AIR QUALITY IMPACT ANALYSIS

DIAMOND CENTER SPECIFIC PLAN

CITY OF LAKE ELSINORE, CALIFORNIA

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ATMOSPHERIC SETTING

The climate of the Lake Elsinore area in Riverside County, technically called an interior valley sub-climate of Southern California's Mediterranean-type climate, is characterized by warm summers, mild winters, infrequent rainfall, moderate afternoon breezes, and generally fair weather. The clouds and fog that form along the area's coastline rarely extend as far inland as the project area, and if they do, they usually burn off quickly after sunrise. The most important weather pattern is associated with the warm season airflow across populated areas of the Los Angeles Basin that brings polluted air into western Riverside County late in the afternoon. This transport pattern creates unhealthful air quality when the fringes of this "urban smog cloud" extend to the project site during the summer months.

Temperatures in the project area average a very comfortable 65ºF year-round, with warm summer afternoons (95+ degrees) and often cool winter mornings (around 35 degrees). Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April with summers often completely dry. Rainfall in the Lake Elsinore area averages 11.6 inches per year, but varies markedly from one year to the next.

Winds are an important factor in characterizing the local air quality environment because they both determine the regional pattern of air pollution transport and control the local rate of pollution dispersion. Daytime winds are from the NW at 6-8 mph as air moves regionally onshore from the cool Pacific Ocean to the warm Mojave Desert interior of Southern California. These winds allow for good local mixing, but they may bring air pollutants from urbanized coastal areas into interior valleys. Strong thermal convection in the summer ultimately dilutes the smog cloud from urbanized development, but the project area is too close to Los Angeles Basin emissions sources to completely escape the regional air quality degradation.

Light nocturnal winds result mainly from drainage of cool air off mountains toward the valley floor. Such winds are characterized by stagnation and poor local mixing. However, the origin of these winds in unpopulated mountain areas does not generally impair air quality.

In addition to winds that control the rate and direction of pollution dispersal, Southern California is notorious for strong temperature inversions that limit the vertical depth through which pollution can be mixed. In summer, coastal areas are characterized by a sharp discontinuity between the cool marine air at the surface and the warm, sinking air aloft within the high pressure cell over the ocean to the west. This marine/subsidence inversion allows for good local mixing, but acts like a giant lid over the basin.

A second inversion type forms on clear winter nights when cold air off the mountains sinks to the valley floor while the air aloft over the valley remains warm. This forms radiation inversions. These inversions, in conjunction with calm winds, trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution "hot spots" in heavily developed coastal areas of the basin, there is not enough traffic in inland valleys to cause any winter air pollution problems. Thus, while summers are periods of hazy visibility and occasionally unhealthful air, winter is often a period of spectacular visibility and excellent air quality in the project area.

AIR QUALITY

AMBIENT AIR QUALITY STANDARDS (AAQS)

In order to gauge the significance of the air quality impacts of the proposed Diamond Center Specific Plan 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.

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)		–		
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.

Because the South Coast Air Basin was far from attaining the 1-hour federal standard, the 8-hour ozone non-attainment designation did not substantially alter the attainment planning process. As noted above, the compliance deadline for meeting the 8-hour ozone standard has been extended to 2021.

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 mirrors the federal standard. The California 8-hour ozone standard of 0.07 ppm is more stringent than the federal 8-hour standard of 0.08 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. As part of 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.

Of the standards shown in Table 1, those for ozone (O_3), and particulate matter (PM-10 and PM-2.5) are exceeded at times in the South Coast Air Basin. They are called "non-attainment pollutants." Because of the variations in both the regional meteorology and in area-wide differences in levels of air pollution emissions, patterns of non-attainment have strong spatial and temporal differences.

BASELINE AIR QUALITY

There are no baseline air quality data available directly from the proposed project site. Long-term air quality monitoring is carried out by the South Coast Air Quality Management District (SCAQMD) at various monitoring stations. There are no nearby stations that monitor the full spectrum of pollutants. Ozone and nitrogen oxides are monitored at the Lake Elsinore facility, while 10-micron diameter particulate matter (PM-10) is measured at the Perris Valley station. The closest data resource for other particulate species is in Riverside. Table 3 summarizes the last six years of monitoring data from a composite of available data resources.

The following conclusions can be drawn from these data:

1. Photochemical smog (ozone) levels often exceed standards. The 1-hour state standard was violated an average of 41 times a year in the last six years near Lake Elsinore. The former Federal one-hour standard has been exceeded an average of 4 times a year within the last four years, while the new 8-hour state ozone standard has been exceeded an average of 56 times a year in the past six years. The Federal eight-hour ozone standard has averaged around 24 violations per year since 2003. While ozone levels are still high, they are much lower than 10 to 20 years ago. Attainment of all clean air standards in the project vicinity is not likely to occur soon, but the severity and frequency of violations is expected to continue to slowly decline during the current decade.

2. Carbon monoxide (CO) measurements at the Rubidoux station have declined since 2003 and were lowest in 2008. Federal and state CO standards have not been exceeded in the last 10+ years. Despite continued basin-wide growth, maximum one- or 8-hour CO levels at the closest air monitoring station are less than 50 percent of their most stringent standards because of continued vehicular improvements. These data suggests that baseline CO levels in the project area are generally healthful and can accommodate a reasonable level of additional traffic emissions before any adverse air quality effects would be expected.

3. PM-10 levels as measured at Perris periodically exceed the state standard, but no measurements in excess of the national particulate standard have been recorded in the last six years. Particulate levels have traditionally been high in Riverside County because of agricultural activities, dry soil conditions and upwind industrial development. Although the maximum concentrations had been slowly increasing in more recent years, there was significant improvement in 2008. State PM-10 standards are exceeded an average of 33 percent of all days per year.

Table 3

Project Area Air Quality Monitoring Summary – 2003-2008
(Days Standards Were Exceeded and Maximum Observed Levels)

Pollutant/Standard	2003	2004	2005	2006	2007	2008
Ozone[1]						
1-Hour > 0.09 ppm (S)	50	41	37	40	26	49
1-Hour > 0.12 ppm (F)*	7	2	4	3	3	-
8-Hour > 0.07 ppm (S)	35	51	46	58	55	92
8- Hour > 0.08 ppm (F)	35	21	15	24	19	32
Max. 1-Hour Conc. (ppm)	0.15	0.13	0.15	0.14	0.13	0.14
Carbon Monoxide[3]						
1-Hour > 20. ppm (S)	0	0	0	0	0	0
1-Hour > 9. ppm (S, F)	0	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	4.5	4.3	3.4	3.0	4.0	3.0
Max. 8-Hour Conc. (ppm)	3.7	3.0	2.5	2.1	2.1	2.0
Nitrogen Dioxide[1]						
1-Hour > 0.18 ppm (S)	0	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.07	0.06	0.07	0.07	0.06	0.06
Inhalable Particulates (PM-10)[2]						
24-Hour > 50 $\mu g/m^3$ (S)	19/58	15/59	19/60	19/54	32/59	12/45
24-Hour > 150 $\mu g/m^3$ (F)	0/58	0/59	0/60	0/54	0/59	0/45
Max. 24-Hr. Conc. ($\mu g/m^3$)	135.	79.	75.	125.	120.	85.
Ultra-Fine Particulates (PM-2.5)[3]						
24-Hour > 65 $\mu g/m^3$ (F)	8/350	5/343	4/332	1/300	3/295	0/348
24-Hour > 35 $\mu g/m^3$ (F)**	75/350	53/343	36/337	32/300	33/295	14/348
Max. 24-Hr. Conc. ($\mu g/m^3$)	104.3	91.7	98.7	68.4	75.7	57.7

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

- = No measurements available.

Source: South Coast AQMD – [1]Lake Elsinore, [2]Perris and [3]Rubidoux Air Monitoring Station Data Summaries.

4. A substantial fraction of PM-10 is comprised of ultra-small diameter particulates capable of being inhaled into deep lung tissue (PM-2.5). Year 2008 showed the fewest violations of the federal standard and the lowest maximum 24-hour concentration in the past 6 years. Both the frequency of violations of particulate standards, as well as high percentage of PM-2.5, are air quality concerns in the project area. With the revision of the national 24-hour PM-2.5 standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$, the frequency of days exceeding the 24-hour federal PM-2.5 standard increased substantially. Approximately 1% of all days exceeded the old standard of 65 $\mu g/m^3$ in the past six years, but slightly less than 13% of all days exceeded the new standard of 35 $\mu g/m^3$.

5. More localized pollutants such as nitrogen oxides, lead, etc. are likely very low near the project site because background levels even near downtown Riverside never exceed allowable levels. There is substantial excess dispersive capacity to accommodate localized vehicular air pollutants such as NOx without any threat of violating the applicable standards.

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.

Table 4

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

Pollutant	2005[a]	2010[b]	2015[b]	2020[b]
NOx	999	755	600	493
ROG	729	569	518	496
CO	4129	2950	2472	2198
PM-10	313	256	296	306
PM-2.5	112	103	103	105

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

Source: California Air Resources Board, The 2008 California Almanac of Emission & Air Quality.

The 2007 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.)

Development, such as the proposed Diamond Center Specific Plan project do not directly relate to the AQMP in that there are no specific air quality programs or regulations governing "general" development. Conformity with adopted plans, forecasts and programs relative to population, housing, employment and land use is the primary yardstick by which impact significance of master planned growth is determined. If a given project incorporates any available transportation control measures that can be implemented on a project-specific basis, and if the scope and phasing of a project are consistent with adopted forecasts as shown in the Regional Comprehensive Plan (RCP), then the regional air quality impact of project growth would not be significant because of planning inconsistency. 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

SIGNIFICANCE CRITERIA

Air quality impacts are considered "significant" if they cause clean air standards to be violated where they are currently met, or if they measurably 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 offer 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 pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that 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 SCAB for PM-10 and PM-2.5, an aggressive dust control program is required to control fugitive dust for any new 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 the significance of such emissions is thus based on 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 analyzing secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating regional impact significance independent of chemical transformation processes. Projects within the SCAB with daily emissions that exceed any of the following emission thresholds are recommended by the SCAQMD to be considered significant:

SCAQMD Emissions Significance Thresholds (lbs/day)

Pollutant	Construction	Operations
ROG	75	55
NOx	100	55
CO	550	550
PM-10	150	150
PM-2.5	55	55
SOx	150	150
Lead	3	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 contained within the small diameter particulate matter ("PM-2.5") fraction of diesel exhaust. Such exhaust will be generated by heavy off-road construction equipment and by diesel-powered delivery trucks delivering construction materials to the project site, but will likely be small compared to the quantity of truck traffic on the nearby I-15 freeway.

