Appendix D

Air Quality/Climate Change Analysis

AIR QUALITY IMPACT ANALYSIS

PCH/DEL PRADO STREET IMPROVMEMENTS

CITY OF DANA POINT, CALIFORNIA

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ATMOSPHERIC SETTING

The Saddleback Valley's climate, as with all of Southern California, is dominated by the strength and position of the semi-permanent high-pressure center over the Pacific Ocean near Hawaii. It creates cool summers, mild winters, infrequent rainfall, cool daytime sea breezes, comfortable humidity levels and ample sunshine. Unfortunately, the same atmospheric processes that create the desirable living climate combine to restrict the ability of the atmosphere to disperse the air pollution generated by the large population attracted in part by the comfortable climate. Portions of the Los Angeles Basin therefore experience some of the worst air quality in the nation for certain pollutants.

Temperatures in Dana Point average 62°F annually. Daily and seasonal oscillations of temperature are small because of the moderating effects of the nearby oceanic heat reservoir. In contrast to the steady temperature regime, rainfall is highly variable, and confined almost exclusively to the "rainy" period from early November to mid-April. Rainfall in the project area averages around 12 inches annually with January typically being the wettest month of the year.

Winds near the project site, based on long-term monitoring from the former MCAS El Toro, display several characteristic patterns. During the day, especially in summer, winds are from the west at 7-9 miles per hour. At night, especially in winter, the land becomes cooler than the ocean and an offshore wind of 3-5 miles per hour develops. After sunrise, the wind direction rotates through the southeast and south at 5-7 miles per hour until the west wind again becomes dominant in the early afternoon. One other important wind pattern occurs when a high pressure center forms over the western United States and creates strong, hot, dry, gusty, Santa Ana winds from the northeast and east across Orange County.

The net effect of the area wind pattern is that any locally generated air pollutant emissions will be carried from east to west at night and then reverse from west to east by day. Although the daytime wind-speeds are generally stronger and therefore better ventilate the project area, the offshore flow, once well-organized late in the evening and during the night, is also strong enough to minimize any significant localized air stagnation. The least ventilated period is typically during the morning and evening transition when winds become near calm until the new flow component becomes fully established.

In addition to winds that govern the horizontal rate and trajectory of any air pollutants, Southern California experiences several characteristic temperature inversions that control the vertical depth through which pollutants can be mixed. The daytime onshore flow of marine air is capped by a massive dome of warm air that acts like a giant lid over the basin. As the clean ocean air moves inland, pollutants are continually added from below without any dilution from above. As this layer slows down in inland valleys of the basin and undergoes photochemical transformations under abundant sunlight, it creates very unhealthful levels of smog (mainly ozone).

A second inversion forms at night as cool air pools in low elevations while the air aloft remains warm. Shallow radiation inversions are formed (especially in winter) that trap pollutants near intensive traffic sources such as freeways, shopping centers, etc., and form localized violations

of clean air standards called "hot spots." Although inversions are found during all seasons of the year, the regional capping inversion is far more prevalent in summer while the localized radiation inversions are strongest in winter. The strong seasonal split in inversion intensity thus contributes significantly to the completely different air quality climate found in summer in the project vicinity than in winter. Because traffic concentrations in the project area are only moderate, and because individual cars are becoming progressively "cleaner," air quality concerns in the project area are more centered on the regional, summertime intrusion of photochemical smog (ozone) rather than on any winter micro-scale stagnation conditions.

AIR QUALITY SETTING

AMBIENT AIR QUALITY STANDARDS (AAQS)

In order to gauge the significance of the air quality impacts of the proposed PCH/Del Prado Avenue Phase 1 Street Improvement project, those impacts, together with existing background air quality levels, must be compared to the applicable ambient air quality standards. These standards are 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 those people most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research has shown, however, that chronic exposure to ozone (the primary ingredient in photochemical smog) may lead to adverse respiratory health even at concentrations close to the ambient standard.

National AAQS were established in 1971 for six pollution species with states retaining the option to add other pollutants, require more stringent compliance, or to include different exposure periods. The initial attainment deadline of 1977 was extended several times in air quality problem areas like Southern California. In 2003, the Environmental Protection Agency (EPA) adopted a rule which extended and established a new attainment deadline for ozone for the year 2021. Because the State of California had established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology, there is considerable difference between state and national clean air standards. Those standards currently in effect in California are shown in Table 1. Sources and health effects of various pollutants are shown in Table 2.

The Federal Clean Air Act Amendments (CAAA) of 1990 required that the U.S. Environmental Protection Agency (EPA) review all national AAQS in light of currently known health effects. EPA was charged with modifying existing standards or promulgating new ones where appropriate. EPA subsequently developed standards for chronic ozone exposure (8+ hours per day) and for very small diameter particulate matter (called "PM-2.5"). New national AAQS were adopted in 1997 for these pollutants.

Planning and enforcement of the federal standards for PM-2.5 and for ozone (8-hour) were challenged by trucking and manufacturing organizations. In a unanimous decision, the U.S. Supreme Court ruled that EPA did not require specific congressional authorization to adopt national clean air standards. The Court also ruled that health-based standards did not require preparation of a cost-benefit analysis. The Court did find, however, that there was some inconsistency between existing and "new" standards in their required attainment schedules. Such attainment-planning schedule inconsistencies centered mainly on the 8-hour ozone standard. EPA subsequently agreed to downgrade the attainment designation for a large number of communities to "non-attainment" for the 8-hour ozone standard.

Evaluation of the most current data on the health effects of inhalation of fine particulate matter prompted the California Air Resources Board (ARB) to recommend adoption of the statewide PM-2.5 standard that is more stringent than the federal standard. This standard was adopted in 2002. The State PM-2.5 standard is more of a goal in that it does not have specific attainment planning requirements like a federal clean air standard, but only requires continued progress towards attainment.

Similarly, the ARB extensively evaluated health effects of ozone exposure. A new state standard for an 8-hour ozone exposure was adopted in 2005, which aligned with the federal 8-hour standard. The California 8-hour ozone standard of 0.07 ppm is more stringent than the federal 8-hour standard of 0.075 ppm. The state standard, however, does not have a specific attainment deadline. California air quality jurisdictions are required to make steady progress towards attaining state standards, but there are no hard deadlines or any consequences of non-attainment. During the same re-evaluation process, the ARB adopted an annual state standard for nitrogen dioxide (NO_2) that is more stringent than the corresponding federal standard, and strengthened the state one-hour NO_2 standard.

As part of EPA's 2002 consent decree on clean air standards, a further review of airborne particulate matter (PM) and human health was initiated. A substantial modification of federal clean air standards for PM was promulgated in 2006. Standards for PM-2.5 were strengthened, a new class of PM in the 2.5 to 10 micron size was created, some PM-10 standards were revoked, and a distinction between rural and urban air quality was adopted.

In response to continuing evidence that ozone exposure at levels just meeting federal clean air standards is demonstrably unhealthful, EPA has proposed a further strengthening of the 8-hour standard. Draft standards have been published. The likely future 8-hour standard will be 0.065 ppm. Environmental organizations generally praise this proposal. Most manufacturing, transportation or power generation groups oppose the new standard as economically unwise in an uncertain fiscal climate.

