:

- If project traffic were to cause the LOS to worsen from "D" or better to "E" or worse, or,
- If project traffic were to increase the delay by 10 seconds or more at already congested intersections.

Calculations were made for existing conditions, assuming the project is fully built-out in 2005 (worst-case), and for future (2012) buildout. Because the guideline CO input data does not go beyond 2010, the emissions factors for 2010 were used for 2012 even though cars will be slightly "cleaner" in 2012 than in 2010 (worst-case). The micro-scale impact analysis results are shown in Table 4.5-5 for any intersections meeting the MBUAPCD analysis criteria.

The most stringent 1-hour CO standard is 20 ppm. The most stringent 8-hour CO standard is 9 ppm. Maximum 1-hour exposures resulting from the project are far below the 1-hour clean air standard. Peak 1-hour levels are substantially below the allowable 8-hour exposure. Since 8-hour CO exposures are less than the peak hour, and since even the maximum 1 hour is below the 8-hour standard local, 8-hour CO exposures will be well within acceptable levels.

Table 4.5-5: One-Hour Carbon Monoxide Concentrations (ppm)

Intersection	Existing	Existing + Project	2012*		
			No Project	Project	Cumulative[1]
AM Peak Hour					
SR 1 SB Ramp at Reservation	4.0	4.1	—	—	—
Reservation at Davis Road	4.2	4.6	—	—	—
Light Fighter at First Avenue	—	—	5.0	5.3	5.4

Table 4.5-5 (Cont.): One-Hour Carbon Monoxide Concentrations (ppm)

Intersection	Existing	Existing + Project	2012*		
			No Project	Project	Cumulative[1]
Light Fighter at Second Avenue	—	—	4.7	4.9	5.0
PM Peak Hour					
Davis Road at Blanco	6.4	6.5	—	—	—
Reservation Road at Del Monte	—	—	5.6	—	5.6
Inter-Garrison Road at New Collector	—	—	—	4.7	4.7
Reservation at Davis Road	4.2	4.7	—	—	—

[1] 2,887 Dwelling units
*Including the affects of cumulative growth.
Source: Giroux & Associates, September 2004.

Mitigation Measures

4.5-D-1 No mitigation measures are necessary.

Significance After Mitigation

Less than significant.

Emission of Other Criteria Pollutants and/or Odor Generation

Impact 4.5-E **Implementation of the EGSP may emit odor or other emissions, such as toxic air contaminants (TAC). (Less than Significant)**

Odors

As stated previously, commercial uses, which are considered "stationary point sources," may have the potential for creating objectionable odors. Projects that could emit pollutants associated with objectionable odors in substantial concentrations could also result in adverse effects if odors would cause injury, nuisance, or annoyance to considerable numbers of people, or would endanger the health or safety of the public. Because people have varying reactions to odors, the nuisance level of an odor can be difficult to identify.

Implementation of the proposed project could result in odor impacts associated with the development of approximately 75,000 square feet of commercial space adjacent to residential land uses. While the emissions from these activities are common and not generally identified as being hazardous, they may be subject to permitting requirements that call for the use of BACMs in order to eliminate or reduce the level of emissions. In addition, these sources would be subject to further regulatory requirements under the MBUAPCD beyond any requisite CEQA mitigation measures. As a result, any effects from odors resulting from implementation of the EGSP would not be adverse.

Toxic Air Contaminants

Projects that emit other criteria pollutants could have a significant impact if their total emissions cause, or substantially contribute to, the violation of state or federal AAQS. Projects that have the potential to emit TACs, could also result in significant air quality impacts.

As indicated previously, TAC emissions are controlled through federal, state, and local programs. Moreover, the MBUAPCD limits emission of, and public exposure to, TACs through a number of programs. TAC emissions from new and modified stationary sources are limited through an air toxics new source review program, which implements the MBUAPCD's policies via their permitting process for stationary sources. TAC emissions from existing sources are limited by:

- MBUAPCD's adoption and enforcement of rules aimed at specific types of sources known to emit high level of TACs (e.g., chrome plating operations); and
- Implementation of the Air Toxics "Hot Spots" Program.

Implementation of the EGSP would not generate TACs resulting in adverse effects to sensitive receptors (i.e., residential uses to the north along Reservation Road). Moreover, the project does not allow uses that include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations or dry cleaners and significant motor vehicle exhaust (e.g. diesel), which are primary sources of TACs. Moreover, the proposed project does not include locating sensitive receptors near TAC producing facilities. Any uses that would use certain quantities of hazardous materials are required to obtain a discretionary permit, which would be subject to a use-specific environmental review.

Mitigation Measures

4.5-E-1 No mitigation measures are necessary.

Significance After Mitigation

Less than significant.