Health risks from toxic air contaminants (TAC's) are cumulative over an assumed 70-year lifespan. Measurable off-site public health risk from diesel TAC exposure would occur for only

a brief portion of a project lifetime during facility construction, and only in dilute quantity because of substantial source-receiver separation.

SENSITIVE RECEPTORS

Air quality impacts are analyzed relative to those persons with the greatest sensitivity to air pollution exposure. Such persons are called “sensitive receptors”. Sensitive population groups include young children, the elderly and the acutely and chronically ill (especially those with cardio-respiratory disease).

Residential areas are considered to be sensitive to air pollution exposure because they may be occupied for extended periods, and residents may be outdoors when exposure is highest. Schools are similarly considered to be sensitive receptors. The closest residential uses to the Diamond Center Specific Plan project site are multi-family units directly to the west.

CONSTRUCTION ACTIVITY IMPACTS

Dust is typically the primary concern during construction of new buildings and 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 1-2 pounds per acre per day. The Diamond Center Specific Plan project is broken down into three phases or development. The

phase with the largest construction footprint occurs during Phase 2, scheduled to have an opening year of 2014.

The Air Resource Board URBEMIS2007 computer model was used to calculate emissions. For Phase 2, the model predicts that for the approximately 53 acres of total disturbance area, 13.2 acres could be under simultaneous heavy construction at some point during the lifetime of this construction phase. With the use of RACMs, daily PM-10 emissions during site grading would be 132 pounds per day (13.2 X 10.0 = 132 lb/day). The SCAQMD significance threshold of 150 pounds per day would not be exceeded. With the use of Best Available Control Measures (BACM), daily PM-10 emissions can be further reduced. 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. With mitigation, daily PM-2.5 emissions during construction will be less than 3 pound 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 few sensitive receptors within 100 feet from the project construction site.

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. Initial clearing and grading will gradually shift toward building construction and then for finish construction, paving, landscaping, etc. The URBEMIS2007 computer model was used to calculate emissions from the following prototype construction equipment fleets:

Phases 1 and 3

Grading	2 Graders
	1 Rubber Tired Dozer
	2 Compactors
	1 Tractor/Loader/Backhoe
	1 Water Truck
Paving	1 Paver
	2 Paving Equipment
	4 Cement Mixers
	1 Tractor/Loader/Backhoe
	1 Roller
Construction	1 Crane
	2 Forklifts
	1 Generator Set
	1 Tractor/Loader/Backhoe
	3 Welders

Phase 2

Grading	2 Graders
	1 Rubber Tired Dozer
	2 Compactors
	2 Tractor/Loader/Backhoe
	1 Water Truck
Paving	1 Paver
	2 Paving Equipment
	2 Rollers
Construction	1 Crane
	2 Forklifts
	1 Generator Set
	1 Tractor/Loader/Backhoe
	3 Welders

Project grading will require import of 231,000 of cubic yards of fill material. Total fill was divided evenly between the three construction phases. Import was assumed to require 1,200 miles per day of on-road truck travel during grading activities. Each day of grading activity for each phase was also alotted 1,283 cubic yards of earthmovement for which URBEMIS2007 calculated related PM-10 fugitive dust emissions. Calculated construction activity emissions by phase are summarized as follows:

Phase 1 Construction Activity Emissions (pounds/day)

Activity	ROG	NOx	CO	SO_2	PM-10	PM-2.5	CO_2
Grading 2010							
No Mitigation	6.4	66.9	33.8	0.0	190.3	41.9	8,080.7
With Mitigation	6.4	62.4	33.8	0.0	19.2	5.2	8,080.7
Construction 2010-2011							
No Mitigation	4.6	22.0	33.8	0.0	1.6	1.4	4,738.8
With Mitigation	4.6	19.5	33.8	0.0	0.6	0.4	4,738.8
Coating and Paving 2011							
No Mitigation	36.4	17.7	13.0	0.0	1.5	1.4	1,829.5
With Mitigation	33.1	15.1	13.0	0.0	0.3	0.2	1,829.5
SCAQMD Threshold	75	100	550	150	150	55	-

Source: URBEMIS2007 Model, Output in Appendix

Phase 2 Construction Activity Emissions (pounds/day)

Activity	ROG	NOx	CO	SO_2	PM-10	PM-2.5	CO_2
Grading 2012							
No Mitigation	6.7	64.1	32.2	0.1	286.4	61.9	8,879.6
With Mitigation	6.7	58.7	32.2	0.1	27.8	6.8	8,879.6
Construction Only 2012							
No Mitigation	6.1	32.2	82.2	0.0	2.4	1.9	13,263.9
With Mitigation	6.1	29.8	82.2	0.0	1.4	1.0	13,263.9
Construction and Coating 2013							
No Mitigation	64.9	29.4	77.3	0.1	2.2	1.7	13,390.4
With Mitigation	58.9	27.1	77.3	0.1	1.4	1.0	13,390.4
Coating and Paving 2013							
No Mitigation	62.2	15.9	11.4	0.0	1.4	1.2	1,782.6
With Mitigation	56.2	13.7	11.4	0.0	0.3	0.2	1,782.6
SCAQMD Threshold	75	100	550	150	150	55	-

Source: URBEMIS2007 Model, Output in Appendix

Phase 3 Construction Activity Emissions (pounds/day)

Activity	ROG	NOx	CO	SO_2	PM-10	PM-2.5	CO_2
Grading 2014							
No Mitigation	4.8	45.6	27.3	0.1	191.1	41.3	8,080.6
With Mitigation	4.8	42.1	27.3	0.1	18.7	4.6	8,080.6
Construction 2014-2015							
No Mitigation	3.3	16.5	27.3	0.0	1.2	1.0	4,908.4
With Mitigation	3.3	14.6	27.3	0.0	0.5	0.3	4,908.4
Coating and Paving 2015							
No Mitigation	38.3	14.0	11.9	0.0	1.2	1.1	1,835.5
With Mitigation	34.7	12.0	11.9	0.0	0.2	0.2	1,835.5
SCAQMD Threshold	75	100	550	150	150	55	-

Source: URBEMIS2007 Model, Output in Appendix

With or without the use of mitigation, peak daily construction activity emissions from all phases will be below CEQA SCAQMD thresholds and are further reduced by recommended mitigation. The recommended emissions mitigation measures are detailed in the “Mitigation” section of this report.

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. Any public health risk associated with project-related heavy equipment operations exhaust is therefore not quantifiable, but small.

Construction activity air quality impacts occur mainly in close proximity to the surface disturbance area. There may, however, be some "spill-over" into the surrounding community. That spill-over may be physical as vehicles drop or carry out dirt or silt is washed into public streets. Passing non-project vehicles then pulverize the dirt to create off-site dust impacts. “Spillover” may also occur via congestion effects. Construction may entail roadway encroachment, detours, lane closures and competition between construction vehicles (trucks and contractor employee commuting) and ambient traffic for available roadway capacity. Emissions controls require good housekeeping procedures and a construction traffic management plan that will maintain such "spill-over" effects at a less-than-significant level.

LOCAL 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 Local Significance Thresholds (LSTs). LSTs were developed in response to Governing Board's Environmental Justice Enhancement Initiative 1-4 and the LST methodology was adopted 2005.

Use of an LST analysis for a project is optional because they were derived for economically or socially disadvantaged communities. For office, commercial or residential uses, LSTs are only applicable to construction activities. 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.

Phase 2 has the highest overall construction emissions of all project phases and as such was selected for the LST analysis. The URBEMIS model estimates that the maximum daily construction disturbance "footprint" for Phase 2 will be 13 acres. LST pollutant concentration data is currently only published for 1, 2 and 5 acre sites. LST thresholds for project sites larger than 5 acres will be greater than the 5-acre cut-off. If the project construction emissions meet LST thresholds for a 5 acre site then the threshold for a larger site will be met with a larger margin of safety and no additional analysis is required. Pollutant concentrations for a 5-acre disturbance area and for a source-receptor distance of 100 meters are as follows (pounds per day):

Lake Elsinore 5acres-100 meters	**CO**	**NOx**	**PM-10**	**PM-2.5**
LST Threshold	4,338	803	59	16
Project Construction Emissions (All Phases)				
Unmitigated	11-82	16-64	1-286	1-62
Mitigated	11-82	14-59	1-28	1-7

All mitigated project-related emissions are below LST thresholds.

OPERATIONAL IMPACTS

Project-related operational air quality concerns derive from the mobile source emissions that will be generated from the residential and commercial uses within the Diamond Specific Plan area. Operational emissions for project-related traffic were calculated using a computerized procedure developed by the California Air Resources Board (CARB) for urban growth mobile source emissions. The URBEMIS2007 model was run using the trip generation factors specified by the project traffic consultant for this project. The model was used to calculate area source emissions and the resulting vehicular operational emissions. The following land uses, daily trips and associated vehicle miles traveled (VMT) per day per phase are shown below:

Phase 1 (2012)

Land Use	Trips per day	Miles per Day
Residential	474	4,789
Office	888	9,017
Retail	2,799	25,034
Total	4,151	38,840

Phase 2 (2014) adds

Land Use	Trips per day	Miles per Day
Residential	1,908	19,276
Office	1,954	19,890
Retail	11,913	106,898
Hotel	1,225	11.131
Total	17,000	157,195

Phase 3 (2016) adds

Land Use	Trips per day	Miles per Day
Residential	473	4,779
Office	990	10,076
Retail	3,075	27,592
Total	4,538	42,447

Table 5 summarizes the operational emissions associated with the above uses for the proposed opening year of each phase. URBEMIS2007 assumes that mobile source emissions are lower in the future because of advances in automotive technologies, such that the vehicular emissions attributed to Phase 1 (opening year 2012) will be less by the opening year for subsequent phases. Therefore, in addition to the new uses proposed in 2014 for Phase 2, the operational emissions for Phase 1 were calculated for year 2014. Similarly, in 2016 for Phase 3, the operational uses for Phases 1 and 2 were calculated for the year 2016 and added to the new Phase 3 uses as shown in Table 5.