A new federal one-hour standard for nitrogen dioxide (NO_2) has also recently been adopted. This standard is more stringent than the existing state standard. Based upon air quality monitoring data in the South Coast Air Basin, the basin will likely be designated as "non-attainment" for the national one-hour standard. That designation will require the inclusion of NO_2 in the basin air quality management plan.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.075 ppm (147 µg/m³)		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		Revoked (2006)		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetic Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	15 µg/m³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		–	–	–
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m³)		0.100 ppm (189 µg/m³)		
Lead	30-Day average	1.5 µg/m³	Atomic Absorption	–	–	–
	Calendar Quarter	–		1.5 µg/m³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	–	Ultraviolet Fluorescence	0.030 ppm (80 µg/m³)	–	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (365 µg/m³)	–	
	3 Hour	–		–	0.5 ppm (1,300 µg/m³)	
	1 Hour	0.25 ppm (655 µg/m³)		–	–	
Visibility Reducing Particles	8 Hour	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 relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

California ARB (06/26/08)

Table 2

Health Effects of Major Criteria Pollutants

Pollutants	Sources	Primary Effects
Carbon Monoxide (CO)	• Incomplete combustion of fuels and other carbon-containing substances, such as motor exhaust. • Natural events, such as decomposition of organic matter.	• Reduced tolerance for exercise. • Impairment of mental function. • Impairment of fetal development. • Death at high levels of exposure. • Aggravation of some heart diseases (angina).
Nitrogen Dioxide (NO_2)	• Motor vehicle exhaust. • High temperature stationary combustion. • Atmospheric reactions.	• Aggravation of respiratory illness. • Reduced visibility. • Reduced plant growth. • Formation of acid rain.
Ozone (O_3)	• Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	• Aggravation of respiratory and cardiovascular diseases. • Irritation of eyes. • Impairment of cardiopulmonary function. • Plant leaf injury.
Lead (Pb)	• Contaminated soil.	• Impairment of blood function and nerve construction. • Behavioral and hearing problems in children.
Fine Particulate Matter (PM-10)	• Stationary combustion of solid fuels. • Construction activities. • Industrial processes. • Atmospheric chemical reactions.	• Reduced lung function. • Aggravation of the effects of gaseous pollutants. • Aggravation of respiratory and cardio respiratory diseases. • Increased cough and chest discomfort. • Soiling. • Reduced visibility.
Fine Particulate Matter (PM-2.5)	• Fuel combustion in motor vehicles, equipment, and industrial sources. • Residential and agricultural burning. • Industrial processes. • Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides, and organics.	• Increases respiratory disease. • Lung damage. • Cancer and premature death. • Reduces visibility and results in surface soiling.
Sulfur Dioxide (SO_2)	• Combustion of sulfur-containing fossil fuels. • Smelting of sulfur-bearing metal ores. • Industrial processes.	• Aggravation of respiratory diseases (asthma, emphysema). • Reduced lung function. • Irritation of eyes. • Reduced visibility. • Plant injury. • Deterioration of metals, textiles, leather, finishes, coatings, etc.

Source: California Air Resources Board, 2002.

BASELINE AIR QUALITY

Existing and probable future levels of air quality in the project area can be best inferred from ambient air quality measurements conducted by the South Coast Air Quality Management District (SCAQMD) at its Mission Viejo monitoring station at 26081 Via Para. This station was previously located for many years in El Toro. Monitoring at this station includes both regional pollutants such as dust and smog, as well as primary vehicular pollutants such as carbon monoxide. Table 3 summarizes the last seven years of published data from this monitoring station. Although the entire spectrum of air pollutants is not monitored at the Mission Viejo station, the following conclusions can be drawn from this data:

a. Photochemical smog (ozone) levels occasionally exceed standards. The former Federal one-hour standard has been exceeded only 7 times within the last five years of data, while the new 8-hour state ozone standard has been exceeded an average of 20 times a year in the past seven years. The 1-hour state standard has been violated an average of 9 times per year for the last seven years (3% of all days) near Mission Viejo. Years 2005 and 2007 were the cleanest years of recent years; however the frequency of violations rose in subsequent years. While ozone levels are still high, they are much lower than 10 to 20 years ago. For several years, El Toro had the worst smog of any station in Orange County. In the last several years, however, Mission Viejo, and by inference all of South Orange County, had some of the lowest smog readings on record.

b. Measurements of carbon monoxide have shown very low baseline levels in comparison to the most stringent one- and eight-hour standards.

c. Respirable dust (PM-10) levels periodically exceed the state standard, but the less stringent federal PM-10 standard has never been violated since PM-10 measurements began at El Toro/ Mission Viejo. There were three violations of the state PM-10 standard in 2007, the most since 2002, but none in 2008.

d. No violations of the recently revoked federal ultra-fine particulate (PM-2.5) standard of 65 $\mu g/m^3$ have been recorded in seven years of measurements. However, the recently adopted, more stringent standard of 35 $\mu g/m^3$ has been exceeded an average of 1.3 percent of all measurement days, but none in 2008, the most recent year with published data.

Although complete attainment of every clean air standard is not yet imminent, extrapolation of the steady improvement trend suggests that such attainment could occur within the reasonably near future.

Table 3

Air Quality Monitoring Summary (2002-2008)

(Number of Days Standards Were Exceeded, and Maximum Levels During Violations)

(Entries shown as ratios = samples exceeding standard/samples taken)

Pollutant/Standard	2002	2003	2004	2005	2006	2007	2008
Ozone							
1-Hour > 0.09 ppm (S)	9	16	11	3	13	5	9
1-Hour > 0.12 ppm (F)*	2	4	0	1	0	n/a	n/a
8-Hour > 0.07 ppm (S)	14	27	32	10	23	10	25
8- Hour > 0.075 ppm (F)	1	8	4	1	6	5	15
Max. 1-Hour Conc. (ppm)	0.14	0.15	0.12	0.12	0.12	0.11	0.12
Max. 8-Hour Conc. (ppm)	0.093	0.105	0.090	0.085	0.105	0.090	0.104
Carbon Monoxide							
1-hour > 20. ppm (S)	0	0	0	0	0	0	0
8- Hour > 9. ppm (S,F)	0	0	0	0	0	0	0
Max 1-hour Conc. (ppm)	3.4	2.5	2.0	2.0	2.0	3.0	2.0
Max 8-hour Conc. (ppm)	1.9	1.6	1.6	1.6	1.8	2.1	1.1
Inhalable Particulates (PM-10)							
24-hour > 50 $\mu g/m^3$ (S)	5/60	2/57	0/57	0/55	1/50	3/58	0/55
24-hour > 150 $\mu g/m^3$ (F)	0/60	0/57	0/57	0/55	0/50	0/58	0/55
Max. 24-Hr. Conc. ($\mu g/m^3$)	80.	64.	47.	31.	57.	74.	42.
Ultra-Fine Particulates (PM-2.5)							
24-Hour > 65 $\mu g/m^3$ (F)	0/119	0/109	0/111	0/114	0/106	0/98	0/120
24-Hour > 35 $\mu g/m^3$ (F)**	4/119	3/109	3/111	0/114	1/106	2/98	0/120
Max. 24-Hr. Conc. ($\mu g/m^3$)	58.	51.	49.	35.	47.	47.	33.

