AIR QUALITY and GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

TOWN CENTRE RESIDENTIAL PROJECT

CITY OF LAKE FOREST, CA

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PROJECT LOCATION & DESCRIPTION

The Town Centre Residential community is located in the Foothill Ranch community in the city of Lake Forest, at the southeast corner of Bake and Portola Parkways (Figure 1). The project site consists of 8.97 gross acres bounded by Bake and Portola Parkways, Auto Center Drive, and a commercial center. Surrounding land uses consist of commercial and light industrial uses. Commercial retail centers are present to the west (Foothill Ranch Towne Centre) and south, a Mercedes-Benz auto dealership is present to the east, and light industrial/office uses are present north of Portola Parkway and along the south side of Towne Centre Drive.

The project will contain 151 homes within 11 two-story motorcourt-style buildings (see site plan in Figure 2). Six floorplans are proposed, ranging from 763 to 1,747 square feet and with between 1 and 3 bedrooms. Overall project density is 16.8 dwelling units per gross acre. Each home would front on a common walkway and landscaped area. Walkways will connect each residence to all areas in the community, including a centrally-located, 8,500-square-foot recreation and gathering area and surrounding offsite sidewalks.

The project will include two gated entries, both off of Auto Center Drive. The entries will be connected to each other via a private drive. The private drive will offer access to a total of 357 on-site parking spaces. The community is planned to be walkable, allowing for easy connections to nearby retail, entertainment, service, office, and recreational uses.

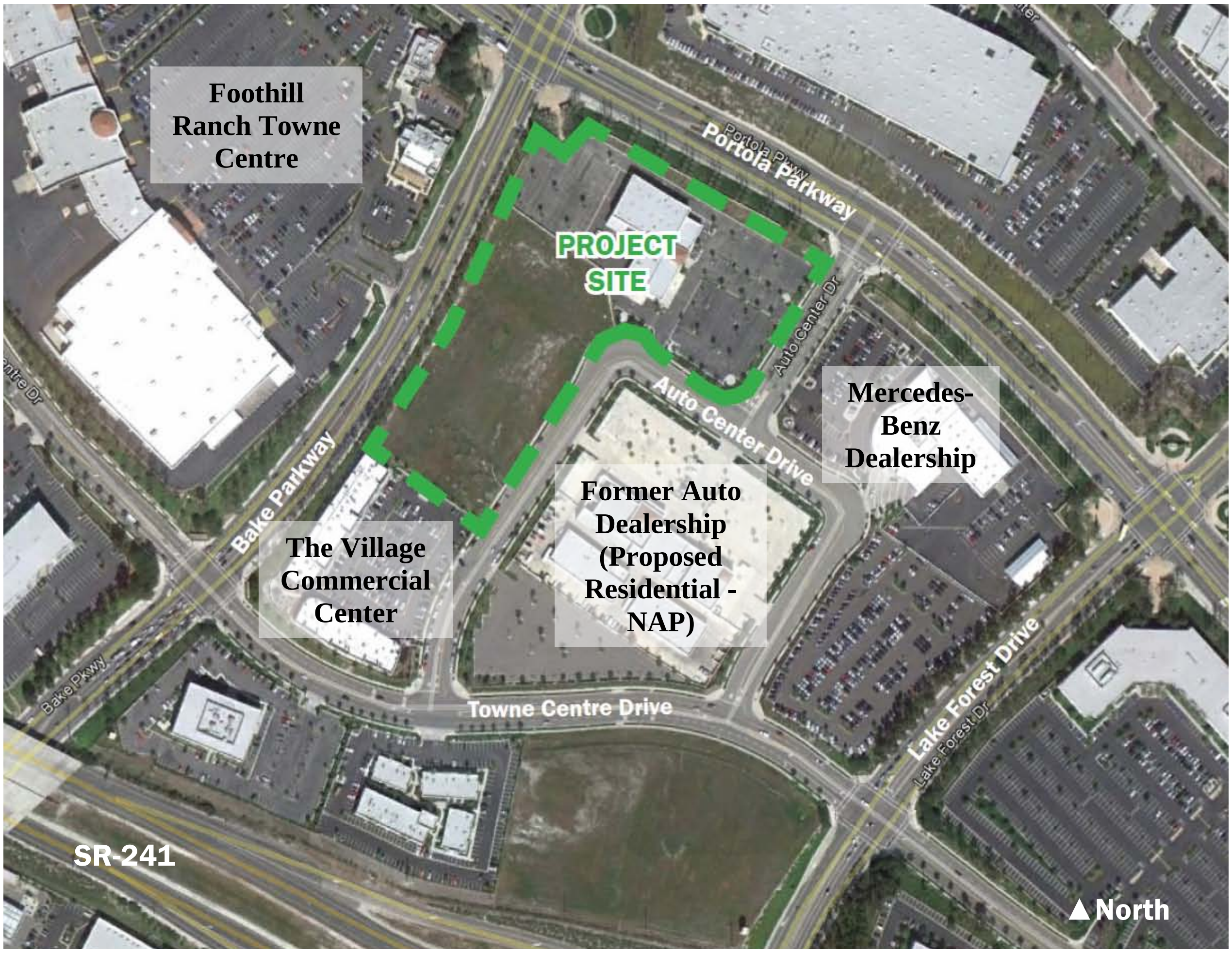
METEOROLOGY CLIMATE

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

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

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

Figure 1
Project Location



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

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

Figure 2
Site Plan

A second inversion forms at night as cool air pools in low elevations while the air aloft remains warm. Shallow radiation inversions are formed (especially in winter) that trap pollutants near intensive traffic sources such as freeways, shopping centers, etc., and form localized violations of clean air standards called "hot spots." Although inversions are found during all seasons of the year, the regional capping inversion is far more prevalent in summer while the localized radiation inversions are strongest in winter. The strong seasonal split in inversion intensity thus contributes significantly to the completely different air quality climate found in summer in the project vicinity than in winter. Because traffic concentrations in the project area are becoming progressively "cleaner," air quality concerns in the project area are more centered on the regional, summertime intrusion of photochemical smog (ozone) rather than on any winter micro-scale stagnation conditions.

AIR QUALITY SETTING

AMBIENT AIR QUALITY STANDARDS (AAQS)

In order to gauge the significance of the air quality impacts of the Town Centre Residential 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 [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 $\mu g/m^3$)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 $\mu g/m^3$)		0.075 ppm (147 $\mu g/m^3$)		
Respirable Particulate Matter (PM10)	24 Hour	50 $\mu g/m^3$	Gravimetric or Beta Attenuation	150 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 $\mu g/m^3$		—		
Fine Particulate Matter (PM2.5)	24 Hour	—	—	35 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 $\mu g/m^3$	Gravimetric or Beta Attenuation	15 $\mu g/m^3$		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[8]	1 Hour	0.18 ppm (339 $\mu g/m^3$)	Gas Phase Chemiluminescence	100 ppb (188 $\mu g/m^3$)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)		53 ppb (100 $\mu g/m^3$)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[9]	1 Hour	0.25 ppm (655 $\mu g/m^3$)	Ultraviolet Fluorescence	75 ppb (196 $\mu g/m^3$)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 $\mu g/m^3$)	
	24 Hour	0.04 ppm (105 $\mu g/m^3$)		0.14 ppm (for certain areas)[9]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[9]	—	
Lead[10,11]	30 Day Average	1.5 $\mu g/m^3$	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 $\mu g/m^3$ (for certain areas)[11]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 $\mu g/m^3$		
Visibility Reducing Particles[12]	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 $\mu g/m^3$	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)	Ultraviolet Fluorescence			
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 $\mu g/m^3$)	Gas Chromatography			

See footnotes on next page …

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California Air Resources Board (2/7/12)

Table 1 (continued)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national standards are in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national standards to the California standards the units can be converted from ppb to ppm. In this case, the national standards of 53 ppb and 100 ppb are identical to 0.053 ppm and 0.100 ppm, respectively.

9. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

   Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

10. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

11. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

12. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

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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.

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

Similarly, the ARB extensively evaluated health effects of ozone exposure. A new state standard for an 8-hour ozone exposure was adopted in 2005, which aligned with the federal 8-hour standard. The California 8-hour ozone standard of 0.07 parts per million (ppm) is more stringent than the federal 8-hour standard of 0.075 ppm. The state standard, however, does not have a specific attainment deadline. California air quality jurisdictions are required to make steady progress towards attaining state standards, but there are no hard deadlines or any consequences of non-attainment. During the same re-evaluation process, the ARB adopted an annual state standard for nitrogen dioxide ($NO_{2)}$ that is more stringent than the corresponding federal standard, and strengthened the state one-hour NO_2 standard.

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

In response to continuing evidence that ozone exposure at levels just meeting federal clean air standards is demonstrably unhealthful, EPA had proposed a further strengthening of the 8-hour standard. Draft standards were published. The proposed future 8-hour standard was 0.065 ppm. Environmental organizations generally praised this proposal. Most manufacturing, transportation or power generation groups opposed the new standard as economically unwise in an uncertain fiscal climate. In response to these concerns, the revision to the 8-hour federal ozone standard was placed on indefinite hold.

A new federal one-hour standard for nitrogen dioxide (NO_2) has also recently been adopted which is more stringent than the existing state standard. Despite the additional stringency of the federal NO_2 standard, air quality monitoring data in the South Coast Air Basin (SCAB) suggests that this standard is met in the region. The federal primary standard for sulfur dioxide (SO_2) were similarly modified in 2010. Because California requires use of lower sulfur fuel and burns negligible amounts of sulfur-bearing coal, SO_2 is not a problem pollutant in the State.

BASELINE AIR QUALITY

Existing and probable future levels of air quality in the project area can be best inferred from ambient air quality measurements conducted by the South Coast Air Quality Management District (SCAQMD) at its Mission Viejo monitoring station at 26081 Via Para. This station was previously located for many years in El Toro. Monitoring at this station includes both regional pollutants such as dust and smog, as well as primary vehicular pollutants such as carbon monoxide. The nearest station monitoring NO_2 is in Anaheim. The closest station that monitors SO_2 is in Costa Mesa. Table 3 summarizes the last six years of published data from these monitoring stations. The following conclusions can be drawn from this data:

a. Photochemical smog (ozone) levels occasionally exceed standards. The 8-hour state ozone standard has been exceeded an average of four percent of all days in the past six years near Mission Viejo while the 1-hour state standard has been violated an average of two percent of all days. Years 2010 and 2011 were the cleanest year of recent years. While ozone levels are still high, they are much lower than 10 to 20 years ago. For several years, El Toro had the worst smog of any station in Orange County. In the last several years, however, Mission Viejo, and by inference all of South Orange County had some of the lowest smog readings on record.

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

c. Respirable dust (PM-10) levels only rarely exceed the state standard, but the less stringent federal PM-10 standard has never been violated since PM-10 measurements began at El Toro/ Mission Viejo.

d. The federal ultra-fine particulate (PM-2.5) standard of 35 micrograms per cubic meter ($\mu g/m^3$) has been exceeded less than one percent of measurement days (three times in the last six years).

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

Table 3
Air Quality Monitoring Summary (2006-2011)
(Number of Days Standards Were Exceeded, and
Maximum Levels During Such Violations)
(Entries shown as ratios = samples exceeding standard/samples taken)

Pollutant/Standard	2006	2007	2008	2009	2010	2011
Ozone						
1-Hour > 0.09 ppm (S)	13	5	9	7	2	0
8-Hour > 0.07 ppm (S)	23	10	25	14	2	5
8- Hour > 0.075 ppm (F)	6	10	15	10	2	2
Max. 1-Hour Conc. (ppm)	0.120	0.108	0.118	0.121	0.117	0.094
Max. 8-Hour Conc. (ppm)	0.105	0.089	0.104	0.095	0.082	0.083
Carbon Monoxide						
1-hour > 20 ppm (S)	0	0	0	0	0	0
8- Hour > 9 ppm (S,F)	0	0	0	0	0	0
Max 1-hour Conc. (ppm)	2.0	3.0	2.0	2.0	1.0	xx
Max 8-hour Conc. (ppm)	1.8	2.1	1.1	1.0	0.9	0.09
Nitrogen Dioxide						
1-Hour > 0.18 ppm (S)	0	0	0	0	0	0
Max. 1-Hour Conc. (ppm)	0.114	0.086	0.093	0.068	0.073	0.074
Sulfur Dioxide						
Max. 1-Hr. Conc. ppm	0.012	0.029	0.009	0.009	0.009	xx
Max. 24-Hr. Conc. ppm	0.005	0.004	0.003	0.004	0.002	0.002
Inhalable Particulates (PM-10)						
24-hour > 50 $\mu g/m^3$ (S)	1/50	3/57	0/55	1/60	0/58	0/xx
24-hour > 150 $\mu g/m^3$ (F)	0/50	0/57	0/55	1/60	0/58	0/xx
Max. 24-Hr. Conc. ($\mu g/m^3$)	57.	74.	42.	55.	34.	48.
Ultra-Fine Particulates (PM-2.5)						
24-Hour > 35 $\mu g/m^3$ (F)	1/106	2/98	0/120	1/122	0/116	0/xx
Max. 24-Hr. Conc. ($\mu g/m^3$)	47.	47.	32.	39.	19.9	33.4

S=State, F= Federal
xx = not reported on CARB website
Source: South Coast Air Quality Management District, Mission Viejo Monitoring Station (Ozone, CO, PM-10 and PM-2.5) , Anaheim Station (NO_2), and Costa Mesa (SO_2).
data: www.arb.ca.gov/adam/

AIR QUALITY PLANNING

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

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

SCAQMD adopted an updated clean air "blueprint" in August 2003. The 2003 Air Quality Management Plan (AQMP) was approved by the EPA in 2004. The 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 was to "slip" from 2010 to 2021. The updated attainment plan also includes strategies for ultimately meeting the federal PM-2.5 standard.

Because projected attainment by 2021 requires control technologies that do not exist yet, the SCAQMD requested a voluntary "bump-up" from a "severe non-attainment" area to an "extreme non-attainment" designation for ozone. The extreme designation will allow a longer time period for these technologies to develop. If attainment cannot be demonstrated within the specified deadline without relying on "black-box" measures, EPA would have been required to impose sanctions on the region had the bump-up request not been approved. In April 2010, the EPA approved the change in the non-attainment designation from "severe-17" to "extreme." This reclassification sets a later attainment deadline, but also requires the air basin to adopt even more stringent emissions controls.