Table 5

Project-Related Emissions Burden

2012	**Emissions (lbs/day)**						
Phase 1	**ROG**	**NOx**	**CO**	**SO2**	**PM-10**	**PM-2.5**	**CO2**
Area Sources	6.9	2.4	6.2	0.0	0.0	0.0	2,903.0
Mobile Sources	29.6	47.2	362.2	0.4	67.6	13.5	41,307.1
Total	36.4	49.6	368.4	0.4	67.6	13.5	44,237.1

2014	**Emissions (lbs/day)**						
Phase 2	**ROG**	**NOx**	**CO**	**SO2**	**PM-10**	**PM-2.5**	**CO2**
Area Sources	25.9	9.7	12.6	0.0	0.0	0.0	11,831.6
Mobile Sources	101.8	158.2	1,232.2	1.7	273.2	54.3	167,684.7
Phase 1 (2014)	32.1	41.5	311.3	0.4	67.5	13.4	44,379.0
Total (Phase 1 & 2)	159.8	209.4	1,556.1	2.1	340.7	67.7	223,877.3

2016	**Emissions (lbs/day)**						
Phase 3	**ROG**	**NOx**	**CO**	**SO2**	**PM-10**	**PM-2.5**	**CO2**
Area Sources	7.0	2.6	6.3	0.0	0.0	0.0	3,091.2
Mobile Sources	24.0	35.2	286.3	0.5	73.6	14.6	45,368.6
Phase 1 & 2 (2016)	143.3	174.6	1,334.9	2.1	340.2	67.2	224,218.6
Total Phases 1-3	174.3	209.8	1,627.5	2.6	413.8	81.8	272,678.4
SCAQMD Threshold	55	55	550	150	150	55	-

Emissions of CO, ROG, NOx, PM-10 and PM-2.5 are all forecast to exceed their respective SCAQMD significance thresholds by a substantial margin. As seen in Table 5, by the opening year for Phase 2, operational emissions will cause SCAQMD thresholds to be exceeded for most pollutants. By project build-out in 2016, emissions will exceed thresholds as follows:

ROG	217%
NOx	299%
CO	196%
PM-10	175%
PM-2.5	49%

Although CO emissions would exceed 550 pounds per day, it is shown in the microscale impact analysis of this report that no CO "hot spots" are created by this project.

Though the levels of emissions are in excess of thresholds by 2014, they would presumably occur at other developments in Riverside County if not at Diamond Center. While the project represents a significant short term regional emissions contributor, it does not generate emissions that have not been adequately anticipated in the regional air quality plan. The project's level of development for Lake Elsinore has been anticipated in the Regional Comprehensive Plan, which predicted a growth of 2,887 jobs and 4,352 households in Lake Elsinore between 2005 and 2015

The Diamond Center project will add 472,000 square feet of commercial/retail use and 425,000 square feet of office. The project will also add use as well 600 new residential units. The typical job creation from commercial uses is 2-3 jobs per 1,000 square feet. The project will add approximately 1,118 jobs to the Lake Elsinore regional development, accounting for about 41 percent of anticipated growth between 2005 and 2015. Residences proposed for this project represent approximately 44% of the total forecast housing growth for the City of Lake Elsinore between 2005 and 2015. Although the mobile source emissions will have a regionally significant and short term non-mitigable air quality impact, these impacts have already been anticipated in planning forecasts which should be noted in any statement of overriding considerations.

The typical jobs to housing ratio in the Riverside area is poor, resulting in extensive commuting from homes to jobs. The proposed project provides residential space adjacent to office and retail space which is considered air quality positive. Although the mobile source emissions will have a incremental air quality impact, the air quality benefits of a positive retail/office-housing balance contribution should be noted in any statement of overriding considerations.

COMBINED OPERATIONAL AND CONSTRUCTION EMISSIONS

Project construction is predicted to commence in 2010 and continue though year 2016. Following completion of Phase 1 in 2012, residents and workers may occupy homes and work space during Phase 2 construction. Because of the temporary nature of construction activity emissions, any combined construction and operational project emissions are not typically compared to the recommended SCAQMD operational CEQA significance threshold. However, because phased construction activities will span up to six years, they will function similar to operational emissions in terms of regional air quality. Cumulative emissions of overlapping operational and construction emissions provide the worst-case project impact scenario as shown in Table 6.

During the temporary overlap period, the degree of "excess" emissions above the adopted CEQA thresholds will be greater. A heightened level of construction activity impact mitigation is necessary to minimize the significance of that impact.

Table 6
Total Project-Related Emissions Burden

2012	Emissions (lbs/day)						
	ROG	**NOx**	**CO**	**SO2**	**PM-10**	**PM-2.5**	**CO2**
Phase 1 Operational	36.4	49.6	368.4	0.4	67.6	13.5	44,237.1
Phase 2 Construction (Grading)	4.8	42.1	27.3	0.1	18.7	4.6	8,080.6
Total (2012)	41.2	91.7	395.7	0.5	86.3	18.1	52317.7
SCAQMD Threshold	55	55	550	150	150	55	-

2014	Emissions (lbs/day)						
	ROG	**NOx**	**CO**	**SO2**	**PM-10**	**PM-2.5**	**CO2**
Phase 1 & 2 Operational	159.8	209.4	1,556.1	2.1	340.7	67.7	223,877.3
Phse 3 Construction (Grading)	4.8	42.1	27.3	0.1	18.7	4.6	8,080.6
Total (2014)	164.6	251.5	1583.4	2.2	359.4	72.3	231,957.9
SCAQMD Threshold	55	55	550	150	150	55	-

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). However, the SCAQMD has demonstrated in the CO attainment redesignation request to EPA that there are no "hot spots" anywhere in the air basin, even at intersections with much higher volumes, much worst congestion, and much higher background CO levels than anywhere in southern Riverside County. If the worst-case intersections in the air basin have no "hot spot" potential, any local impacts near the facility will be well below thresholds with an even larger margin of safety.

To verify these conclusions, a CO screening analysis was performed at the closest major intersections surrounding the project. One-hour CO concentrations were calculated on the sidewalk adjacent to these intersections. Peak one-hour levels (ppm above background) are shown in Table 7.

Existing peak (2007) one-hour local CO background levels are 4.0 ppm. Combined background (4.0 ppm) plus local (2.8 ppm) equate to CO levels of 6.8 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. Micro-scale impacts are less than significant.

Table 7

One-Hour CO Concentrations (ppm)

Intersections	Existing	2012 w/proj.	2012 w/proj. w/cum Dev.	2014 w/proj	2014 w/proj. w/cum Dev.	2016 w/proj	2016 w/proj. w/cum dev.	Build-out w/proj.
AM								
Railroad Canyon Dr/ Summerhill Dr.	1.4	1.2	1.5	1.1	1.7	1.0	1.0	1.5
Diamond Dr/ Auto Center Dr.	0.8	0.8	0.9	0.8	1.0	0.7	1.0	1.3
Diamond Dr/ Lakeshore Dr.	0.6	0.6	0.8	0.7	1.0	0.7	1.0	1.2
Diamond Dr/ Campbell St.	0.1	0.1	0.2	0.3	0.4	0.2	0.3	0.4
Diamond Dr/ Sylvester St.	0.0	0.0	0.2	0.1	0.3	0.1	0.4	0.5
PM								
Railroad Canyon Dr/ Summerhill Dr.	2.2	2.0	2.7	2.2	2.8	1.5	2.0	1.7
Diamond Dr/ Auto Center Dr.	1.1	1.0	1.3	1.1	1.8	1.0	1.4	1.4
Diamond Dr/ Lakeshore Dr.	1.1	1.0	1.2	1.2	1.9	1.1	1.5	1.5
Diamond Dr/ Campbell St.	0.8	0.2	0.4	0.6	0.8	0.4	0.7	0.5
Diamond Dr/ Sylvester St.	0.1	0.1	0.2	0.2	0.4	0.2	0.6	0.6

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. The principal greenhouse gases (GHGs) are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. 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. The Governor's Office of Planning and Research is in the process of developing CEQA significance thresholds for GHG emissions but thresholds have yet to be established. 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 Registry (CCAR), 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.

Impacts - Greenhouse Gas Emissions

Implementation of the proposed project would contribute to long-term increases in greenhouse gases (GHGs) as a result of traffic increases (mobile sources) and minor secondary fuel combustion emissions from space heating, etc. Development occurring as a result of the proposed project would also result in secondary operational increases in GHG emissions as a result of electricity generation to meet project-related increases in energy demand. Electricity generation in California is mainly from natural gas-fired power plants. However, since California imports about 20 to 25 percent of its total electricity (mainly from the northwestern and southwestern states), GHG emissions associated with electricity generation could also occur outside of California. Short-term GHG emissions will also derive from construction activities.