* standard revoked in 2006 ** revised standard adopted in 2006

Source: South Coast Air Quality Management District, Mission Viejo Monitoring Station.
Preliminary 2008 data: www.arb.ca.gov/adam/

AIR QUALITY PLANNING

The Federal Clean Air Act (1977 Amendments) required that designated agencies in any area of the nation not meeting national clean air standards must prepare a plan demonstrating the steps that would bring the area into compliance with all national standards. The SCAB could not meet the deadlines for ozone, nitrogen dioxide, carbon monoxide, or PM-10. In the SCAB, the agencies designated by the governor to develop regional air quality plans are the SCAQMD and the Southern California Association of Governments (SCAG). The two agencies first adopted an Air Quality Management Plan (AQMP) in 1979 and revised it several times as earlier attainment forecasts were shown to be overly optimistic.

The 1990 Federal Clean Air Act Amendment (CAAA) required that all states with air-sheds with "serious" or worse ozone problems submit a revision to the State Implementation Plan (SIP). Amendments to the SIP have been proposed, revised and approved over the past decade. The most current regional attainment emissions forecast for ozone precursors (ROG and NOx) and for carbon monoxide (CO) and for particulate matter are shown in Table 4. Substantial reductions in emissions of ROG, NOx and CO are forecast to continue throughout the next several decades. Unless new particulate control programs are implemented, PM-10 and PM-2.5 are forecast to slightly increase.

The Air Quality Management District (AQMD) adopted an updated clean air "blueprint" in August 2003. The 2003 AQMP was approved by the EPA in 2004. The Air Quality Management Plan (AQMP) outlined the air pollution measures needed to meet federal health-based standards for ozone by 2010 and for particulates (PM-10) by 2006. The 2003 AQMP was based upon the federal one-hour ozone standard which was revoked late in 2005 and replaced by an 8-hour federal standard. Because of the revocation of the hourly standard, a new air quality planning cycle was initiated.

With re-designation of the air basin as non-attainment for the 8-hour ozone standard, a new attainment plan was developed. This plan shifted most of the one-hour ozone standard attainment strategies to the 8-hour standard. As previously noted, the attainment date will "slip" from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal PM-2.5 standard.

Because projected attainment by 2021 requires control technologies that do not exist yet, the SCAQMD has requested a voluntary "bump-up" from a "severe non-attainment" area to an "extreme non-attainment" designation for ozone. An extreme designation would allow a longer time period for these technologies to develop. If attainment cannot be demonstrated within the specified deadline without relying on "black-box" measures, EPA would be required to impose sanctions on the region. With an anticipated further strengthening of the federal eight-hour ozone standard, action on the bump-up request may be delayed until possible new standards are finalized. If/when that happens, new planning deadlines will be adopted.

Table 4

South Coast Air Basin Emissions Forecasts (Emissions in tons/day)

Pollutant	2005[a]	2010[b]	2015[b]	2020[b]
NOx	985	742	580	468
ROG	735	576	526	505
CO	4124	2950	2476	2203
PM-10	281	286	297	307
PM-2.5	103	102	102	103

[a]2005 Base Year.
[b]With current emissions reduction programs and adopted growth forecasts.

Source: California Air Resources Board, The 2009 California Almanac of Emission & Air Quality.

The currently applicable AQMP was adopted in June 2007, after extensive public review. The 2007 AQMP recognizes the interaction between photochemical processes that create both ozone and the smallest airborne particulates (PM-2.5). The 2007 AQMP is therefore a coordinated plan for both pollutants. Key emissions reductions strategies in the updated air quality plan include:

- Ultra-low emissions standards for both new and existing sources (including on-and-off-road heavy trucks, industrial and service equipment, locomotives, ships and aircraft).
- Accelerated fleet turnover to achieve benefits of cleaner engines.
- Reformulation of consumer products.
- Modernization and technology advancements from stationary sources (refineries, power plants, etc.)

Projects such as the proposed PCH/Del Prado Avenue Street Improvement project do not directly relate to the AQMP in that there are no specific air quality programs or regulations governing transportation system improvement projects. If a proposed project is consistent with the local transportation master plan, it will not induce patterns of growth not already anticipated in the AQMP. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant just because the proposed development is consistent with regional growth projections. Air quality impact significance for the proposed project has therefore been analyzed on a project-specific basis.

AIR QUALITY IMPACT

STANDARDS OF SIGNIFICANCE

Air quality impacts are considered "significant" if they cause clean air standards to be violated where they are currently met, or if they "substantially" contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, would also be considered a significant impact.

Appendix G of the California CEQA Guidelines offers the following five tests of air quality impact significance. A project would have a potentially significant impact if it:

a. Conflicts with or obstructs implementation of the applicable air quality plan.

b. Violates any air quality standard or contributes substantially to an existing or projected air quality violation.

c. Results in a cumulatively considerable net increase of any criteria pollutants 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).

d. Exposes sensitive receptors to substantial pollutant concentrations.

e. Creates objectionable odors affecting a substantial number of people.

Primary Pollutants

Air quality impacts generally occur on two scales of motion. Near an individual source of emissions or a collection of sources such as a crowded intersection or parking lot, levels of those pollutants that are emitted in their already unhealthful form will be highest. Carbon monoxide (CO) is an example of such a pollutant. Primary pollutant impacts can generally be evaluated directly in comparison to appropriate clean air standards. Violations of these standards where they are currently met, or a measurable worsening of an existing or future violation, would be considered a significant impact. Many particulates, especially fugitive dust emissions, are also primary pollutants. Because of the non-attainment status of the South Coast Air Basin (SCAB) for PM-10, an aggressive dust control program is required to control fugitive dust during project construction.

Secondary Pollutants

Many pollutants, however, require time to transform from a more benign form to a more unhealthful contaminant. Their impact occurs regionally far from the source. Their incremental

regional impact is minute on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of significance of such emissions is based upon a specified amount of emissions (pounds, tons, etc.) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the South Coast Air Quality Management District (SCAQMD) has designated significant emissions levels as surrogates for evaluating regional air quality impact significance independent of chemical transformation processes. Projects with daily emissions that exceed any of the following emission thresholds are recommended by the SCAQMD to be considered significant under CEQA guidelines:

Table 5

SCAQMD Emissions Significance Thresholds(pounds/day)

Pollutant	Emissions (Construction)
ROG	75
NOx	100
CO	550
PM-10	150
PM-2.5	55
SOx	150
Lead	3

Source: SCAQMD CEQA Air Quality Handbook, November, 1993 Rev.

Additional Indicators

In its CEQA Handbook, the SCAQMD also states that additional indicators should be used as screening criteria to determine the need for further analysis with respect to air quality. The additional indicators are as follows:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation

- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year.

- Project could generate vehicle trips that cause a CO hot spot.

The SCAQMD CEQA Handbook also identifies various secondary significance criteria related to toxic, hazardous or odorous air contaminants. Hazardous air contaminants are also contained within the small diameter particulate matter ("PM-2.5") fraction of diesel exhaust. Such exhaust will be generated by heavy construction equipment.