Table 4

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

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

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

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

In other air quality attainment plan reviews, EPA has disapproved part of the SCAB PM-2.5 attainment plan included in the AQMP. EPA has stated that the current attainment plan relies on PM-2.5 control regulations that have not yet been approved or implemented. It is expected that a number of rules that are pending approval will remove the identified deficiencies. If these issues are not resolved within the next several years, federal funding sanctions for transportation projects could result. Table 5 presents the most recent NAAQS attainment for criteria pollutants in the SCAB.

Table 5
National Ambient Air Quality Standards (NAAQS) Attainment Status
South Coast Air Basin

CRITERIA POLLUTANT	AVERAGING TIME	DESIGNATION [a]	ATTAINMENT DATE [b]
1979 **1-Hour Ozone**[c]	1-Hour (0.12 ppm)	Nonattainment (Extreme)	11/15/2010 (not attained)[c]
1997 **8-Hour Ozone**[d]	8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024
2008 **8-Hour Ozone**	8-Hour (0.075 ppm)	Nonattainment (Extreme)	12/31/2032
CO	1-Hour (35 ppm) 8-Hour (9 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
NO_2[e]	1-Hour (100 ppb)	Unclassifiable/Attainment	Attained
	Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998
SO_2[f]	1-Hour (75 ppb)	Designations Pending	Pending
	24-Hour (0.14 ppm) Annual (0.03 ppm)	Unclassifiable/Attainment	3/19/1979 (attained)
PM10	24-hour (150 $\mu g/m^3$)	Nonattainment (Serious)[g]	12/31/2006 (redesignation request submitted)[g]
PM2.5	24-Hour (35 $\mu g/m^3$)	Nonattainment	12/14/2014[h]
	Annual (15.0 $\mu g/m^3$)	Nonattainment	4/5/2015
Lead	3-Months Rolling (0.15 $\mu g/m^3$)	Nonattainment (Partial)[i]	12/31/2015

a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable

b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration

c) 1-hour O_3 standard (0.12 ppm) was revoked, effective June 15, 2005 ; however, the Basin has not attained this standard based on 2008-2010 data and has some continuing obligations under the former standard

d) 1997 8-hour O_3 standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the 1997 O_3 standard and most related implementation rules remain in place until the 1997 standard is revoked by U.S. EPA

e) New NO_2 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO_2 standard retained

f) The 1971 annual and 24-hour SO_2 standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO_2 1-hour standard. Area designations are expected in 2012, with Basin designated Unclassifiable /Attainment

g) Annual PM10 standard was revoked, effective December 18, 2006; redesignation request to Attainment of the 24-hour PM10 standard is pending with U.S. EPA

h) Attainment deadline for the 2006 24-Hour PM2.5 NAAQS is December 14, 2014

i) Partial Nonattainment designation – Los Angeles County portion of Basin only

The currently available 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.)

The 2012 update to the AQMP is currently under public review and comment. No substantial deviation from the 2007 AQMP is anticipated

Projects such as the proposed Town Centre Residential 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 planned growth is determined. The SCAQMD, however, while acknowledging that the AQMP is a growth-accommodating document, does not favor designating regional impacts as less-than-significant just because the proposed development is consistent with regional growth projections. Air quality impact significance for the proposed project has therefore been analyzed on a project-specific basis.

AIR QUALITY IMPACT

STANDARDS OF SIGNIFICANCE

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

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

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

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

c. Results in a cumulatively considerable net increase of any criteria pollutants for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

d. Exposes sensitive receptors to substantial pollutant concentrations.

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

Primary Pollutants

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

Secondary Pollutants

Many pollutants, however, require time to transform from a more benign form to a more unhealthful contaminant. Their impact occurs regionally far from the source. Their incremental regional impact is minute on an individual basis and cannot be quantified except through complex photochemical computer models. Analysis of significance of such emissions is based upon a specified amount of emissions (pounds, tons, etc.) even though there is no way to translate those emissions directly into a corresponding ambient air quality impact.

Because of the chemical complexity of primary versus secondary pollutants, the SCAQMD has designated significant emissions levels as surrogates for evaluating regional air quality impact significance independent of chemical transformation processes. Projects with daily emissions that exceed any of the following emission thresholds shown in Table 6 are recommended by the SCAQMD to be considered significant under CEQA guidelines.

Table 6

Daily Emissions Thresholds (pounds/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. Except for the small diameter particulate matter ("PM-2.5") fraction of diesel exhaust generated by heavy construction equipment, there are no secondary impact indicators associated with project construction and maximum occupancy.

For PM-2.5 exhaust emissions, recently adopted policies require the gradual conversion of delivery fleets to diesel alternatives, or the use of "clean" diesel if their emissions are demonstrated to be as low as those from alternative fuels. Because 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, and only in dilute quantity.

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 Town Centre Residential project is not located in the immediate vicinity of any sensitive receptors; the nearest receptors are residential neighborhoods in Foothill Ranch, approximately 1,500 feet to the north. If the adjacent vacated auto dealership is under residential development as proposed, sensitive receptors could be located closer to the project site. The phasing/timing of this and the proposed adjacent development are unknown at this time.

CONSTRUCTION ACTIVITY IMPACTS

Dust is typically the primary concern during construction of new buildings. 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 shown in the CalEEMod.2011.1.1 computer model to be about 10 pounds per acre. This estimate presumes the use of reasonably available control measures (RACMs). The SCAQMD requires the use of best available control measures (BACMs) for fugitive dust from construction activities.

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 to comprise 10-20 percent of PM-10.

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) under normal wind conditions. There are no sensitive receptors within 100 feet from the project construction site perimeter.

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 demolition and grading activities will shift towards construction and paving, etc. The project build-out schedule will depend on market demand; however, it is anticipated that demolition and grading will require one month each, and construction and paving would occur over approximately 12 months. Grading is expected to be balanced, with approximately equal amounts of cut and fill.

The CalEEMod was developed by the SCAQMD and provides a model to calculate both construction emissions and operational emissions from a residential land use project. It calculates both the daily maximum and annual average emissions for criteria pollutants as well as total or annual greenhouse gas (GHG) emissions. The CalEEMod 2011.1.1 computer model was used to calculate emissions from the indicated default prototype construction equipment fleet and schedule anticipated by CalEEMod. The equipment fleet used in the analysis in Table 7 is CalEEMod's default fleet for a residential land use consisting of 151 units, with the addition of a crusher to the demolition phase to ensure an accurate and conservative analysis.

Table 7

CalEEMod Equipment Fleet

Demolition (20 days) 27,000 square feet demo	1 Crusher (5 days)
	1 Concrete Saw
	3 Excavators
	2 Dozers
Grading (20 days)	1 Excavator
	1 Dozer
	1 Grader
	3 Tractor/Loader/Backhoes
Construction (230 days)	1 Crane
	1 Forklift
	1 Generator Set
	3 Tractor/Loader/Backhoes
	1 Welder
Paving (20 days)	2 Pavers
	2 Paving equipment
	2 Rollers

Utilizing this indicated equipment fleet the following worst case daily emissions are calculated by CalEEMod and are listed in Table 8 below.