During project construction, the URBEMIS2007 computer model predicts that a peak activity day in the single worst case year of construction (2012 during Phase 2) will generate the following CO_2 emissions:

Grading	-	8,880 pounds/day
Construction	-	13,264 pounds/day

For purposes of analysis, it was assumed that non-CO2 GHG emissions are negligible, and that the total project construction GHG burden can be characterized by 60 peak grading days and 200 peak construction days. The estimated annual GHG impact is estimated as follows if all the above activities were to occur in a single year:

Grading = (8,880 lbs/day x 60 peak days/yr) / 2,000 lbs/ ton	= 266 tons/yr
Construction = (13,264 lbs/day x 200 peak days/yr)/2,000 lbs/ton	= 1,326 tons/yr
Yearly Total	= 1,592 tons/yr

In 2004, the statewide annual GHG inventory in CO_2-equivalent levels (including all non-CO_2 gases weighted by their thermal absorption potential) was 492,000,000 metric tons (541,000,000 short tons). The worst-case project construction impact of 1,592 tons/year represents approximately 0.0003 percent of the statewide burden.

The General Reporting Protocol (GRP) in the California Climate Action Registry (CCAR) divides project-related operational GHG emissions into three categories. These three sources include the following:

Source 1- On-site combustion of fossil fuels

Source 2- Consumption of purchased energy (electricity)

Source 3- Indirect emissions (transportation, solid waste disposal, fresh-and wastewater conveyance and treatment)

For general development projects such as Diamond Center, Source 3 is typically a much larger contributor to the GHG burden than Sources 1 and 2. For convenience, project related GHG emissions were aggregated into transportation and non-transportation sources. The transportation

component is calculated and reported in the URBEMIS2007 computer model. The non-transportation sources require additional analysis.

Non-transportation sources of GHG emissions were assumed to derive from on-site combustion of natural gas for space heating and hot water, from purchase of California grid electricity, from anaerobic decomposition of solid waste in landfills and from life-cycle water use from conveyance, treatment, distribution, wastewater collection, treatment, recycling and ultimate disposal. Estimates of consumption and generation vary by location and are subject to some change as GHG emission inventories become progressively more sophisticated. The input assumptions for GHG emissions calculations, and the GHG conversion from consumption to annual regional CO_2-equivalent (CO_2(e)) emissions are summarized in Table 8. Annual GHG emissions, from both the non-transportation and transportation components are shown in Tables 9 through 11 for each Diamond Center development phase.

There are no adopted thresholds of GHG emissions significance. However, GHG emissions are implicated in the acceleration of global warming experienced in the last several decades. Climatic impacts are global in scale. Any project-specific contribution to the global issue is miniscule. In the absence of any definitive thresholds of significance, the GHG emphasis on a project-specific level is to incorporate project design features that reduce energy consumption and reduce vehicular travel as much as is reasonably feasible. Unless there is a greater shift to clean energy such as solar, hydroelectric, wind, nuclear, etc., no substantial reduction in GHG is likely attainable by conventional methods except through energy conservation.

Greenhouse Gas Emissions Interim Measures

On December 5, 2008 the SCAQMD Governing Board adopted an Interim 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 residential/commercial projects. As discussed in the Interim GHG Significance Threshold guidance document the focus for residential/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 CO_2 equivalent/year based on the relative GHG emissions contribution between residential/commercial sectors and 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 residential/commercial projects but rather recommended bringing this item back to the Board for discussion and possible action in March 2009 if the CARB board does not take its final action by February 2009. As of this date, no final action on a significance threshold has been taken.

Table 8
Annual Non-Transportation Consumption/Generation

Land Use	*Unit*	*Electricity (MWHR)*	*Nat. Gas (10^6 cu ft)*	*Solid Waste (tons)*	*Water (10^6 gal)*
Residential	DU	4.40	0.0481	0.73	0.064
Office	KSF	12.95	0.0240	0.75	0.041
Retail	KSF	13.55	0.0348	2.40	0.032

Conversion to CO_2(e) [tons/year]

Electricity	MWHR x 0.364 tons/MWHR (1)
Nat. Gas	10^6 cubic feet x 54.6 tons/10^6 cubic feet (2)
Solid Waste	tons x 0.46 tons/ton (3)
Water and Wastewater	10^6 gal(MG) x 4.62 tons/MG (4)

(1) California Climate Action Registry
(2) California Climate Action Registry
(3) Energy Information Admin., Voluntary Reporting of GHG
(4) California Energy Commission, Integrated Energy Policy Report (12.7 MWHR per MG conveyed, treated and disposed in Southern California)

Table 9

Project-Related GHG Emissions (2012)

Phase I (2012)	***Unit***	***Electricity (MWHR)***	***Nat. Gas (10^6 cu ft)***	***Solid Waste (tons)***	***Water (MG))***
Condo and Hotel	100 DU	440	4.81	73.0	6.4
Office	100 KSF	1295	2.40	75.0	4.1
Retail	75 KSF	971	3.48	180.0	2.4
Total		2,706	10.69	328	12.9
Conversion Factor		*0.364*	*54.6*	*0.46*	*4.62*
CO_2(e) tons/yr		985.0	583.7	150.9	59.6

Total Non-Transportation	**1,779.2 tons/year**
Total Transportation*	**7034.1 tons/year**
Combined tons CO_2(e)/yr	**8,813.3**
Transportation Share	**79.8%**

*office=260 days/yr
Residential and retail = 365 days/yr

Table 10

Project-Related GHG Emissions (2014)

Phases I and II (2014)	***Unit***	***Electricity (MWHR)***	***Nat. Gas (10^6 cu ft)***	***Solid Waste (tons)***	***Water (MG))***
Condo and Hotel	650 DU	2,860	31.3	474.5	41.6
Office	315 KSF	4,079	7.6	236.2	12.9
Retail	390 KSF	5,284	13.6	936	12.5
Total		12,223	52.5	1,646.7	67.0
Conversion Factor		*0.364*	*54.6*	*0.46*	*4.62*
CO_2(e) tons/yr		4,449.3	2,866.5	757.5	309.5

Total Non-Transportation	**8,382.7 tons/year**
Total Transportation*	**36,544.1 tons/year**
Combined tons CO_2(e)/yr	**44,926.8**
Transportation Share	**81.3%**

*office=260 days/yr
Residential and retail = 365 days/yr

Table 11

Project-Related GHG Emissions (2016)

Phases I, II and III (2016)	***Unit***	***Electricity (MWHR)***	***Nat. Gas (10^6 cu ft)***	***Solid Waste (tons)***	***Water (MG))***
Condo and Hotel	750 DU	3,300	36.1	547.5	48.0
Office	425 KSF	5,504	10.2	318.8	17.4
Retail	472 KSF	6,396	16.4	1,132.8	15.1
Total		15,200	62.7	1,991.1	80.5
Conversion Factor		*0.364*	*54.6*	*0.46*	*4.62*
CO_2(e) tons/yr		5,532.8	3,423.4	919.6	371.9

Total Non-Transportation	**10,247.7 tons/year**
Total Transportation*	**44,314.5 tons/year**
Combined tons CO_2(e)	**54,562.2 "short" tons**
	49,602 "metric" tons
Transportation Share	**81.2%**

*office=260 days/yr
Residential and retail = 365 days/yr

As shown in Table 11, the Diamond Center Specific Plan project daily operational CO_2 emissions from project-related traffic and area source emissions in 2016 are predicted to be approximately 49,600 metric tons per year. Although the SCAQMD is deferring action on the proposed 3,000 metric tons of CO_2 Eq/year until CARB establishes an interim statewide threshold, it is likely that the proposed project's emissions will exceed any proposed numerical threshold established by the SCAQMD by a large amount.

Greenhouse Gas Emissions Reduction Measures

GHG reduction options on a project-level basis are similar to those measures designed to reduce criteria air pollutants (those with ambient air quality standards). Measures that reduce trip generation or trip lengths, measures that optimize the transportation efficiency of a region, and measures that promote energy conservation within a development will reduce GHG emissions. Additionally, carbon sequestering can be achieved through urban forestry measures.

At each phase of the proposed Diamond Center development, the transportation component will comprise approximately 80 percent of the project-related GHG emissions. Reductions in the vehicular contribution are therefore critical in achieving the goals of statewide/national GHG minimization programs. However, substantial mobile source trip/VMT reduction or increases in vehicular fuel efficiency are not achievable on a project-specific basis. State or national programs are in place to significantly upgrade fuel efficiencies. The mixed use nature of Diamond Center creates internal trip captures from one use to another. It also allows pedestrian access to project amenities. Most discretionary actions for GHG reduction therefore focus on energy conversation.

Project-specific mitigation recommendations to reduce the global cumulative impact from project implementation include the following:

Land Use and Transportation

- Promote increased utilization of public transit
- Provide continued support for rideshare programs to encourage the use of alternatives to the single occupant vehicle (SOV) for site access and trips originating at the site

Energy Conservation

- Implement Goal 1 of the City of Lake Elsinore General Plan Section 5.3.1 (Air Quality). Goal 1 states that the City will prepare a GHG Emissions Reduction Plan. The Plan is to contain a 1990 GHG baseline inventory, a current (2007) status, and a 2020 forecast inventory incorporating technology advancement and discretionary land use decisions.
- Construct the new residential building to exceed California Title 24 energy efficiency requirements by ten (10) percent.
- Construct the new commercial buildings to meet LEED (Leadership in Energy and Environmental Design) Silver Certification

- Maximize use of low pressure sodium and/or fluorescent lighting
- Require acquisition of new appliances and equipment to meet Energy Star certification

Urban Forestry

- Participate in green waste collection and recycling programs for landscape maintenance
- Encourage use of landscaping with low water requirements and fast growth.
- Plant trees or vegetation to shade buildings and thus reduce heating/ cooling demand

MITIGATION

CONSTRUCTION EMISSIONS MITIGATION

Construction activity air pollution emissions are not anticipated to individually exceed SCAQMD CEQA thresholds. Combined phased construction activity emissions and already occupied previous phases may cause adopted CEQA thresholds to be further exceeded,. Additionally, the non-attainment status of the air basin requires that Best Available Control Measures (BACMs) be used where feasible. Recommended construction activity mitigation including BACM's includes:

- Apply soil stabilizers according to manufacturers' specifications to inactive areas (previously graded areas inactive for ten days or more).
- Prepare a high wind dust control plan and implement plan elements and terminate soil disturbance when winds (as instantaneous gusts) exceed 25 mph.
- Stabilize previously disturbed areas if subsequent construction is delayed.
- Water exposed surfaces and haul roads 3 times/day.
- Cover all stock piles with tarps.
- Replace ground cover in disturbed areas as soon as feasible.
- Reduce speeds on unpaved roads to less than 15 mph.
- All streets shall be swept at least once a day using SCAQMD Rule 1186 1186.1 certified street sweepers or roadway washing trucks if visible soil materials are carried to adjacent streets (recommend water sweepers with reclaimed water).
- All trucks hauling dirt, sand, soil, or other loose materials are to be covered.
- Appoint a construction relations officer to act as a community liaison concerning on-site construction activity including resolution of issues related to PM10 generation.
- If Tier 2 or Tier 3 off-road construction equipment is not available, require alternative fueled off-road equipment.
- Configure construction parking to minimize traffic interference.
- Use electricity from power poles rather than temporary diesel or gasoline power generators.
- Provide temporary traffic controls such as a flag person, during all phases of construction to maintain smooth traffic flow.
- Schedule construction activities that affect traffic flow on the arterial system to off-peak hour to the extent practicable.
- Reroute construction trucks away from congested streets or sensitive receptor areas.
- Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site.
- Install wheel washers where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site each trip.