CONSTRUCTION ACTIVITY IMPACTS

Dust is typically the primary concern during construction of new infrastructure. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions." Emission rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). These parameters are not known with any reasonable certainty prior to project development and may change from day to day. Any assignment of specific parameters to an unknown future date is speculative and conjectural.

Because of the inherent uncertainty in the predictive factors for estimating fugitive dust generation, regulatory agencies typically use one universal "default" factor based on the area disturbed assuming that all other input parameters into emission rate prediction fall into midrange average values. This assumption may or may not be totally applicable to site-specific conditions on the proposed project site. As noted previously, emissions estimation for project-specific fugitive dust sources is therefore characterized by a considerable degree of imprecision.

Average daily PM-10 emissions during site grading and other disturbance are stated in the SCAQMD Handbook to be 26.4 pounds/acre. This estimate is based upon required dust control measures in effect in 1993 when the AQMD CEQA Air Quality Handbook was prepared. Rule 403 was subsequently strengthened to require use of a greater array of fugitive dust control on construction projects. All construction projects in the SCAQMD are required to use strongly enhanced control procedures. Use of enhanced dust control procedures such as continual soil wetting, use of supplemental binders, early paving, etc. can achieve a substantially higher PM-10 control efficiency. Daily emissions with use of reasonably available control measures (RACMs) for PM-10 can reduce emission levels to around ten (10) pounds per acre per day. With the use of best available control measures (BACMs) the California Air Resources Board URBEMIS2007 computer model predicts that emissions can be reduced to 2 pounds per acre per day. Because of the PM-10 non-attainment status of the air basin, construction activity dust emissions are considered to have a cumulatively significant impact. Use of BACMs is thus required even if SCAQMD individual CEQA thresholds are not exceeded by use of RACMs.

Current research in particulate-exposure health suggests that the most adverse effects derive from ultra-small diameter particulate matter comprised of chemically reactive pollutants such as sulfates, nitrates or organic material. A national clean air standard for particulate matter of 2.5 microns or smaller in diameter (called "PM-2.5") was adopted in 1997. A limited amount of construction activity particulate matter is in the PM-2.5 range. PM-2.5 emissions are estimated by the SCAQMD to comprise 20.8 percent of PM-10. Other studies have shown that the fugitive

dust fraction of PM-2.5 is closer to 10 percent. Daily PM-2.5 emissions during construction with the use of BACMs will be approximately 2 pounds per day compared to the SCAQMD CEQA significance threshold of 55 pounds per day.

In addition to fine particles that remain suspended in the atmosphere semi-indefinitely, construction activities generate many larger particles with shorter atmospheric residence times. This dust is comprised mainly of large diameter inert silicates that are chemically non-reactive and are further readily filtered out by human breathing passages. These fugitive dust particles are therefore more of a potential soiling nuisance as they settle out on parked cars, outdoor furniture or landscape foliage rather than any adverse health hazard. The deposition distance of most soiling nuisance particulates is less than 100 feet from the source (EPA, 1995). There are several sensitive receptors within 100 feet from the primary construction site. Required use of BACMs will minimize generation of large diameter particulate matter as well as controlling PM-10/PM-2.5. Dust nuisance effects will be mitigated by control measures and by the temporary duration of construction activities near any individual receiver location.

Exhaust emissions will result from on and off-site heavy equipment. The types and numbers of equipment will vary among contractors such that such emissions cannot be quantified with certainty. Equipment exhaust emissions were calculated presuming that initial clearing will gradually shift toward grading and paving and finally for finish drainage, utility installation, roadway striping and landscaping, etc. Grading acrtivities (which provide fugitive dust exposure) will only occur in the parkway and entry areas and not in the main roadways where paving is the predominant activity. The URBEMIS2007 computer model was used to calculate emissions from the following prototype construction equipment fleet:

Project Equipment Fleet

Hardscape Resurface	1 Backhoe
	1 Air Compressor
	1 Paving Machine
	2 Rollers
	1 Water Truck
	1 Concrete Mixer
	1 Signal Board
	1 Concrete Saw
	1 Skip Loader
	1 Sweeper
	1 Dump Truck
Underground Utilities (dry)	1 Trencher
	1 Skip Loader
	1 Compactor
	1 Backhoe
	Dump Trucks
	1 Sweeper
Underground Utilities (wet)	1 Backhoe
	1 Rubber Tired Loader
	1 Compactor
	1 Air Compressor
	Dump Trucks
	1 Sweeper
Landscape Improvements	1 Backhoe
	1 Skid Steer Loader
	1 Concrete Saw
	1 Welder
Signals, Signage, Striping	1 Aerial Lift
	1 Welder
	1 Forklift
	1 Crane
	1 Skid Steer Loader
	1 Paving Equipment
	1 Concrete Saw
	1 Sweeper

Utilizing the above equipment fleet the following emissions are calculated by URBEMIS2007 for the year 2011. Because URBEMIS assumes construction equipment becomes progressively cleaner in the future, this provides a worst case estimate. If construction occurs after 2011, emissions will be slightly lower.

Table 74

Construction Activity Emissions (pounds/day)

Activity	ROG	NOx	CO	SO_2	PM-10	PM-2.5	CO_2
Hardscape/Resurface							
No Mitigation	4.3	27.8	17.6	0.0	2.6	2.1	2,920.4
With Mitigation	4.3	27.8	17.6	0.0	2.6	2.1	2,920.4
Underground Utilities (Dry)							
No Mitigation	2.5	14.3	10.3	0.0	23.8	5.9	1,463.6
With Mitigation	2.5	14.3	10.3	0.0	2.8	1.5	1,463.6
Underground Utilities (Wet)							
No Mitigation	2.4	16.0	11.0	00	23.8	5.9	1,696.9
With Mitigation	2.4	16.0	11.0	00	2.9	1.5	1,696.9
Landscape Improvements							
No Mitigation	2.1	10.0	8.0	0.0	0.9	0.8	1,092.6
With Mitigation	2.1	10.0	8.0	0.0	0.9	0.8	1,092.6
Signals, Signage and Striping							
No Mitigation	5.9	38.8	40.4	0.1	2.6	2.2	7,495.3
With Mitigation	5.9	38.8	40.4	0.1	2.6	2.2	7,495.3
SCAQMD Threshold	75	100	550	150	150	55	-

Source: URBEMIS2007 Model, Output in Appendix

Peak daily construction activity emissions will be below SCAQMD CEQA thresholds. Nevertheless, because of the basin's non-attainment status for PM-10/PM-2.5, SCAQMD recommends use of standard fugitive dust control mitigation measures for any project in the region. Because of the role of NOx in basin smog formation, use of reasonably available NOx control measures is also recommended. These recommended dust emissions mitigation measures are detailed in the "Mitigation" section of this report.

As previously noted, construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. Public exposure to heavy equipment emissions will be an extremely small fraction of the above dosage assumption. Diesel equipment is also becoming progressively "cleaner" in response to air quality rules on new off-road equipment.

The SCAQMD does not generally require the analysis of construction related diesel emissions relative to health risk due to the short period for which the majority of diesel exhaust would occur. The majority of diesel exhaust would occur during the estimated 10-12 months of construction activity for this project, but only briefly at any single location. Health risk analyses are typically assessed over a 9, 30 or 70 year time frame and not over a period of months due to the lack of health risk associated with such a brief exposure.