Table 8

Construction Activity Emissions
Maximum Daily Emissions (pounds/day)

Maximal Construction Emissions	ROG	NOx	CO	SO_2	PM-10	PM-2.5	CO_2 (e)
2012							
Unmitigated	11.3	95.4	52.7	0.1	9.8	6.3	10,386.1
Mitigated	11.3	95.4	52.7	0.1	8.2	4.5	10,386.1
2013							
Unmitigated	59.6	37.8	32.4	0.1	4.2	3.0	5,809.8
Mitigated	59.6	37.8	32.4	0.1	4.2	3.0	5,809.8
SCAQMD Thresholds	75	100	550	150	150	55	-

Source: CalEEMod.2011.1.1 output in appendix, includes on-road materials delivery as well as demolition haul and construction crew commuting

Peak daily construction activity emissions will be below SCAQMD CEQA thresholds. Recommended (but not required) dust mitigation measures are provided in the appendix.

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. The SCAQMD does not generally require the analysis of construction-related diesel emissions relative to health risk due to the short period for which the majority of diesel exhaust would occur. The majority of diesel exhaust would occur during the grading phase, which would be a period of several months. Health risk analyses are typically assessed over a 9-, 30-, or 70-year timeframe and not over a period of months due to the lack of health risk associated with such a brief exposure.

LOCALIZED SIGNIFICANCE THRESHOLDS

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

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

The SCAQMD has issued guidance on applying CalEEMod to LSTs. LST pollutant concentration data is currently published for 1, 2 and 5 acre sites for varying distances. Since CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment, the following tables should be used to determine the maximum daily disturbed-acreage for comparison to LSTs.

Table 9
Maximum Daily Disturbed Acreage

Equipment Type	Acres/8-hr-day
Crawler Tractor	0.5
Graders	0.5
Rubber Tired Dozers	0.5
Scrapers	1

Based on this table, the proposed will result in a maximum of 2.5 acres disturbed during peak construction grading activity (1 dozer x 0.5+ 1 grader x 0.5 + 3 tractors x 0.5 = 2.5 acres disturbed).

LST screening tables are available for 25, 50, 100, 200 and 500 meter source-receptor distances. Although LST analysis for construction is applicable for all projects of 5 acres and less, it can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required. If emissions exceed the LST for a 5-acre site, then dispersion modeling needs to be conducted. Use of a 5-acre site model for the project site for construction activities would result in more stringent LSTs because emissions would occur in a more concentrated area and closer to the nearest sensitive receptors than in reality. The maximum area disturbed as a result of the project would be approximately 9 acres. If the daily disturbed footprint is greater than 5 acres but 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.

There are no sensitive uses adjacent to the project site and therefore the nearest residential uses approximately 1,500 feet (500 meters) to the northeast were selected for analysis. Per LST guidance, only on-site construction activity is considered in the LST analysis. On-site construction emissions are provided in the CalEEMod output files and do not include sources such as on-road haul, worker commuting or vendor delivery emissions. Therefore, the thresholds and emissions shown in Table 10 are determined (pounds per day).

Table 10

LST and Project Emissions Sensitive Uses (pounds/day)

	CO	**NOx**	**PM-10**	**PM-2.5**
LST	8,796	241	132	77
Max On-Site Emissions				
Demolition				
Unmitigated	44	75	5	4
Mitigated	44	75	4	4
Grading				
Unmitigated	32	52	10	6
Mitigated	32	52	6	4
Construction				
Unmitigated	24	37	3	3
Mitigated	24	37	3	3
Paving				
Unmitigated	21	34	3	3
Mitigated	21	34	3	3

CalEEMod Output in Appendix (maximum mitigated emissions from on-site construction)

Commercial and industrial facilities are not included in the definition of sensitive receptor because employees do not typically remain on site for a full 24 hours, but are present for shorter periods of time, such as eight hours. However, applying a 24-hour standard for pollutants with shorter averaging periods, such as NO_2 and CO LSTs could also be applied to these receptors since it is reasonable to assume that a worker at these sites could be present for periods of one to eight hours. There are several commercial facilities with proximity to the proposed site. Therefore, comparing LSTs for CO and NOx for a source receptor distance of 25 meters would provide the comparison (pounds per day) shown in Table 11:

Table 11
LST and Project Emissions Commercial Uses (pounds/day)

	CO	NOx
LST	1,125	140
Max On-Site Emissions		
Demolition		
Unmitigated	44	75
Mitigated	44	75
Grading		
Unmitigated	32	52
Mitigated	32	52
Construction		
Unmitigated	24	37
Mitigated	24	37
Paving		
Unmitigated	21	34
Mitigated	21	34

CalEEMod Output in Appendix (maximum mitigated emissions from on-site construction)

LSTs were compared to the maximum daily construction activities. As seen in Tables 10 and 11, unmitigated on-site emissions are below the LST for construction. LST impacts are less-than-significant. Because LST thresholds would not be exceeded for the more conservative concentrated 5-acre disturbance assumption, they would also not be exceeded if the same emissions are dispersed over the larger 9-acre total project area.

OPERATIONAL IMPACTS

The proposed residential project will generate 1,231 average daily trips (ADT). Residential uses also generate small quantities of area source emissions derived from organic compounds from cleaning products, landscape maintenance, etc. The contribution of these sources is small and incorporated into the analysis below.

Operational emissions for proposed residential related traffic and energy emissions were calculated using CalEEMod 2011.1.1. for an assumed project build-out year of 2014 as shown in Table 12.

Table 12

Proposed Residential Daily Operational Impacts

	Operational Emissions (lbs/day)						
Source	**ROG**	**NOx**	**CO**	**SO2**	**PM-10**	**PM-2.5**	**CO2**
Area	19.8	0.9	62.9	0.1	8.1	8.1	3,915.6
Energy	0.1	1.0	0.4	0.1	0.1	0.1	1,254.6
Mobile	6.3	12.3	65.8	0.1	14.1	1.0	11,897.1
Total	**26.2**	**14.2**	**129.3**	**0.3**	**22.3**	**9.2**	**17,067.3**
SCAQMD Threshold	55	55	550	150	150	55	-
Exceeds Threshold?	No	No	No	No	No	No	NA

Source: CalEEMod Output in Appendix

Project developmentwill not cause the SCAQMD's recommended threshold levels to be exceeded. Operational emissions will be at a less-than-significant level.

AQMP CONFORMITY

A project is consistent with the regional AQMP if it does not create new violations of clean air standards, exacerbates any existing violations, or delays a timely attainment of such standards. The previous use of the site as an auto dealership was the land use assumption incorporated into the current air quality management plan. A conversion to residential use represents a changed circumstance in terms of air quality. The Lake Forest Opportunities Study Program (OSP) EIR identified land use changes that convert industrial or commercial properties to residential as being a significant impact to land use under CEQA. The OSP EIR also noted, however, that impacts to individual disciplines such as air quality, noise or traffic are mitigable and not necessarily significant. The foregoing analysis demonstrates that air quality impacts are less-than-significant even without any "credit" for off-setting existing uses. The change to regional air quality from the proposed action from commercial to residential is immeasurably small. The project will thus not impede AQMP implementation.