- 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 filter on heavy equipment where feasible.
- Use low VOC coatings and high pressure-low volume sprayers.

OPERATIONAL EMISSIONS MITIGATION

Operational emissions are forecast to exceed SCAQMD thresholds by a large margin by Phase 2 in 2014. For operational emissions, automotive sources are the dominant contributors to the project emissions burden. Mitigation in the form of alternatives to the single occupant automobile (SOV), therefore, should be considered where possible. The SCAQMD and SCAG have developed a series of transportation control measures (TCMs) included in the current AQMP. The array of TCMs that might apply to this project includes:

1. Provide future transit access points within the development.
2. Include bicycle lanes in the project design.
3. Provide an attractive pedestrian environment.

Experience has shown that effective implementation of the above TCMs cannot be performed by any single project, by one developer or by one political jurisdiction. It has also become clear that it is very difficult to overcome Southern California's dependence upon the low occupant vehicle as the dominant mode of transportation. While TCMs continue to be emphasized, and while they are a part of the national clean air strategy in the 1990 Clean Air Act Amendments, the emphasis on vehicular emissions reduction has been changing. Changing cars themselves rather than getting people out of their cars is the hope for the future.

The regional cumulative impact (primarily from transportation) is the focus of a new SCAQMD rule currently in development (Rule 2301). Rule 2301 is anticipated to require that developers off-set project-related emissions by demonstrable measures, or that they pay an in-lieu fee to the SCAQMD to underwrite emissions control programs throughout the South Coast Air Basin. There are several competing versions of Rule 2301. Environmental activist organizations want a stronger version. The development industry wants a voluntary program. Regardless of the final version Diamond Center development will be affected by this rule. Cumulative air quality and incremental climate change impacts will presumably be better mitigated than through the current business-as-usual approach.

APPENDIX

URBEMIS2007 Model Output

Construction/Operational Phase 1
Consruction/Operational Phase 2
Costruction/Operational Phase 3
Operational Phase 1 in 2014
Operational Phases 1 and 2 in 2016

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name:

Project Name: Diamond Center Phase 1 Operational 2014

Project Location: Riverside County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	6.87	2.43	6.23	0.00	0.02	0.02	2,930.02

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	25.21	39.06	305.02	0.42	67.52	13.43	41,449.01

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	32.08	41.49	311.25	0.42	67.54	13.45	44,379.03

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.18	2.37	1.59	0.00	0.00	0.00	2,921.59
Hearth - No Summer Emissions							
Landscape	0.37	0.06	4.64	0.00	0.02	0.02	8.43
Consumer Products	5.13						
Architectural Coatings	1.19						
TOTALS (lbs/day, unmitigated)	6.87	2.43	6.23	0.00	0.02	0.02	2,930.02

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Condo/townhouse general	3.53	4.81	38.86	0.05	8.33	1.66	5,143.76
Strip mall	15.63	25.23	194.69	0.27	43.51	8.65	26,663.02
General office building	6.05	9.02	71.47	0.10	15.68	3.12	9,642.23
TOTALS (lbs/day, unmitigated)	25.21	39.06	305.02	0.42	67.52	13.43	41,449.01

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

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Analysis Year: 2014 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Condo/townhouse general	6.25	4.74	dwelling units	100.00	474.00	4,788.73
Strip mall		37.20	1000 sq ft	75.00	2,790.00	25,034.67
General office building		8.86	1000 sq ft	100.00	886.00	9,017.26
					4,150.00	38,840.66

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	45.1	0.2	99.6	0.2
Light Truck < 3750 lbs	9.4	1.1	94.6	4.3
Light Truck 3751-5750 lbs	22.1	0.5	99.5	0.0
Med Truck 5751-8500 lbs	12.3	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.9	0.0	78.9	21.1
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.8	0.0	12.5	87.5
Heavy-Heavy Truck 33,001-60,000 lbs	1.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.6	52.2	47.8	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.4	0.0	85.7	14.3

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Sara Gerrick\Application Data\Urbemis\Version9a\Projects\Diamond Center Operational Phase 1 and 2 2016.urb924

Project Name: Diamond Center Phase 1 and 2 Operational 2016

Project Location: Riverside County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	32.45	12.05	14.20	0.00	0.04	0.04	14,753.18

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	110.80	162.57	1,320.72	2.12	340.11	67.18	209,465.39

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	143.25	174.62	1,334.92	2.12	340.15	67.22	224,218.57

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.89	11.97	8.02	0.00	0.02	0.02	14,741.94
Hearth - No Summer Emissions							
Landscape	0.49	0.08	6.18	0.00	0.02	0.02	11.24
Consumer Products	25.65						
Architectural Coatings	5.42						
TOTALS (lbs/day, unmitigated)	32.45	12.05	14.20	0.00	0.04	0.04	14,753.18

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Condo/townhouse general	15.56	19.89	167.77	0.26	41.74	8.26	25,870.24
Hotel	6.64	9.24	74.51	0.12	19.31	3.81	11,879.01
Strip mall	71.68	109.59	881.44	1.43	228.88	45.19	140,743.20
General office building	16.92	23.85	197.00	0.31	50.18	9.92	30,972.94
TOTALS (lbs/day, unmitigated)	110.80	162.57	1,320.72	2.12	340.11	67.18	209,465.39

Operational Settings:

Does not include correction for passby trips

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Does not include double counting adjustment for internal trips

Analysis Year: 2016 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Condo/townhouse general	31.25	4.76	dwelling units	500.00	2,380.00	24,044.67
Hotel		8.17	rooms	150.00	1,225.50	11,130.60
Strip mall		37.70	1000 sq ft	390.00	14,703.00	131,930.02
General office building		9.02	1000 sq ft	315.00	2,841.30	28,917.33
					21,149.80	196,022.62

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	44.7	0.2	99.6	0.2
Light Truck < 3750 lbs	9.4	0.0	96.8	3.2
Light Truck 3751-5750 lbs	22.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.0	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.8	0.0	12.5	87.5
Heavy-Heavy Truck 33,001-60,000 lbs	1.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.6	45.7	54.3	0.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.4	0.0	85.7	14.3

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Hotel				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Sara Gerrick\Application Data\Urbemis\Version9a\Projects\Diamond Center Phase I.urb924

Project Name: Diamond Center Phase 1

Project Location: Riverside County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	4.59	25.05	33.81	0.03	35.71	1.43	36.96	7.46	1.31	8.61	4,738.76
2010 TOTALS (lbs/day mitigated)	4.59	21.30	33.81	0.03	3.32	0.42	3.51	0.69	0.38	0.87	4,738.76
2011 TOTALS (lbs/day unmitigated)	36.40	20.54	31.76	0.03	0.14	1.53	1.54	0.05	1.40	1.41	4,738.48
2011 TOTALS (lbs/day mitigated)	33.06	18.19	31.76	0.03	0.14	0.39	0.53	0.05	0.35	0.40	4,738.48

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	6.87	2.43	6.23	0.00	0.02	0.02	2,930.02

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	29.55	47.17	362.18	0.42	67.61	13.51	41,307.10

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	36.42	49.60	368.41	0.42	67.63	13.53	44,237.12

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

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Time Slice 1/1/2010-3/31/2010 Active Days: 64	3.04	**25.05**	13.50	0.00	**35.71**	1.25	**36.96**	**7.46**	1.15	**8.61**	2,371.71
Mass Grading 01/01/2010-03/31/2010	3.04	25.05	13.50	0.00	35.71	1.25	36.96	7.46	1.15	8.61	2,371.71
Mass Grading Dust	0.00	0.00	0.00	0.00	35.70	0.00	35.70	7.46	0.00	7.46	0.00
Mass Grading Off Road Diesel	3.00	24.99	12.46	0.00	0.00	1.25	1.25	0.00	1.15	1.15	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.04	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.39
Time Slice 4/1/2010-12/31/2010 Active Days: 197	4.59	21.96	**33.81**	**0.03**	0.14	1.43	1.57	0.05	1.31	1.36	**4,738.76**
Building 04/01/2010-06/30/2011	4.59	21.96	33.81	0.03	0.14	1.43	1.57	0.05	1.31	1.36	4,738.76
Building Off Road Diesel	3.65	16.55	11.20	0.00	0.00	1.19	1.19	0.00	1.10	1.10	1,621.20
Building Vendor Trips	0.35	4.30	3.41	0.01	0.03	0.17	0.20	0.01	0.16	0.17	828.74
Building Worker Trips	0.59	1.11	19.20	0.02	0.11	0.07	0.18	0.04	0.06	0.10	2,288.83
Time Slice 1/3/2011-6/30/2011 Active Days: 129	4.24	20.54	31.76	**0.03**	0.14	1.36	1.50	0.05	1.24	1.29	4,738.48
Building 04/01/2010-06/30/2011	4.24	20.54	31.76	0.03	0.14	1.36	1.50	0.05	1.24	1.29	4,738.48
Building Off Road Diesel	3.39	15.67	10.85	0.00	0.00	1.14	1.14	0.00	1.05	1.05	1,621.20
Building Vendor Trips	0.33	3.86	3.15	0.01	0.03	0.15	0.18	0.01	0.14	0.15	828.78
Building Worker Trips	0.53	1.01	17.76	0.02	0.11	0.07	0.18	0.04	0.06	0.10	2,288.50
Time Slice 7/1/2011-8/31/2011 Active Days: 44	33.40	0.03	0.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	68.77
Coating 07/01/2011-12/31/2011	33.40	0.03	0.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	68.77
Architectural Coating	33.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	68.77