LOCALIZED SIGNIFICANCE THRESHOLDS

The SCAQMD has developed analysis parameters to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements are called Localized Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was provisionally adopted in October 2003 and formally approved by SCAQMD's Mobile Source Committee in February 2005.

Use of an LST analysis for a project is optional. For roadway improvement projects, the only source of LST impact would be during construction. LSTs are only applicable to the following criteria pollutants: oxides of nitrogen (NOx), carbon monoxide (CO), and particulate matter (PM-10 and PM-2.5). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor.

LST pollutant concentration data is currently published for 1, 2 and 5 acre sites for varying distances. LST analysis for construction is applicable for all projects of five acres and less. Although the total disturbance area is large, URBEMIS estimates that approximately 2.25 acres will be under simultaneous disturbance during the project lifecycle. Given the linear length of the project, it is unlikely that any single receptor would be exposed to a disturbance area larger than two acres. Receptors are only exposed to construction activity emissions in their immediate proximity. A two-acre maximum daily disturbance area was utilized for LST construction activities at this project site. Because thresholds are more generous for larger sites, if the project meets standards for a two-acre site, then utilizing a larger acreage would meet thresholds by a greater margin of safety.

LST screening tables are only available for 25, 50, 100, 200 and 500 meter source-receptor distances. Utilizing data for a 2 acre site and a conservative source receptor distance of 25 meters, the following thresholds and emissions are determined (pounds per day):

LST and Project Emissions

Saddleback Valley	CO	NOx	PM-10	PM-2.5
LST	993	131	6	4
Proposed Project				
Max Unmitigated	40	39	24	6
Max Mitigated	40	39	3	2

All mitigated emissions are below the LST for construction.

MICROSCALE IMPACT ANALYSIS

Micro-scale air quality impacts have traditionally been analyzed in environmental documents where the air basin was a non-attainment area for carbon monoxide (CO). CO "hot-spots" generally no longer occur in the SCAB. To verify this conclusion, a CO screening analysis was performed at closest intersections surrounding the project. One-hour CO concentrations were calculated on the sidewalk adjacent to these intersections. Peak one-hour levels (ppm above background) were as shown in Table 6.

Existing peak (2008) one-hour local CO background levels are 2.0 ppm. Combined background (2.0 ppm) plus local (1.2 ppm) equate to CO levels of 3.2 ppm which are far below the one-hour standard of 20 ppm. Worst-case one hour levels are even lower than the allowable 8-hour exposure of 9 ppm. Any reorientation of traffic associated with the proposed project would create negligible changes in local air quality. Micro-scale impacts are less than significant.

OPERATIONAL IMPACTS

The project does not result in any additional vehicle trip generation or associate mileage. Future increases in traffic levels may occur due to area build-out and are not attributed to project implementation. These possible increases would occur with or without this project. Therefore, operational impacts were not examined in this analysis.

Table 6
One-Hour CO Concentrations (ppm)
Above Background

Intersections		Existing	2015 No Proj.	2015 With Proj.	2035 No Proj.	2035 With Proj.
AM Peak Hour						
Blue Lantern/	PCH	0.9	0.7	0.7	0.2	0.3
Ruby Lantern/	PCH	0.6	0.5	0.6	0.3	0.3
Amber Lantern/	PCH	0.6	0.5	0.7	0.2	0.3
Violet Lantern/	PCH	0.6	0.5	0.7	0.2	0.3
Golden Lantern/	PCH	0.8	0.7	0.9	0.4	0.5
Copper Lantern/	PCH	0.9	0.7	1.0	0.4	0.5
Crystal Lantern/	PCH	1.2	0.9	0.9	0.5	0.5
Ruby Lantern/	Del Prado	0.5	0.4	0.1	0.2	0.1
Amber Lantern/	Del Prado	0.5	0.4	0.2	0.2	0.1
Violet Lantern/	Del Prado	0.5	0.4	0.1	0.2	0.1
Golden Lantern/	Del Prado	0.6	0.5	0.3	0.2	0.1
Del Prado/	PCH	DNE	DNE	0.6	DNE	0.3
Blue Lantern/	Alley	NA	0.0	0.0	0.0	0.0
Ruby Lantern/	Alley	NA	0.0	0.0	0.0	0.0
Amber Lantern/	Alley	NA	0.0	0.0	0.0	0.0
Violet Lantern/	Alley	NA	0.0	0.0	0.0	0.0
Golden Lantern/	Alley	NA	0.0	0.0	0.0	0.0
PM Peak Hour						
Blue Lantern/	PCH	1.1	0.9	0.9	0.5	0.5
Ruby Lantern/	PCH	0.6	0.6	0.7	0.4	0.4
Amber Lantern/	PCH	0.6	0.5	0.8	0.2	0.4
Violet Lantern/	PCH	0.6	0.6	0.9	0.3	0.5
Golden Lantern/	PCH	0.9	0.7	1.1	0.5	0.6
Copper Lantern/	PCH	1.0	0.8	1.2	0.4	0.7
Crystal Lantern/	PCH	1.3	1.1	1.1	0.6	0.6
Ruby Lantern/	Del Prado	0.6	0.6	0.1	0.5	0.1
Amber Lantern/	Del Prado	0.6	0.5	0.2	0.2	0.1
Violet Lantern/	Del Prado	0.6	0.5	0.2	0.3	0.1
Golden Lantern/	Del Prado	0.8	0.7	0.4	0.4	0.2
Del Prado/	PCH	DNE	DNE	0.9	DNE	0.4
Blue Lantern/	Alley	NA	0.0	0.0	0.0	0.0
Ruby Lantern/	Alley	NA	0.0	0.0	0.0	0.0
Amber Lantern/	Alley	NA	0.0	0.0	0.0	0.0
Violet Lantern/	Alley	NA	0.0	0.0	0.0	0.0
Golden Lantern/	Alley	NA	0.0	0.0	0.0	0.0

Source: Screening Analysis Based on CALINE4 Model
DNE=Does Not Exist NA= Not Available

GREENHOUSE GAS EMISSIONS

"Greenhouse gases" (so called because of their role in trapping heat near the surface of the earth) emitted by human activity are implicated in global climate change, commonly referred to as "global warming." These greenhouse gases contribute to an increase in the temperature of the earth's atmosphere by transparency to short wavelength visible sunlight, but near opacity to outgoing terrestrial long wavelength heat radiation in some parts of the infrared spectrum. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. For purposes of planning and regulation, Section 15364.5 of the California Code of Regulations defines GHGs to include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately half of GHG emissions globally. Industrial and commercial sources are the second largest contributors of GHG emissions with about one-fourth of total emissions.

California has passed several bills and the Governor has signed at least three executive orders regarding greenhouse gases. GHG statues and executive orders (EO) include AB 32, SB 1368, EO S-03-05, EO S-20-06 and EO S-01-07.