MICROSCALE IMPACT ANALYSIS

There is a direct relationship between traffic/circulation congestion and CO impacts since exhaust fumes from vehicular traffic are the primary source of CO. CO is a localized gas that dissipates very quickly under normal meteorological conditions. Therefore, CO concentrations decrease substantially as distance from the source (intersection) increases. The highest CO concentrations are typically found in areas directly adjacent to congested roadway intersections. These areas of vehicle congestion have historically had the potential to create pockets of elevated levels of CO which are called "hot spots." However, with the turnover of older vehicles, introduction of cleaner fuels and implementation of control technologies, CO concentrations in the project vicinity have steadily declined as shown based on historical air quality monitoring data provided in Table 3.

Micro-scale air quality impacts have traditionally been analyzed in environmental documents where the region 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 Southern California, even at intersections with much higher volumes, much worse congestion, and much higher background CO levels than anywhere in the project area. If the worst-case intersections in the air basin have no "hot spot" potential, any local impacts near the project site will be well below thresholds with an even larger margin of safety.

CONSTRUCTION EMISSIONS MITIGATION

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

Fugitive Dust Control

- Apply soil stabilizers or moisten inactive areas.
- Prepare a high wind dust control plan.
- Address previously disturbed areas if subsequent construction is delayed.
- Water exposed surfaces as needed to avoid visible dust leaving the construction site (typically 3 times/day).
- Cover all stock piles with tarps at the end of each day or as needed.
- Provide water spray during loading and unloading of earthen materials.
- Minimize in-out traffic from construction zone
- Cover all trucks hauling dirt, sand, or loose material and require all trucks to maintain at least two feet of freeboard
- Sweep streets daily if visible soil material is carried out from the construction site

Similarly, construction activity ozone precursor emissions (ROG and NOx) are calculated to be below SCAQMD CEQA thresholds. However, because of the non-attainment for photochemical smog, the use of reasonably available control measures for diesel exhaust is recommended. Combustion emissions control includes:

Exhaust Emissions Control

- Utilize well-tuned off-road construction equipment.
- Establish a preference for contractors using Tier 3 or better heavy equipment.
- Enforce 5-minute idling limits for both on-road trucks and off-road equipment.

GREENHOUSE GAS EMISSIONS

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

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

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

- Require the monitoring and reporting of GHG emissions beginning with sources or categories of sources that contribute the most to statewide emissions.
- Requires immediate "early action" control programs on the most readily controlled GHG sources.
- Mandates that by 2020, California's GHG emissions be reduced to 1990 levels.
- Forces an overall reduction of GHG gases in California by 25-40%, from business as usual, to be achieved 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. Maximum GHG reductions are expected to derive from increased vehicle fuel efficiency, from greater use of renewable energy and from increased structural energy efficiency. Additionally, through the California Climate Action Registry (CCAR now called the Climate Action Reserve), general and industry-specific protocols for assessing and reporting GHG emissions have been developed. GHG sources are categorized into direct sources (i.e. company owned) and indirect sources (i.e. not company owned). Direct sources include combustion emissions from on-and off-road mobile sources, and fugitive emissions. Indirect sources include off-site electricity generation and non-company owned mobile sources.

Greenhouse Gas Emissions Significance Thresholds

In response to the requirements of SB97, the State Resources Agency developed guidelines for the treatment of GHG emissions under CEQA. These new guidelines became state laws as part of Title 14 of the California Code of Regulations in March, 2010. The CEQA Appendix G guidelines were modified to include GHG as a required analysis element. A project would have a potentially significant impact if it:

- Generates GHG emissions, directly or indirectly, that may have a significant impact on the environment, or,

- Conflicts with an applicable plan, policy or regulation adopted to reduce GHG emissions.

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

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

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

On December 5, 2008 the SCAQMD Governing Board adopted an Interim quantitative GHG Significance Threshold for industrial projects where the SCAQMD is the lead agency (e.g., stationary source permit projects, rules, plans, etc.) of 10,000 Metric Tons MT CO_2 equivalent/year. In September 2010, the Working Group released revisions which recommended a threshold of 3,500 MT CO_2e for residential projects. This 3,500 MT/year recommendation has been used as a guideline for this analysis even though a formal threshold has not been adopted.

Construction Activity GHG Emissions

The build-out timetable for this project is estimated by CalEEMod to be approximately 14 months. During project construction, the CalEEMod computer model predicts that the constructions activities will generate the annual CO_2(e) emissions identified in Table 13.

Table 13

Construction Emissions (Metric Tons CO_2(e))

Year 2012	707.6
Year 2013	56.5
Overall Total	**764.1**

*CalEEMod Output provided in appendix

SCAQMD GHG emissions policy from construction activities is to amortize emissions over a 30-year lifetime. The amortized level from 764.1 metric tons CO_2(e) is 25.5 metric tons per year. GHG impacts from construction are considered less-than-significant.

Project Operational GHG Emissions

The input assumptions for operational GHG emissions calculations, and the GHG conversion from consumption to annual regional CO_2(e) emissions are summarized in the CalEEMod output files found in the appendix of this report.

The total operational and annualized construction emissions are identified in Table 14.

Table 14

Proposed Residential Operational Emissions

Consumption Source	**MT CO_2(e) tons/year**
Area	114.1
Energy	394.8
Mobile Source	1,888.8
Solid Waste	31.6
Water	66.4
Annualized Construction	25.5
Total	2,521.2

Total project GHG emissions are less than the proposed significance threshold of 3,500 MT. Project GHG emissions are not considered significant if they are less than recommended significance thresholds. Therefore, no mitigation measures are required.

APPENDIX

CalEEMod2011.1.1 Computer Model Output

- Input Assumptions
- Proposed Uses

CalEEMod Input Assumptions

Construction Durations:

Demolition	1/1/2012 – 1/28/2012
Rock Crusher	1/02/2012 – 1/06/2012
Grading	1/29/2012 – 2/25/2012
Construction	2/26/2012 – 1/11/2013
Paving	1/14/2013 – 2/10/2013
Painting	2/11/2013 – 03/09/2013

Equipment:

Demolition:	27,000 sf of structure		
	1 Concrete Saw	8 hours/day	81 hp
	3 Excavators	8 hours/day	157 hp each
	2 Dozers	8 hours/day	358 hp each
Grading			
	1 Excavator	8 hours/day	157 hp
	1 Grader	8 hours/day	162 hp
	1 Dozer	8 hours/day	358 hp
	3 Tractor/Loader/Backhoes	8 hours/day	75 hp each
Construction			
	1 Crane	7 hours/day	208 hp
	3 Forklifts	8 hours/day	149 hp each
	1 Generator Set	8 hours/day	64 hp
	3 Tractor/Loader/Backhoes	7 hours/day	75 hp each
	1 Welder	8 hours/day	46 hp
Paving	2 Pavers	8 hours/day	89 hp each
	2 Paving Equipment	8 hours/day	82 hp each
	2 Rollers	8 hours/day	84 hp each

Trip Generation:

151 Dwelling Units 1,231 trips per day

Mitigation *(standard condition)*:

Water exposed surfaces 3 times per day

Brookfield Towne Center Residential

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Condo/Townhouse	151	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Southern California Edison
Climate Zone	8	**Precipitation Freq (Days)**	30		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - Modified Schedule