Time Slice 9/1/2011-12/30/2011 Active Days: 87	**36.40**	17.65	13.01	0.00	0.02	**1.53**	1.54	0.01	**1.40**	1.41	1,829.49
Asphalt 09/01/2011-12/31/2011	3.00	17.62	12.47	0.00	0.02	1.52	1.54	0.01	1.40	1.41	1,760.72
Paving Off-Gas	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.80	17.10	10.16	0.00	0.00	1.50	1.50	0.00	1.38	1.38	1,418.44
Paving On Road Diesel	0.03	0.40	0.14	0.00	0.00	0.02	0.02	0.00	0.01	0.01	62.43
Paving Worker Trips	0.06	0.12	2.17	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.84
Coating 07/01/2011-12/31/2011	33.40	0.03	0.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	68.77
Architectural Coating	33.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	68.77

Phase Assumptions

Phase: Mass Grading 1/1/2010 - 3/31/2010 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 14.28

Maximum Daily Acreage Disturbed: 3.57

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

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

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

Phase: Paving 9/1/2011 - 12/31/2011 - Default Paving Description

Acres to be Paved: 3.57

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

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

Phase: Building Construction 4/1/2010 - 6/30/2011 - Default Building Construction Description

Off-Road Equipment:

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

2 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 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

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

Phase: Architectural Coating 7/1/2011 - 12/31/2011 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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

5/13/2009 2:09:50 PM

Time Slice 1/1/2010-3/31/2010 Active Days: 64	3.04	21.30	13.50	0.00	3.32	0.19	3.51	0.69	0.18	0.87	2,371.71
Mass Grading 01/01/2010-03/31/2010	3.04	21.30	13.50	0.00	3.32	0.19	3.51	0.69	0.18	0.87	2,371.71
Mass Grading Dust	0.00	0.00	0.00	0.00	3.31	0.00	3.31	0.69	0.00	0.69	0.00
Mass Grading Off Road Diesel	3.00	21.24	12.46	0.00	0.00	0.19	0.19	0.00	0.17	0.17	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.04	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.39
Time Slice 4/1/2010-12/31/2010 Active Days: 197	4.59	19.48	**33.81**	**0.03**	0.14	0.42	0.56	0.05	0.38	0.43	**4,738.76**
Building 04/01/2010-06/30/2011	4.59	19.48	33.81	0.03	0.14	0.42	0.56	0.05	0.38	0.43	4,738.76
Building Off Road Diesel	3.65	14.06	11.20	0.00	0.00	0.18	0.18	0.00	0.16	0.16	1,621.20
Building Vendor Trips	0.35	4.30	3.41	0.01	0.03	0.17	0.20	0.01	0.16	0.17	828.74
Building Worker Trips	0.59	1.11	19.20	0.02	0.11	0.07	0.18	0.04	0.06	0.10	2,288.83
Time Slice 1/3/2011-6/30/2011 Active Days: 129	4.24	18.19	31.76	**0.03**	0.14	0.39	0.53	0.05	0.35	0.40	4,738.48
Building 04/01/2010-06/30/2011	4.24	18.19	31.76	0.03	0.14	0.39	0.53	0.05	0.35	0.40	4,738.48
Building Off Road Diesel	3.39	13.32	10.85	0.00	0.00	0.17	0.17	0.00	0.16	0.16	1,621.20
Building Vendor Trips	0.33	3.86	3.15	0.01	0.03	0.15	0.18	0.01	0.14	0.15	828.78
Building Worker Trips	0.53	1.01	17.76	0.02	0.11	0.07	0.18	0.04	0.06	0.10	2,288.50
Time Slice 7/1/2011-8/31/2011 Active Days: 44	30.06	0.03	0.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	68.77
Coating 07/01/2011-12/31/2011	30.06	0.03	0.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	68.77
Architectural Coating	30.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	68.77

Time Slice 9/1/2011-12/30/2011 Active Days: 87	33.06	15.09	13.01	0.00	0.02	0.25	0.27	0.01	0.23	0.24	1,829.49
Asphalt 09/01/2011-12/31/2011	3.00	15.06	12.47	0.00	0.02	0.25	0.26	0.01	0.23	0.23	1,760.72
Paving Off-Gas	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.80	14.53	10.16	0.00	0.00	0.23	0.23	0.00	0.21	0.21	1,418.44
Paving On Road Diesel	0.03	0.40	0.14	0.00	0.00	0.02	0.02	0.00	0.01	0.01	62.43
Paving Worker Trips	0.06	0.12	2.17	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.84
Coating 07/01/2011-12/31/2011	30.06	0.03	0.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	68.77
Architectural Coating	30.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.03	0.53	0.00	0.00	0.00	0.01	0.00	0.00	0.00	68.77

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 1/1/2010 - 3/31/2010 - Default Mass Site Grading/Excavation Description

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 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

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 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Graders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Graders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rubber Tired Dozers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Water Trucks, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Water Trucks, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Paving 9/1/2011 - 12/31/2011 - Default Paving Description

For Cement and Mortar Mixers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cement and Mortar Mixers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Pavers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Pavers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Paving Equipment, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Paving Equipment, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rollers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rollers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

5/13/2009 2:09:50 PM

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Building Construction 4/1/2010 - 6/30/2011 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Architectural Coating 7/1/2011 - 12/31/2011 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

5/13/2009 2:09:50 PM

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.18	2.37	1.59	0.00	0.00	0.00	2,921.59
Hearth - No Summer Emissions							
Landscape	0.37	0.06	4.64	0.00	0.02	0.02	8.43
Consumer Products	5.13						
Architectural Coatings	1.19						
TOTALS (lbs/day, unmitigated)	6.87	2.43	6.23	0.00	0.02	0.02	2,930.02

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Condo/townhouse general	4.12	5.81	46.11	0.05	8.34	1.67	5,126.30
Strip mall	18.35	30.46	231.23	0.27	43.57	8.70	26,571.58
General office building	7.08	10.90	84.84	0.10	15.70	3.14	9,609.22
TOTALS (lbs/day, unmitigated)	29.55	47.17	362.18	0.42	67.61	13.51	41,307.10

Operational Settings:

5/13/2009 2:09:50 PM

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Condo/townhouse general	6.25	4.74	dwelling units	100.00	474.00	4,788.73
Strip mall		37.20	1000 sq ft	75.00	2,790.00	25,034.67
General office building		8.86	1000 sq ft	100.00	886.00	9,017.26
					4,150.00	38,840.66

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	45.5	0.7	99.1	0.2
Light Truck < 3750 lbs	9.5	1.1	93.6	5.3
Light Truck 3751-5750 lbs	21.9	0.5	99.5	0.0
Med Truck 5751-8500 lbs	12.1	0.8	99.2	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.9	0.0	78.9	21.1
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.8	0.0	12.5	87.5
Heavy-Heavy Truck 33,001-60,000 lbs	1.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.5	57.8	42.2	0.0

5/13/2009 2:09:50 PM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.5	0.0	86.7	13.3

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

Operational Changes to Defaults

5/13/2009 1:57:09 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Sara Gerrick\Application Data\Urbemis\Version9a\Projects\Diamond Center Phase 2.urb924

Project Name: Diamond Center Phase 2

Project Location: Riverside County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

5/13/2009 1:57:09 PM

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012 TOTALS (lbs/day unmitigated)	6.14	32.17	82.21	0.12	131.91	1.86	133.45	27.55	1.68	28.97	13,263.91
2012 TOTALS (lbs/day mitigated)	6.14	29.79	82.21	0.12	12.23	0.94	12.47	2.56	0.84	2.77	13,263.91
2013 TOTALS (lbs/day unmitigated)	64.86	29.38	77.28	0.12	0.51	1.70	2.21	0.18	1.54	1.72	13,390.37
2013 TOTALS (lbs/day mitigated)	58.94	27.14	77.28	0.12	0.51	0.87	1.38	0.18	0.78	0.96	13,390.37

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	25.95	9.68	12.62	0.00	0.04	0.04	11,831.59

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	101.83	158.18	1,232.15	1.71	273.24	54.31	167,684.73

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	127.78	167.86	1,244.77	1.71	273.28	54.35	179,516.32