AB 32 is one of the most significant pieces of environmental legislation that California has adopted. Among other things, it is designed to maintain California's reputation as a "national and international leader on energy conservation and environmental stewardship." It will have wide-ranging effects on California businesses and lifestyles as well as far reaching effects on other states and countries. A unique aspect of AB 32, beyond its broad and wide-ranging mandatory provisions and dramatic GHG reductions are the short time frames within which it must be implemented. Major components of the AB 32 include:

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate "early action" control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California's GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40%, from business as usual, over the next 13 years (by 2020).
- Must complement efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

Statewide, the framework for developing the implementing regulations for AB 32 is under way. Additionally, through the California Climate Action Registry (CCAR now called the Climate Action Reserve), general and industry-specific protocols for assessing and reporting GHG emissions have been developed. GHG sources are categorized into direct sources (i.e. company owned) and indirect sources (i.e. not company owned). Direct sources include combustion

emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

Greenhouse Gas Emissions Significance Thresholds

In response to the requirements of SB97, the state Resources Agency developed guidelines for the treatment of GHG emissions under CEQA. These new guidelines became state laws as part of Title 14 of the California Code of Regulations in March, 2010.

Section 15064.4 of the Code specifies how significance of GHG emissions is to be evaluated. The process is broken down into quantification of project-related GHG emissions, making a determination of significance, and specification of any appropriate mitigation if impacts are found to be potentially significant. At each of these steps, the new GHG guidelines afford the lead agency with substantial flexibility.

Emissions identification may be quantitative, qualitative or based on performance standards. CEQA guidelines allow the lead agency to "select the model or methodology it considers most appropriate". The most common practice for transportation/combustion GHG emissions quantification is to use a computer model such as URBEMIS2007 as was used in the ensuing analysis.

The significance of those emissions then must be evaluated; the selection of a threshold of significance must take into consideration what level of GHG emissions would be cumulatively considerable. The guidelines are clear that they do not support a zero net emissions threshold. If the lead agency does not have sufficient expertise in evaluating GHG impacts, it may rely on thresholds adopted by an agency with greater expertise.

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 Metric Tons CO_2 equivalent/year. As part of the Interim GHG Significance Threshold development process for industrial projects, the SCAQMD established a working group of stakeholders that also considered thresholds for commercial or residential projects. As discussed in the Interim GHG Significance Threshold guidance document, the focus for commercial projects is on performance standards and a screening level threshold. For discussion purposes, the SCAQMD's working group considered performance standards primarily focused on energy efficiency measures beyond Title 24 and a screening level of 3,000 metric tons (MT) CO_2 equivalent/year based on the relative GHG emissions contribution between non-industrial sectors versus stationary source (industrial) sectors. The working group and staff ultimately decided that additional analysis was needed to further define the performance standards and to coordinate with CARB staff's interim GHG proposal. Staff, therefore, did not recommend action for adopting an interim threshold for non-industrial projects but rather recommended bringing this item back to the Board for discussion and possible action. As of this date, no final action on a quantitative significance threshold has been taken, but 3,000 MT per year has become a *de facto* screening threshold.

GHG Impact Analysis

GHG emissions would be potentially significant if the project would:

- Generate greenhouse gas emissions either directly or indirectly, that may have a significant impact on the environment.

- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Construction Activity GHG Emissions

During project construction, the URBEMIS2007 computer model predicts that the indicated activities will generate the following annual CO_2 emissions:

Construction Emissions

Activity	# Days of Activity	Lbs/Day CO_2	Short Tons/Year	Metric Tons/Year
Hardscape Resurface	41	2,902.4	59.87	54.43
Underground Utilities (Dry)	44	1,463.6	32.20	29.27
Underground Utilities (wet)	44	1,696.9	37.33	33.94
Landscape Improvements	43	1,092.6	23.49	21.35
Signals Signage and Striping	42	7,495.3	157.40	143.09
Total		14,688.8	310.29	282.08

Roadway Construction (tons per year)	Year 2011	310 short tons

*Output provided in appendix

Equipment exhaust also contains small amounts of methane and nitric oxides which are also GHGs. Non-CO_2 GHG emissions represent approximately a one percent increase in CO_2-equivalent emissions from diesel equipment exhaust. For screening purposes, the temporary construction activity GHG emissions were compared to the chronic operational emissions in the SCAQMD's interim thresholds. The screening level operational threshold is 3,000 metric tons (MT) of CO_2-equivalent (CO_2(e)) per year. Worst year construction activities generating a total of 310 "short tons" (281 MT) are well below this threshold.

Long-term operational GHG would depend upon the vehicle miles traveled (VM) on the affected roadway system with and without the project. On a city-wide scale, VMT generation would be almost identical for either alternative. There are no substantial long-term GHG implications associated with project implementation.

MITIGATION

CONSTRUCTION EMISSIONS MITIGATION

Construction activities are not anticipated to cause emissions to exceed SCAQMD CEQA thresholds. Nevertheless, mitigation through enhanced dust control measures is recommended for use because of the non-attainment status of the air basin. Recommended mitigation includes:

Dust Control

- Apply soil stabilizers or moisten inactive areas.
- Prepare a high wind dust control plan.
- Address previously disturbed areas if subsequent construction is delayed.
- Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically 3 times/day).
- Cover all stock piles with tarps at the end of each day or as needed.
- Provide water spray during loading and unloading of earthen materials.
- Post speed limits through construction zone and approved haul-route.
- Minimize in-out traffic from construction zone

Exhaust Emissions

Diesel exhaust particulates and NOx emissions would not have a significant impact with or without stringent emissions controls. However, the basin is non-attainment for ozone of which NOx is a precursor. Diesel particulate matter is an identified carcinogen. Reasonably available control measures should thus be adopted where possible. Recommended diesel exhaust emissions control measures include:

- Require 90-day low-NOx tune-ups for off-road equipment.
- Limit allowable idling to 5 minutes for trucks and heavy equipment.
- Utilize equipment whose engines are equipped with diesel oxidation catalysts if available.
- Utilize diesel particulate filters on heavy equipment where feasible.

APPENDIX

URBEMIS2007 Computer Model Output

- **Daily Construction Emissions**
- **Annual Construction Emissions**

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name:

Project Name: Dana Point PCH, Del Prado Improvements

Project Location: Orange County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	5.85	38.83	40.39	0.05	22.51	2.34	23.79	4.70	2.14	5.88	7,495.33
2011 TOTALS (lbs/day mitigated)	5.85	38.83	40.39	0.05	1.58	2.34	2.86	0.33	2.14	2.22	7,495.33