Off-road Equipment - Crushing Equipment

Demolition -

Vehicle Trips - Trip Gen figures from Traffic Consultant

Construction Off-road Equipment Mitigation -

Off-road Equipment -

Off-road Equipment -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	11.34	95.40	52.66	0.10	6.78	4.50	9.79	3.32	4.50	6.33	0.00	10,347.05	0.00	1.00	0.00	10,368.06
2013	59.61	37.78	32.36	0.06	1.82	2.94	4.24	0.07	2.94	2.95	0.00	5,798.31	0.00	0.55	0.00	5,809.79
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2012	11.34	95.40	52.66	0.10	3.67	4.50	8.17	1.30	4.50	4.52	0.00	10,347.05	0.00	1.00	0.00	10,368.06
2013	59.61	37.78	32.36	0.06	1.82	2.94	4.24	0.07	2.94	2.95	0.00	5,798.31	0.00	0.55	0.00	5,809.79
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	19.81	0.89	62.90	0.12		0.00	8.05		0.00	8.05	1,065.57	2,740.70		4.24	0.07	3,915.58
Energy	0.11	0.98	0.42	0.01		0.00	0.08		0.00	0.08		1,247.00		0.02	0.02	1,254.59
Mobile	6.32	12.37	65.93	0.12	13.56	0.56	14.12	0.46	0.56	1.02		11,887.33		0.46		11,897.08
Total	**26.24**	**14.24**	**129.25**	**0.25**	**13.56**	**0.56**	**22.25**	**0.46**	**0.56**	**9.15**	**1,065.57**	**15,875.03**		**4.72**	**0.09**	**17,067.25**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	19.81	0.89	62.90	0.12		0.00	8.05		0.00	8.05	1,065.57	2,740.70		4.24	0.07	3,915.58
Energy	0.11	0.98	0.42	0.01		0.00	0.08		0.00	0.08		1,247.00		0.02	0.02	1,254.59
Mobile	6.32	12.37	65.93	0.12	13.56	0.56	14.12	0.46	0.56	1.02		11,887.33		0.46		11,897.08
Total	**26.24**	**14.24**	**129.25**	**0.25**	**13.56**	**0.56**	**22.25**	**0.46**	**0.56**	**9.15**	**1,065.57**	**15,875.03**		**4.72**	**0.09**	**17,067.25**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

Water Exposed Area

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.33	0.00	1.33	0.00	0.00	0.00						0.00
Off-Road	9.34	75.14	44.19	0.07		3.80	3.80		3.80	3.80		7,510.81		0.83		7,528.31
Total	**9.34**	**75.14**	**44.19**	**0.07**	**1.33**	**3.80**	**5.13**	**0.00**	**3.80**	**3.80**		**7,510.81**		**0.83**		**7,528.31**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.34	3.46	2.10	0.00	2.88	0.14	3.02	0.02	0.14	0.16		497.23		0.02		497.58
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.09	0.10	1.09	0.00	0.23	0.01	0.24	0.01	0.01	0.02		186.56		0.01		186.79
Total	**0.43**	**3.56**	**3.19**	**0.00**	**3.11**	**0.15**	**3.26**	**0.03**	**0.15**	**0.18**		**683.79**		**0.03**		**684.37**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.52	0.00	0.52	0.00	0.00	0.00						0.00
Off-Road	9.34	75.14	44.19	0.07		3.80	3.80		3.80	3.80	0.00	7,510.81		0.83		7,528.31
Total	**9.34**	**75.14**	**44.19**	**0.07**	**0.52**	**3.80**	**4.32**	**0.00**	**3.80**	**3.80**	**0.00**	**7,510.81**		**0.83**		**7,528.31**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.34	3.46	2.10	0.00	2.88	0.14	3.02	0.02	0.14	0.16		497.23		0.02		497.58
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.09	0.10	1.09	0.00	0.23	0.01	0.24	0.01	0.01	0.02		186.56		0.01		186.79
Total	**0.43**	**3.56**	**3.19**	**0.00**	**3.11**	**0.15**	**3.26**	**0.03**	**0.15**	**0.18**		**683.79**		**0.03**		**684.37**

3.3 Crushing - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.54	16.67	5.07	0.02		0.55	0.55		0.55	0.55		2,115.14		0.14		2,118.03
Total	**1.54**	**16.67**	**5.07**	**0.02**		**0.55**	**0.55**		**0.55**	**0.55**		**2,115.14**		**0.14**		**2,118.03**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.02	0.02	0.22	0.00	0.05	0.00	0.05	0.00	0.00	0.00		37.31		0.00		37.36
Total	**0.02**	**0.02**	**0.22**	**0.00**	**0.05**	**0.00**	**0.05**	**0.00**	**0.00**	**0.00**		**37.31**		**0.00**		**37.36**

3.3 Crushing - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.54	16.67	5.07	0.02		0.55	0.55		0.55	0.55	0.00	2,115.14		0.14		2,118.03
Total	**1.54**	**16.67**	**5.07**	**0.02**		**0.55**	**0.55**		**0.55**	**0.55**	**0.00**	**2,115.14**		**0.14**		**2,118.03**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.02	0.02	0.22	0.00	0.05	0.00	0.05	0.00	0.00	0.00		37.31		0.00		37.36
Total	**0.02**	**0.02**	**0.22**	**0.00**	**0.05**	**0.00**	**0.05**	**0.00**	**0.00**	**0.00**		**37.31**		**0.00**		**37.36**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.55	0.00	6.55	3.31	0.00	3.31						0.00
Off-Road	6.76	51.98	31.88	0.05		3.00	3.00		3.00	3.00		5,240.07		0.60		5,252.76
Total	**6.76**	**51.98**	**31.88**	**0.05**	**6.55**	**3.00**	**9.55**	**3.31**	**3.00**	**6.31**		**5,240.07**		**0.60**		**5,252.76**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.09	0.10	1.09	0.00	0.23	0.01	0.24	0.01	0.01	0.02		186.56		0.01		186.79
Total	**0.09**	**0.10**	**1.09**	**0.00**	**0.23**	**0.01**	**0.24**	**0.01**	**0.01**	**0.02**		**186.56**		**0.01**		**186.79**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.56	0.00	2.56	1.29	0.00	1.29						0.00
Off-Road	6.76	51.98	31.88	0.05		3.00	3.00		3.00	3.00	0.00	5,240.07		0.60		5,252.76
Total	**6.76**	**51.98**	**31.88**	**0.05**	**2.56**	**3.00**	**5.56**	**1.29**	**3.00**	**4.29**	**0.00**	**5,240.07**		**0.60**		**5,252.76**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.09	0.10	1.09	0.00	0.23	0.01	0.24	0.01	0.01	0.02		186.56		0.01		186.79
Total	**0.09**	**0.10**	**1.09**	**0.00**	**0.23**	**0.01**	**0.24**	**0.01**	**0.01**	**0.02**		**186.56**		**0.01**		**186.79**

3.5 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.63	37.37	23.73	0.04		2.54	2.54		2.54	2.54		4,040.62		0.51		4,051.23
Total	**5.63**	**37.37**	**23.73**	**0.04**		**2.54**	**2.54**		**2.54**	**2.54**		**4,040.62**		**0.51**		**4,051.23**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.25	2.72	1.80	0.00	0.15	0.09	0.24	0.01	0.09	0.10		429.43		0.01		429.69
Worker	0.67	0.70	7.89	0.01	1.67	0.05	1.72	0.06	0.05	0.11		1,355.65		0.08		1,357.31
Total	**0.92**	**3.42**	**9.69**	**0.01**	**1.82**	**0.14**	**1.96**	**0.07**	**0.14**	**0.21**		**1,785.08**		**0.09**		**1,787.00**