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

5/13/2009 1:57:09 PM

Time Slice 1/2/2012-3/30/2012 Active Days: 65	3.74	29.68	17.35	0.00	**131.91**	1.54	**133.45**	**27.55**	1.42	**28.97**	3,162.93
Mass Grading 01/01/2012-03/31/2012	3.74	29.68	17.35	0.00	131.91	1.54	133.45	27.55	1.42	28.97	3,162.93
Mass Grading Dust	0.00	0.00	0.00	0.00	131.90	0.00	131.90	27.55	0.00	27.55	0.00
Mass Grading Off Road Diesel	3.71	29.61	16.24	0.00	0.00	1.54	1.54	0.00	1.42	1.42	3,007.48
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.12	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.45
Time Slice 4/2/2012-12/31/2012 Active Days: 196	6.14	**32.17**	**82.21**	0.12	0.51	**1.86**	2.36	0.18	**1.68**	1.86	13,263.91
Building 04/01/2012-06/30/2013	6.14	32.17	82.21	0.12	0.51	1.86	2.36	0.18	1.68	1.86	13,263.91
Building Off Road Diesel	3.26	15.87	11.00	0.00	0.00	1.08	1.08	0.00	1.00	1.00	1,746.33
Building Vendor Trips	1.12	12.92	10.89	0.03	0.11	0.51	0.62	0.04	0.47	0.51	3,120.69
Building Worker Trips	1.76	3.38	60.32	0.09	0.40	0.26	0.66	0.14	0.22	0.36	8,396.90
Time Slice 1/1/2013-6/28/2013 Active Days: 129	64.86	29.38	77.28	**0.12**	0.51	1.70	2.21	0.18	1.54	1.72	**13,390.37**
Building 04/01/2012-06/30/2013	5.61	29.33	76.44	0.12	0.51	1.69	2.20	0.18	1.53	1.71	13,263.63
Building Off Road Diesel	2.99	14.88	10.67	0.00	0.00	0.97	0.97	0.00	0.89	0.89	1,746.33
Building Vendor Trips	1.02	11.37	9.99	0.03	0.11	0.45	0.56	0.04	0.41	0.45	3,120.93
Building Worker Trips	1.60	3.08	55.78	0.09	0.40	0.27	0.67	0.14	0.23	0.37	8,396.37
Coating 01/01/2013-12/31/2013	59.25	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.01	126.74
Architectural Coating	59.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.01	126.74

Time Slice 7/1/2013-8/30/2013 Active Days: 45	59.25	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.01	126.74
Coating 01/01/2013-12/31/2013	59.25	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.01	126.74
Architectural Coating	59.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.01	126.74
Time Slice 9/2/2013-12/31/2013 Active Days: 87	62.16	15.93	11.38	0.01	0.02	1.33	1.35	0.01	1.22	1.23	1,782.63
Asphalt 09/01/2013-12/31/2013	2.91	15.88	10.53	0.00	0.01	1.32	1.34	0.01	1.22	1.22	1,655.89
Paving Off-Gas	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.40	14.70	9.09	0.00	0.00	1.28	1.28	0.00	1.18	1.18	1,272.41
Paving On Road Diesel	0.09	1.13	0.41	0.00	0.01	0.04	0.05	0.00	0.04	0.04	228.04
Paving Worker Trips	0.03	0.06	1.03	0.00	0.01	0.01	0.01	0.00	0.00	0.01	155.44
Coating 01/01/2013-12/31/2013	59.25	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.01	126.74
Architectural Coating	59.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.01	126.74

Phase Assumptions

Phase: Mass Grading 1/1/2012 - 3/31/2012 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 52.77

Maximum Daily Acreage Disturbed: 13.19

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day

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

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

5/13/2009 1:57:09 PM

Phase: Paving 9/1/2013 - 12/31/2013 - Default Paving Description

Acres to be Paved: 13.19

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 4/1/2012 - 6/30/2013 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 7 hours per day

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

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

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

Phase: Architectural Coating 1/1/2013 - 12/31/2013 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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

5/13/2009 1:57:09 PM

Time Slice 1/2/2012-3/30/2012 Active Days: 65	3.74	25.23	17.35	0.00	12.23	0.24	12.47	2.56	0.22	2.77	3,162.93
Mass Grading 01/01/2012-03/31/2012	3.74	25.23	17.35	0.00	12.23	0.24	12.47	2.56	0.22	2.77	3,162.93
Mass Grading Dust	0.00	0.00	0.00	0.00	12.23	0.00	12.23	2.55	0.00	2.55	0.00
Mass Grading Off Road Diesel	3.71	25.17	16.24	0.00	0.00	0.23	0.23	0.00	0.21	0.21	3,007.48
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.03	0.06	1.12	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.45
Time Slice 4/2/2012-12/31/2012 Active Days: 196	6.14	29.79	**82.21**	0.12	0.51	0.94	1.44	0.18	0.84	1.02	13,263.91
Building 04/01/2012-06/30/2013	6.14	29.79	82.21	0.12	0.51	0.94	1.44	0.18	0.84	1.02	13,263.91
Building Off Road Diesel	3.26	13.49	11.00	0.00	0.00	0.16	0.16	0.00	0.15	0.15	1,746.33
Building Vendor Trips	1.12	12.92	10.89	0.03	0.11	0.51	0.62	0.04	0.47	0.51	3,120.69
Building Worker Trips	1.76	3.38	60.32	0.09	0.40	0.26	0.66	0.14	0.22	0.36	8,396.90
Time Slice 1/1/2013-6/28/2013 Active Days: 129	58.94	27.14	77.28	**0.12**	0.51	0.87	1.38	0.18	0.78	0.96	**13,390.37**
Building 04/01/2012-06/30/2013	5.61	27.10	76.44	0.12	0.51	0.87	1.37	0.18	0.77	0.95	13,263.63
Building Off Road Diesel	2.99	12.65	10.67	0.00	0.00	0.15	0.15	0.00	0.13	0.13	1,746.33
Building Vendor Trips	1.02	11.37	9.99	0.03	0.11	0.45	0.56	0.04	0.41	0.45	3,120.93
Building Worker Trips	1.60	3.08	55.78	0.09	0.40	0.27	0.67	0.14	0.23	0.37	8,396.37
Coating 01/01/2013-12/31/2013	53.33	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.01	126.74
Architectural Coating	53.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.01	126.74

Time Slice 7/1/2013-8/30/2013 Active Days: 45	53.33	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.01	126.74
Coating 01/01/2013-12/31/2013	53.33	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.01	126.74
Architectural Coating	53.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.01	126.74
Time Slice 9/2/2013-12/31/2013 Active Days: 87	56.23	13.73	11.38	0.01	0.02	0.24	0.26	0.01	0.22	0.23	1,782.63
Asphalt 09/01/2013-12/31/2013	2.91	13.68	10.53	0.00	0.01	0.24	0.25	0.01	0.22	0.22	1,655.89
Paving Off-Gas	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.40	12.49	9.09	0.00	0.00	0.19	0.19	0.00	0.18	0.18	1,272.41
Paving On Road Diesel	0.09	1.13	0.41	0.00	0.01	0.04	0.05	0.00	0.04	0.04	228.04
Paving Worker Trips	0.03	0.06	1.03	0.00	0.01	0.01	0.01	0.00	0.00	0.01	155.44
Coating 01/01/2013-12/31/2013	53.33	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.01	126.74
Architectural Coating	53.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.01	126.74

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 1/1/2012 - 3/31/2012 - Default Mass Site Grading/Excavation Description

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 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

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 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Graders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Graders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rubber Tired Dozers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Water Trucks, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Water Trucks, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Paving 9/1/2013 - 12/31/2013 - Default Paving Description

For Pavers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Pavers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Paving Equipment, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Paving Equipment, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rollers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rollers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Building Construction 4/1/2012 - 6/30/2013 - Default Building Construction Description

5/13/2009 1:57:09 PM

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Architectural Coating 1/1/2013 - 12/31/2013 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

5/13/2009 1:57:09 PM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.72	9.60	6.44	0.00	0.02	0.02	11,820.35
Hearth - No Summer Emissions							
Landscape	0.49	0.08	6.18	0.00	0.02	0.02	11.24
Consumer Products	20.52						
Architectural Coatings	4.22						
TOTALS (lbs/day, unmitigated)	25.95	9.68	12.62	0.00	0.04	0.04	11,831.59

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Condo/townhouse general	14.21	19.35	156.44	0.21	33.52	6.67	20,705.26
Hotel	7.59	11.21	86.73	0.12	19.35	3.84	11,859.42
Strip mall	66.72	107.72	831.32	1.16	185.79	36.92	113,851.10
General office building	13.31	19.90	157.66	0.22	34.58	6.88	21,268.95
TOTALS (lbs/day, unmitigated)	101.83	158.18	1,232.15	1.71	273.24	54.31	167,684.73

Operational Settings:

Does not include correction for passby trips

5/13/2009 1:57:09 PM

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Condo/townhouse general	25.00	4.77	dwelling units	400.00	1,908.00	19,276.14
Hotel		8.17	rooms	150.00	1,225.50	11,130.60
Strip mall		37.82	1000 sq ft	315.00	11,913.30	106,898.04
General office building		9.09	1000 sq ft	215.00	1,954.35	19,890.40
					17,001.15	157,195.18

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	45.1	0.2	99.6	0.2
Light Truck < 3750 lbs	9.4	1.1	94.6	4.3
Light Truck 3751-5750 lbs	22.1	0.5	99.5	0.0
Med Truck 5751-8500 lbs	12.3	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.9	0.0	78.9	21.1
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.8	0.0	12.5	87.5
Heavy-Heavy Truck 33,001-60,000 lbs	1.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.6	52.2	47.8	0.0

5/13/2009 1:57:09 PM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.4	0.0	85.7	14.3

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Hotel				5.0	2.5	92.5
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

Operational Changes to Defaults

5/13/2009 2:06:05 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\Sara Gerrick\Application Data\Urbemis\Version9a\Projects\Diamond Center Phase3.urb924

Project Name: Diamond Center Phase 3

Project Location: Riverside County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

5/13/2009 2:06:05 PM

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2014 TOTALS (lbs/day unmitigated)	3.30	19.12	27.31	0.03	37.61	1.01	38.50	7.85	0.92	8.67	4,908.37
2014 TOTALS (lbs/day mitigated)	3.30	16.26	27.31	0.03	3.49	0.31	3.63	0.73	0.28	0.86	4,908.37
2015 TOTALS (lbs/day unmitigated)	38.27	15.17	25.70	0.03	0.14	1.13	1.15	0.05	1.04	1.05	4,908.35
2015 TOTALS (lbs/day mitigated)	34.68	13.37	25.70	0.03	0.14	0.29	0.43	0.05	0.26	0.31	4,908.35

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	6.98	2.57	6.34	0.00	0.02	0.02	3,091.22