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 1/3/2011-2/28/2011 Active Days: 41	4.26	27.78	17.56	0.00	0.48	2.16	2.63	0.10	1.98	2.08	2,920.43
Demolition 01/01/2011-02/28/2011	4.26	27.78	17.56	0.00	0.48	2.16	2.63	0.10	1.98	2.08	2,920.43
Fugitive Dust	0.00	0.00	0.00	0.00	0.46	0.00	0.46	0.10	0.00	0.10	0.00
Demo Off Road Diesel	4.15	27.09	15.06	0.00	0.00	2.13	2.13	0.00	1.96	1.96	2,523.05
Demo On Road Diesel	0.04	0.56	0.20	0.00	0.00	0.02	0.02	0.00	0.02	0.02	86.34
Demo Worker Trips	0.07	0.13	2.29	0.00	0.01	0.01	0.02	0.01	0.01	0.01	311.04
Time Slice 3/1/2011-4/29/2011 Active Days: 44	2.45	14.26	10.28	0.00	**22.51**	1.24	23.76	**4.70**	1.14	5.85	1,463.56
Mass Grading 03/01/2011-04/30/2011	2.45	14.26	10.28	0.00	22.51	1.24	23.76	4.70	1.14	5.85	1,463.56
Mass Grading Dust	0.00	0.00	0.00	0.00	22.50	0.00	22.50	4.70	0.00	4.70	0.00
Mass Grading Off Road Diesel	2.37	13.57	8.91	0.00	0.00	1.22	1.22	0.00	1.12	1.12	1,211.71
Mass Grading On Road Diesel	0.05	0.62	0.23	0.00	0.00	0.02	0.03	0.00	0.02	0.02	96.33
Mass Grading Worker Trips	0.03	0.07	1.15	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.52
Time Slice 5/2/2011-6/30/2011 Active Days: 44	2.43	16.03	10.96	0.00	22.51	1.28	**23.79**	4.70	1.18	**5.88**	1,696.93
Fine Grading 05/01/2011-06/30/2011	2.43	16.03	10.96	0.00	22.51	1.28	23.79	4.70	1.18	5.88	1,696.93
Fine Grading Dust	0.00	0.00	0.00	0.00	22.50	0.00	22.50	4.70	0.00	4.70	0.00
Fine Grading Off Road Diesel	2.35	15.35	9.59	0.00	0.00	1.26	1.26	0.00	1.16	1.16	1,447.23
Fine Grading On Road Diesel	0.05	0.61	0.22	0.00	0.00	0.02	0.03	0.00	0.02	0.02	94.19
Fine Grading Worker Trips	0.03	0.07	1.15	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.52

Time Slice 7/1/2011-8/30/2011 Active Days: 43	2.14	10.03	8.00	0.00	0.01	0.86	0.87	0.00	0.79	0.79	1,092.62
Asphalt 07/01/2011-08/30/2011	2.14	10.03	8.00	0.00	0.01	0.86	0.87	0.00	0.79	0.79	1,092.62
Paving Off-Gas	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.93	9.45	6.66	0.00	0.00	0.83	0.83	0.00	0.77	0.77	857.49
Paving On Road Diesel	0.04	0.51	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	79.61
Paving Worker Trips	0.03	0.07	1.15	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.52
Time Slice 9/1/2011-10/28/2011 Active Days: 42	**5.85**	**38.83**	**40.39**	**0.05**	0.21	**2.34**	2.55	0.07	**2.14**	2.22	**7,495.33**
Building 09/01/2011-10/30/2011	5.85	38.83	40.39	0.05	0.21	2.34	2.55	0.07	2.14	2.22	7,495.33
Building Off Road Diesel	3.98	21.06	13.37	0.00	0.00	1.61	1.61	0.00	1.48	1.48	2,041.61
Building Vendor Trips	1.41	16.91	11.90	0.03	0.12	0.67	0.79	0.04	0.62	0.66	3,405.15
Building Worker Trips	0.46	0.87	15.11	0.02	0.10	0.06	0.15	0.03	0.05	0.08	2,048.57

Phase Assumptions

Phase: Demolition 1/1/2011 - 2/28/2011 - Hardscape Resurface

Building Volume Total (cubic feet): 2025

Building Volume Daily (cubic feet): 1100

On Road Truck Travel (VMT): 20.37

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 5/1/2011 - 6/30/2011 - Underground Utilities Wet

Total Acres Disturbed: 9

Maximum Daily Acreage Disturbed: 2.25

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 22.22

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Mass Grading 3/1/2011 - 4/30/2011 - Underground Utilities Dry

Total Acres Disturbed: 9

Maximum Daily Acreage Disturbed: 2.25

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 22.73

Off-Road Equipment:

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Paving 7/1/2011 - 8/30/2011 - Landscape Improvements

Acres to be Paved: 2.25

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Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 9/1/2011 - 10/30/2011 - Signhals Signage Striping

Off-Road Equipment:

1 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

1 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2

Time Slice 1/3/2011-2/28/2011 Active Days: 41	4.26	27.78	17.56	0.00	0.48	2.16	2.63	0.10	1.98	2.08	2,920.43
Demolition 01/01/2011-02/28/2011	4.26	27.78	17.56	0.00	0.48	2.16	2.63	0.10	1.98	2.08	2,920.43
Fugitive Dust	0.00	0.00	0.00	0.00	0.46	0.00	0.46	0.10	0.00	0.10	0.00
Demo Off Road Diesel	4.15	27.09	15.06	0.00	0.00	2.13	2.13	0.00	1.96	1.96	2,523.05
Demo On Road Diesel	0.04	0.56	0.20	0.00	0.00	0.02	0.02	0.00	0.02	0.02	86.34
Demo Worker Trips	0.07	0.13	2.29	0.00	0.01	0.01	0.02	0.01	0.01	0.01	311.04
Time Slice 3/1/2011-4/29/2011 Active Days: 44	2.45	14.26	10.28	0.00	1.58	1.24	2.82	0.33	1.14	1.48	1,463.56
Mass Grading 03/01/2011-04/30/2011	2.45	14.26	10.28	0.00	1.58	1.24	2.82	0.33	1.14	1.48	1,463.56
Mass Grading Dust	0.00	0.00	0.00	0.00	1.57	0.00	1.57	0.33	0.00	0.33	0.00
Mass Grading Off Road Diesel	2.37	13.57	8.91	0.00	0.00	1.22	1.22	0.00	1.12	1.12	1,211.71
Mass Grading On Road Diesel	0.05	0.62	0.23	0.00	0.00	0.02	0.03	0.00	0.02	0.02	96.33
Mass Grading Worker Trips	0.03	0.07	1.15	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.52
Time Slice 5/2/2011-6/30/2011 Active Days: 44	2.43	16.03	10.96	0.00	1.58	1.28	2.86	0.33	1.18	1.51	1,696.93
Fine Grading 05/01/2011-06/30/2011	2.43	16.03	10.96	0.00	1.58	1.28	2.86	0.33	1.18	1.51	1,696.93
Fine Grading Dust	0.00	0.00	0.00	0.00	1.57	0.00	1.57	0.33	0.00	0.33	0.00
Fine Grading Off Road Diesel	2.35	15.35	9.59	0.00	0.00	1.26	1.26	0.00	1.16	1.16	1,447.23
Fine Grading On Road Diesel	0.05	0.61	0.22	0.00	0.00	0.02	0.03	0.00	0.02	0.02	94.19
Fine Grading Worker Trips	0.03	0.07	1.15	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.52