3.5 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.63	37.37	23.73	0.04		2.54	2.54		2.54	2.54	0.00	4,040.62		0.51		4,051.23
Total	**5.63**	**37.37**	**23.73**	**0.04**		**2.54**	**2.54**		**2.54**	**2.54**	**0.00**	**4,040.62**		**0.51**		**4,051.23**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.25	2.72	1.80	0.00	0.15	0.09	0.24	0.01	0.09	0.10		429.43		0.01		429.69
Worker	0.67	0.70	7.89	0.01	1.67	0.05	1.72	0.06	0.05	0.11		1,355.65		0.08		1,357.31
Total	**0.92**	**3.42**	**9.69**	**0.01**	**1.82**	**0.14**	**1.96**	**0.07**	**0.14**	**0.21**		**1,785.08**		**0.09**		**1,787.00**

3.5 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.17	34.66	23.45	0.04		2.28	2.28		2.28	2.28		4,040.62		0.46		4,050.31
Total	**5.17**	**34.66**	**23.45**	**0.04**		**2.28**	**2.28**		**2.28**	**2.28**		**4,040.62**		**0.46**		**4,050.31**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.23	2.48	1.64	0.00	0.15	0.08	0.23	0.01	0.08	0.09		431.06		0.01		431.31
Worker	0.63	0.64	7.26	0.01	1.67	0.05	1.73	0.06	0.05	0.11		1,326.64		0.07		1,328.18
Total	**0.86**	**3.12**	**8.90**	**0.01**	**1.82**	**0.13**	**1.96**	**0.07**	**0.13**	**0.20**		**1,757.70**		**0.08**		**1,759.49**

3.5 Building Construction - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.17	34.66	23.45	0.04		2.28	2.28		2.28	2.28	0.00	4,040.62		0.46		4,050.31
Total	**5.17**	**34.66**	**23.45**	**0.04**		**2.28**	**2.28**		**2.28**	**2.28**	**0.00**	**4,040.62**		**0.46**		**4,050.31**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.23	2.48	1.64	0.00	0.15	0.08	0.23	0.01	0.08	0.09		431.06		0.01		431.31
Worker	0.63	0.64	7.26	0.01	1.67	0.05	1.73	0.06	0.05	0.11		1,326.64		0.07		1,328.18
Total	**0.86**	**3.12**	**8.90**	**0.01**	**1.82**	**0.13**	**1.96**	**0.07**	**0.13**	**0.20**		**1,757.70**		**0.08**		**1,759.49**

3.6 Paving - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.53	33.81	20.89	0.03		2.93	2.93		2.93	2.93		2,917.64		0.50		2,928.05
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**5.53**	**33.81**	**20.89**	**0.03**		**2.93**	**2.93**		**2.93**	**2.93**		**2,917.64**		**0.50**		**2,928.05**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.09	0.09	1.00	0.00	0.23	0.01	0.24	0.01	0.01	0.02		182.56		0.01		182.78
Total	**0.09**	**0.09**	**1.00**	**0.00**	**0.23**	**0.01**	**0.24**	**0.01**	**0.01**	**0.02**		**182.56**		**0.01**		**182.78**

3.6 Paving - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	5.53	33.81	20.89	0.03		2.93	2.93		2.93	2.93	0.00	2,917.64		0.50		2,928.05
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**5.53**	**33.81**	**20.89**	**0.03**		**2.93**	**2.93**		**2.93**	**2.93**	**0.00**	**2,917.64**		**0.50**		**2,928.05**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.09	0.09	1.00	0.00	0.23	0.01	0.24	0.01	0.01	0.02		182.56		0.01		182.78
Total	**0.09**	**0.09**	**1.00**	**0.00**	**0.23**	**0.01**	**0.24**	**0.01**	**0.01**	**0.02**		**182.56**		**0.01**		**182.78**

3.7 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	59.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27		281.19		0.04		282.10
Total	**59.49**	**2.96**	**1.94**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**		**281.19**		**0.04**		**282.10**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.13	1.47	0.00	0.34	0.01	0.35	0.01	0.01	0.02		267.76		0.01		268.07
Total	**0.13**	**0.13**	**1.47**	**0.00**	**0.34**	**0.01**	**0.35**	**0.01**	**0.01**	**0.02**		**267.76**		**0.01**		**268.07**

3.7 Architectural Coating - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	59.00					0.00	0.00		0.00	0.00						0.00
Off-Road	0.49	2.96	1.94	0.00		0.27	0.27		0.27	0.27	0.00	281.19		0.04		282.10
Total	**59.49**	**2.96**	**1.94**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**	**0.00**	**281.19**		**0.04**		**282.10**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Worker	0.13	0.13	1.47	0.00	0.34	0.01	0.35	0.01	0.01	0.02		267.76		0.01		268.07
Total	**0.13**	**0.13**	**1.47**	**0.00**	**0.34**	**0.01**	**0.35**	**0.01**	**0.01**	**0.02**		**267.76**		**0.01**		**268.07**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	6.32	12.37	65.93	0.12	13.56	0.56	14.12	0.46	0.56	1.02		11,887.33		0.46		11,897.08
Unmitigated	6.32	12.37	65.93	0.12	13.56	0.56	14.12	0.46	0.56	1.02		11,887.33		0.46		11,897.08
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	1,230.65	1,230.65	1230.65	4,098,772	4,098,772
Total	1,230.65	1,230.65	1,230.65	4,098,772	4,098,772

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Condo/Townhouse	12.70	7.00	9.50	40.20	19.20	40.60

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.11	0.98	0.42	0.01		0.00	0.08		0.00	0.08		1,247.00		0.02	0.02	1,254.59
NaturalGas Unmitigated	0.11	0.98	0.42	0.01		0.00	0.08		0.00	0.08		1,247.00		0.02	0.02	1,254.59
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
Condo/Townhouse	10599.5	0.11	0.98	0.42	0.01		0.00	0.08		0.00	0.08		1,247.00		0.02	0.02	1,254.59
Total		**0.11**	**0.98**	**0.42**	**0.01**		**0.00**	**0.08**		**0.00**	**0.08**		**1,247.00**		**0.02**	**0.02**	**1,254.59**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	lb/day										lb/day					
Condo/Townhouse	10.5995	0.11	0.98	0.42	0.01		0.00	0.08		0.00	0.08		1,247.00		0.02	0.02	1,254.59
Total		**0.11**	**0.98**	**0.42**	**0.01**		**0.00**	**0.08**		**0.00**	**0.08**		**1,247.00**		**0.02**	**0.02**	**1,254.59**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	19.81	0.89	62.90	0.12		0.00	8.05		0.00	8.05	1,065.57	2,740.70		4.24	0.07	3,915.58
Unmitigated	19.81	0.89	62.90	0.12		0.00	8.05		0.00	8.05	1,065.57	2,740.70		4.24	0.07	3,915.58
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.32					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.99					0.00	0.00		0.00	0.00						0.00
Hearth	16.07	0.74	49.98	0.12		0.00	7.98		0.00	7.98	1,065.57	2,718.00		4.22	0.07	3,892.36
Landscaping	0.42	0.15	12.92	0.00		0.00	0.07		0.00	0.07		22.70		0.02		23.21
Total	**19.80**	**0.89**	**62.90**	**0.12**		**0.00**	**8.05**		**0.00**	**8.05**	**1,065.57**	**2,740.70**		**4.24**	**0.07**	**3,915.57**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.32					0.00	0.00		0.00	0.00						0.00
Consumer Products	2.99					0.00	0.00		0.00	0.00						0.00
Hearth	16.07	0.74	49.98	0.12		0.00	7.98		0.00	7.98	1,065.57	2,718.00		4.22	0.07	3,892.36
Landscaping	0.42	0.15	12.92	0.00		0.00	0.07		0.00	0.07		22.70		0.02		23.21
Total	**19.80**	**0.89**	**62.90**	**0.12**		**0.00**	**8.05**		**0.00**	**8.05**	**1,065.57**	**2,740.70**		**4.24**	**0.07**	**3,915.57**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Vegetation