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	23.98	35.18	286.33	0.46	73.64	14.55	45,368.58

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	30.96	37.75	292.67	0.46	73.66	14.57	48,459.80

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 1/1/2014-3/31/2014 Active Days: 64	2.43	19.12	11.50	0.00	37.61	0.89	38.50	7.85	0.82	8.67	2,371.67
Mass Grading 01/01/2014-03/31/2014	2.43	19.12	11.50	0.00	37.61	0.89	38.50	7.85	0.82	8.67	2,371.67
Mass Grading Dust	0.00	0.00	0.00	0.00	37.60	0.00	37.60	7.85	0.00	7.85	0.00
Mass Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.04	0.76	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.35
Time Slice 4/1/2014-12/31/2014 Active Days: 197	3.30	16.53	27.31	0.03	0.14	1.01	1.16	0.05	0.92	0.98	4,908.37
Building 04/01/2014-06/30/2015	3.30	16.53	27.31	0.03	0.14	1.01	1.16	0.05	0.92	0.98	4,908.37
Building Off Road Diesel	2.63	12.97	9.89	0.00	0.00	0.82	0.82	0.00	0.76	0.76	1,621.20
Building Vendor Trips	0.25	2.75	2.54	0.01	0.03	0.11	0.14	0.01	0.10	0.11	863.81
Building Worker Trips	0.42	0.81	14.88	0.03	0.11	0.08	0.19	0.04	0.07	0.11	2,423.36
Time Slice 1/1/2015-6/30/2015 Active Days: 129	3.01	15.17	25.70	0.03	0.14	0.94	1.08	0.05	0.85	0.91	4,908.35
Building 04/01/2014-06/30/2015	3.01	15.17	25.70	0.03	0.14	0.94	1.08	0.05	0.85	0.91	4,908.35
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.23	2.40	2.33	0.01	0.03	0.10	0.13	0.01	0.09	0.10	863.88
Building Worker Trips	0.38	0.74	13.74	0.03	0.11	0.08	0.19	0.04	0.07	0.11	2,423.28
Time Slice 7/1/2015-8/31/2015 Active Days: 44	35.90	0.02	0.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	72.24
Coating 07/01/2015-12/31/2015	35.90	0.02	0.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	72.24
Architectural Coating	35.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	72.24

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Time Slice 9/1/2015-12/31/2015 Active Days: 88	38.27	14.00	11.91	0.00	0.02	1.13	1.15	0.01	1.04	1.05	1,835.47
Asphalt 09/01/2015-12/31/2015	2.37	13.98	11.50	0.00	0.02	1.13	1.15	0.01	1.04	1.05	1,763.23
Paving Off-Gas	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.20	13.65	9.82	0.00	0.00	1.11	1.11	0.00	1.02	1.02	1,418.44
Paving On Road Diesel	0.02	0.25	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	65.01
Paving Worker Trips	0.04	0.08	1.59	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.78
Coating 07/01/2015-12/31/2015	35.90	0.02	0.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	72.24
Architectural Coating	35.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	72.24

Phase Assumptions

Phase: Mass Grading 1/1/2014 - 3/31/2014 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 15.06

Maximum Daily Acreage Disturbed: 3.76

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

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

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

Phase: Paving 9/1/2015 - 12/31/2015 - Default Paving Description

Acres to be Paved: 3.76

Off-Road Equipment:

4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

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

Phase: Building Construction 4/1/2014 - 6/30/2015 - Default Building Construction Description

Off-Road Equipment:

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

2 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 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

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

Phase: Architectural Coating 7/1/2015 - 12/31/2015 - Default Architectural Coating Description

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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 1/1/2014-3/31/2014 Active Days: 64	2.43	16.26	11.50	0.00	3.49	0.14	3.63	0.73	0.13	0.86	2,371.67
Mass Grading 01/01/2014-03/31/2014	2.43	16.26	11.50	0.00	3.49	0.14	3.63	0.73	0.13	0.86	2,371.67
Mass Grading Dust	0.00	0.00	0.00	0.00	3.49	0.00	3.49	0.73	0.00	0.73	0.00
Mass Grading Off Road Diesel	2.41	16.22	10.74	0.00	0.00	0.13	0.13	0.00	0.12	0.12	2,247.32
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.02	0.04	0.76	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.35
Time Slice 4/1/2014-12/31/2014 Active Days: 197	3.30	14.58	27.31	0.03	0.14	0.31	0.46	0.05	0.28	0.33	4,908.37
Building 04/01/2014-06/30/2015	3.30	14.58	27.31	0.03	0.14	0.31	0.46	0.05	0.28	0.33	4,908.37
Building Off Road Diesel	2.63	11.03	9.89	0.00	0.00	0.12	0.12	0.00	0.11	0.11	1,621.20
Building Vendor Trips	0.25	2.75	2.54	0.01	0.03	0.11	0.14	0.01	0.10	0.11	863.81
Building Worker Trips	0.42	0.81	14.88	0.03	0.11	0.08	0.19	0.04	0.07	0.11	2,423.36
Time Slice 1/1/2015-6/30/2015 Active Days: 129	3.01	13.37	25.70	0.03	0.14	0.29	0.43	0.05	0.26	0.31	4,908.35
Building 04/01/2014-06/30/2015	3.01	13.37	25.70	0.03	0.14	0.29	0.43	0.05	0.26	0.31	4,908.35
Building Off Road Diesel	2.40	10.23	9.62	0.00	0.00	0.11	0.11	0.00	0.11	0.11	1,621.20
Building Vendor Trips	0.23	2.40	2.33	0.01	0.03	0.10	0.13	0.01	0.09	0.10	863.88
Building Worker Trips	0.38	0.74	13.74	0.03	0.11	0.08	0.19	0.04	0.07	0.11	2,423.28
Time Slice 7/1/2015-8/31/2015 Active Days: 44	32.31	0.02	0.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	72.24
Coating 07/01/2015-12/31/2015	32.31	0.02	0.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	72.24
Architectural Coating	32.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	72.24

Time Slice 9/1/2015-12/31/2015 Active Days: 88	34.68	11.95	11.91	0.00	0.02	0.19	0.21	0.01	0.17	0.18	1,835.47
Asphalt 09/01/2015-12/31/2015	2.37	11.93	11.50	0.00	0.02	0.18	0.20	0.01	0.17	0.17	1,763.23
Paving Off-Gas	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.20	11.60	9.82	0.00	0.00	0.17	0.17	0.00	0.15	0.15	1,418.44
Paving On Road Diesel	0.02	0.25	0.09	0.00	0.00	0.01	0.01	0.00	0.01	0.01	65.01
Paving Worker Trips	0.04	0.08	1.59	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.78
Coating 07/01/2015-12/31/2015	32.31	0.02	0.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	72.24
Architectural Coating	32.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.41	0.00	0.00	0.00	0.01	0.00	0.00	0.00	72.24

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 1/1/2014 - 3/31/2014 - Default Mass Site Grading/Excavation Description

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 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

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 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Graders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Graders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rubber Tired Dozers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rubber Tired Dozers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Water Trucks, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Water Trucks, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Paving 9/1/2015 - 12/31/2015 - Default Paving Description

For Pavers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Pavers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Paving Equipment, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Paving Equipment, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Rollers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Rollers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Cement and Mortar Mixers, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cement and Mortar Mixers, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

5/13/2009 2:06:05 PM

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Building Construction 4/1/2014 - 6/30/2015 - Default Building Construction Description

For Cranes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Cranes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Forklifts, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Forklifts, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Generator Sets, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Generator Sets, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Tractors/Loaders/Backhoes, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

For Welders, the Diesel Particulate Filter (DPF) 1st Tier mitigation reduces emissions by:

PM10: 85% PM25: 85%

For Welders, the Diesel Oxidation Catalyst 15% mitigation reduces emissions by:

NOX: 15%

The following mitigation measures apply to Phase: Architectural Coating 7/1/2015 - 12/31/2015 - Default Architectural Coating Description

For Residential Architectural Coating Measures, the Residential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Residential Architectural Coating Measures, the Residential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

For Nonresidential Architectural Coating Measures, the Nonresidential Exterior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

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For Nonresidential Architectural Coating Measures, the Nonresidential Interior: Use Low VOC Coatings mitigation reduces emissions by:

ROG: 10%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.19	2.51	1.70	0.00	0.00	0.00	3,082.79
Hearth - No Summer Emissions							
Landscape	0.37	0.06	4.64	0.00	0.02	0.02	8.43
Consumer Products	5.13						
Architectural Coatings	1.29						
TOTALS (lbs/day, unmitigated)	6.98	2.57	6.34	0.00	0.02	0.02	3,091.22

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Condo/townhouse general	3.09	3.95	33.34	0.05	8.29	1.64	5,141.44
Strip mall	14.99	22.92	184.35	0.30	47.87	9.45	29,435.17
General office building	5.90	8.31	68.64	0.11	17.48	3.46	10,791.97
TOTALS (lbs/day, unmitigated)	23.98	35.18	286.33	0.46	73.64	14.55	45,368.58

Operational Settings:

5/13/2009 2:06:05 PM

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2016 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Condo/townhouse general	6.25	4.73	dwelling units	100.00	473.00	4,778.62
Strip mall		37.50	1000 sq ft	82.00	3,075.00	27,591.97
General office building		9.00	1000 sq ft	110.00	990.00	10,075.72
					4,538.00	42,446.31

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	44.7	0.2	99.6	0.2
Light Truck < 3750 lbs	9.4	0.0	96.8	3.2
Light Truck 3751-5750 lbs	22.3	0.0	100.0	0.0
Med Truck 5751-8500 lbs	12.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	2.0	0.0	80.0	20.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.8	0.0	12.5	87.5
Heavy-Heavy Truck 33,001-60,000 lbs	1.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	4.6	45.7	54.3	0.0

5/13/2009 2:06:05 PM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.4	0.0	85.7	14.3

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5

Operational Changes to Defaults