Time Slice 7/1/2011-8/30/2011 Active Days: 43	2.14	10.03	8.00	0.00	0.01	0.86	0.87	0.00	0.79	0.79	1,092.62
Asphalt 07/01/2011-08/30/2011	2.14	10.03	8.00	0.00	0.01	0.86	0.87	0.00	0.79	0.79	1,092.62
Paving Off-Gas	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.93	9.45	6.66	0.00	0.00	0.83	0.83	0.00	0.77	0.77	857.49
Paving On Road Diesel	0.04	0.51	0.19	0.00	0.00	0.02	0.02	0.00	0.02	0.02	79.61
Paving Worker Trips	0.03	0.07	1.15	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.52
Time Slice 9/1/2011-10/28/2011 Active Days: 42	**5.85**	**38.83**	**40.39**	**0.05**	0.21	**2.34**	2.55	0.07	**2.14**	2.22	**7,495.33**
Building 09/01/2011-10/30/2011	5.85	38.83	40.39	0.05	0.21	2.34	2.55	0.07	2.14	2.22	7,495.33
Building Off Road Diesel	3.98	21.06	13.37	0.00	0.00	1.61	1.61	0.00	1.48	1.48	2,041.61
Building Vendor Trips	1.41	16.91	11.90	0.03	0.12	0.67	0.79	0.04	0.62	0.66	3,405.15
Building Worker Trips	0.46	0.87	15.11	0.02	0.10	0.06	0.15	0.03	0.05	0.08	2,048.57

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 5/1/2011 - 6/30/2011 - Underground Utilities Wet

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

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The following mitigation measures apply to Phase: Mass Grading 3/1/2011 - 4/30/2011 - Underground Utilities Dry

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name:

Project Name: Dana Point PCH, Del Prado Improvements

Project Location: Orange County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	0.36	2.27	1.85	0.00	1.01	0.17	1.17	0.21	0.15	0.36	310.29
2011 TOTALS (tons/year mitigated)	0.36	2.27	1.85	0.00	0.08	0.17	0.25	0.02	0.15	0.17	310.29
Percent Reduction	0.00	0.00	0.00	0.00	91.64	0.00	78.57	91.31	0.00	52.79	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011	0.36	2.27	1.85	0.00	1.01	0.17	1.17	0.21	0.15	0.36	310.29

Demolition 01/01/2011-02/28/2011	0.09	0.57	0.36	0.00	0.01	0.04	0.05	0.00	0.04	0.04	59.87
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.08	0.56	0.31	0.00	0.00	0.04	0.04	0.00	0.04	0.04	51.72
Demo On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.77
Demo Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.38
Mass Grading 03/01/2011-04/30/2011	0.05	0.31	0.23	0.00	0.50	0.03	0.52	0.10	0.03	0.13	32.20
Mass Grading Dust	0.00	0.00	0.00	0.00	0.50	0.00	0.50	0.10	0.00	0.10	0.00
Mass Grading Off Road Diesel	0.05	0.30	0.20	0.00	0.00	0.03	0.03	0.00	0.02	0.02	26.66
Mass Grading On Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12
Mass Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42
Fine Grading 05/01/2011-06/30/2011	0.05	0.35	0.24	0.00	0.50	0.03	0.52	0.10	0.03	0.13	37.33
Fine Grading Dust	0.00	0.00	0.00	0.00	0.50	0.00	0.50	0.10	0.00	0.10	0.00
Fine Grading Off Road Diesel	0.05	0.34	0.21	0.00	0.00	0.03	0.03	0.00	0.03	0.03	31.84
Fine Grading On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07
Fine Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42
Asphalt 07/01/2011-08/30/2011	0.05	0.22	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	23.49
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.04	0.20	0.14	0.00	0.00	0.02	0.02	0.00	0.02	0.02	18.44
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34

Building 09/01/2011-10/30/2011	0.12	0.82	0.85	0.00	0.00	0.05	0.05	0.00	0.05	0.05	157.40
Building Off Road Diesel	0.08	0.44	0.28	0.00	0.00	0.03	0.03	0.00	0.03	0.03	42.87
Building Vendor Trips	0.03	0.36	0.25	0.00	0.00	0.01	0.02	0.00	0.01	0.01	71.51
Building Worker Trips	0.01	0.02	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.02

Phase Assumptions

Phase: Demolition 1/1/2011 - 2/28/2011 - Hardscape Resurface

Building Volume Total (cubic feet): 2025

Building Volume Daily (cubic feet): 1100

On Road Truck Travel (VMT): 20.37

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Signal Boards (15 hp) operating at a 0.78 load factor for 8 hours per day

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Fine Grading 5/1/2011 - 6/30/2011 - Underground Utilities Wet

Total Acres Disturbed: 9

Maximum Daily Acreage Disturbed: 2.25

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 22.22

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

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1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Mass Grading 3/1/2011 - 4/30/2011 - Underground Utilities Dry

Total Acres Disturbed: 9

Maximum Daily Acreage Disturbed: 2.25

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 22.73

Off-Road Equipment:

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 8 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Paving 7/1/2011 - 8/30/2011 - Landscape Improvements

Acres to be Paved: 2.25

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 9/1/2011 - 10/30/2011 - Signhals Signage Striping

Off-Road Equipment:

1 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day

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1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

1 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day

1 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011	0.36	2.27	1.85	0.00	0.08	0.17	0.25	0.02	0.15	0.17	310.29
Demolition 01/01/2011-02/28/2011	0.09	0.57	0.36	0.00	0.01	0.04	0.05	0.00	0.04	0.04	59.87
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	0.08	0.56	0.31	0.00	0.00	0.04	0.04	0.00	0.04	0.04	51.72
Demo On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.77
Demo Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.38
Mass Grading 03/01/2011-04/30/2011	0.05	0.31	0.23	0.00	0.03	0.03	0.06	0.01	0.03	0.03	32.20
Mass Grading Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Mass Grading Off Road Diesel	0.05	0.30	0.20	0.00	0.00	0.03	0.03	0.00	0.02	0.02	26.66
Mass Grading On Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12
Mass Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42

Fine Grading 05/01/2011-06/30/2011	0.05	0.35	0.24	0.00	0.03	0.03	0.06	0.01	0.03	0.03	37.33
Fine Grading Dust	0.00	0.00	0.00	0.00	0.03	0.00	0.03	0.01	0.00	0.01	0.00
Fine Grading Off Road Diesel	0.05	0.34	0.21	0.00	0.00	0.03	0.03	0.00	0.03	0.03	31.84
Fine Grading On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07
Fine Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42
Asphalt 07/01/2011-08/30/2011	0.05	0.22	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	23.49
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.04	0.20	0.14	0.00	0.00	0.02	0.02	0.00	0.02	0.02	18.44
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.34
Building 09/01/2011-10/30/2011	0.12	0.82	0.85	0.00	0.00	0.05	0.05	0.00	0.05	0.05	157.40
Building Off Road Diesel	0.08	0.44	0.28	0.00	0.00	0.03	0.03	0.00	0.03	0.03	42.87
Building Vendor Trips	0.03	0.36	0.25	0.00	0.00	0.01	0.02	0.00	0.01	0.01	71.51
Building Worker Trips	0.01	0.02	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	43.02

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 5/1/2011 - 6/30/2011 - Underground Utilities Wet

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

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PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Mass Grading 3/1/2011 - 4/30/2011 - Underground Utilities Dry

For Soil Stablizing Measures, the Apply soil stabilizers to inactive areas mitigation reduces emissions by:

PM10: 84% PM25: 84%

For Soil Stablizing Measures, the Replace ground cover in disturbed areas quickly mitigation reduces emissions by:

PM10: 5% PM25: 5%

For Soil Stablizing Measures, the Water exposed surfaces 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 2x daily watering mitigation reduces emissions by:

PM10: 55% PM25: 55%