Brookfield Towne Center Residential

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Condo/Townhouse	151	Dwelling Unit

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Southern California Edison
Climate Zone	8	**Precipitation Freq (Days)**	30		

1.3 User Entered Comments

Project Characteristics -

Land Use -

Construction Phase - Modified Schedule

Off-road Equipment - Crushing Equipment

Demolition -

Vehicle Trips - Trip Gen figures from Traffic Consultant

Construction Off-road Equipment Mitigation -

Off-road Equipment -

Off-road Equipment -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2012	0.88	5.75	4.42	0.01	0.29	0.36	0.65	0.04	0.36	0.40	0.00	692.96	692.96	0.07	0.00	694.48
2013	0.69	0.63	0.48	0.00	0.02	0.05	0.07	0.00	0.05	0.05	0.00	69.35	69.35	0.01	0.00	69.53
Total	**1.57**	**6.38**	**4.90**	**0.01**	**0.31**	**0.41**	**0.72**	**0.04**	**0.41**	**0.45**	**0.00**	**762.31**	**762.31**	**0.08**	**0.00**	**764.01**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2012	0.88	5.75	4.42	0.01	0.24	0.36	0.60	0.02	0.36	0.38	0.00	692.96	692.96	0.07	0.00	694.48
2013	0.69	0.63	0.48	0.00	0.02	0.05	0.07	0.00	0.05	0.05	0.00	69.35	69.35	0.01	0.00	69.53
Total	**1.57**	**6.38**	**4.90**	**0.01**	**0.26**	**0.41**	**0.67**	**0.02**	**0.41**	**0.43**	**0.00**	**762.31**	**762.31**	**0.08**	**0.00**	**764.01**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.18	0.04	3.30	0.00		0.00	0.16		0.00	0.16	16.04	96.22	112.26	0.05	0.00	114.06
Energy	0.02	0.18	0.08	0.00		0.00	0.01		0.00	0.01	0.00	392.41	392.41	0.01	0.01	394.83
Mobile	1.15	2.26	11.90	0.02	2.23	0.10	2.33	0.08	0.10	0.19	0.00	1,887.11	1,887.11	0.08	0.00	1,888.76
Waste						0.00	0.00		0.00	0.00	14.10	0.00	14.10	0.83	0.00	31.60
Water						0.00	0.00		0.00	0.00	0.00	57.42	57.42	0.30	0.01	66.39
Total	**2.35**	**2.48**	**15.28**	**0.02**	**2.23**	**0.10**	**2.50**	**0.08**	**0.10**	**0.36**	**30.14**	**2,433.16**	**2,463.30**	**1.27**	**0.02**	**2,495.64**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.18	0.04	3.30	0.00		0.00	0.16		0.00	0.16	16.04	96.22	112.26	0.05	0.00	114.06
Energy	0.02	0.18	0.08	0.00		0.00	0.01		0.00	0.01	0.00	392.41	392.41	0.01	0.01	394.83
Mobile	1.15	2.26	11.90	0.02	2.23	0.10	2.33	0.08	0.10	0.19	0.00	1,887.11	1,887.11	0.08	0.00	1,888.76
Waste						0.00	0.00		0.00	0.00	14.10	0.00	14.10	0.83	0.00	31.60
Water						0.00	0.00		0.00	0.00	0.00	57.42	57.42	0.30	0.01	66.39
Total	**2.35**	**2.48**	**15.28**	**0.02**	**2.23**	**0.10**	**2.50**	**0.08**	**0.10**	**0.36**	**30.14**	**2,433.16**	**2,463.30**	**1.27**	**0.02**	**2,495.64**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use DPF for Construction Equipment

Water Exposed Area

3.2 Demolition - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.09	0.75	0.44	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.28
Total	**0.09**	**0.75**	**0.44**	**0.00**	**0.01**	**0.04**	**0.05**	**0.00**	**0.04**	**0.04**	**0.00**	**68.12**	**68.12**	**0.01**	**0.00**	**68.28**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.03	0.02	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	4.50	4.50	0.00	0.00	4.51
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	1.62	0.00	0.00	1.62
Total	**0.00**	**0.03**	**0.03**	**0.00**	**0.03**	**0.00**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**6.12**	**6.12**	**0.00**	**0.00**	**6.13**

3.2 Demolition - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.09	0.75	0.44	0.00		0.04	0.04		0.04	0.04	0.00	68.12	68.12	0.01	0.00	68.28
Total	**0.09**	**0.75**	**0.44**	**0.00**	**0.01**	**0.04**	**0.05**	**0.00**	**0.04**	**0.04**	**0.00**	**68.12**	**68.12**	**0.01**	**0.00**	**68.28**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.03	0.02	0.00	0.03	0.00	0.03	0.00	0.00	0.00	0.00	4.50	4.50	0.00	0.00	4.51
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	1.62	0.00	0.00	1.62
Total	**0.00**	**0.03**	**0.03**	**0.00**	**0.03**	**0.00**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**6.12**	**6.12**	**0.00**	**0.00**	**6.13**

3.3 Crushing - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.00	0.04	0.01	0.00		0.00	0.00		0.00	0.00	0.00	4.80	4.80	0.00	0.00	4.80
Total	**0.00**	**0.04**	**0.01**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**4.80**	**4.80**	**0.00**	**0.00**	**4.80**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.00	0.00	0.08
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.08**	**0.08**	**0.00**	**0.00**	**0.08**

3.3 Crushing - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.00	0.04	0.01	0.00		0.00	0.00		0.00	0.00	0.00	4.80	4.80	0.00	0.00	4.80
Total	**0.00**	**0.04**	**0.01**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**4.80**	**4.80**	**0.00**	**0.00**	**4.80**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.00	0.00	0.08
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.08**	**0.08**	**0.00**	**0.00**	**0.08**

3.4 Grading - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.07	0.00	0.07	0.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.07	0.52	0.32	0.00		0.03	0.03		0.03	0.03	0.00	47.52	47.52	0.01	0.00	47.64
Total	**0.07**	**0.52**	**0.32**	**0.00**	**0.07**	**0.03**	**0.10**	**0.03**	**0.03**	**0.06**	**0.00**	**47.52**	**47.52**	**0.01**	**0.00**	**47.64**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	1.62	0.00	0.00	1.62
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.62**	**1.62**	**0.00**	**0.00**	**1.62**

3.4 Grading - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.03	0.00	0.03	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.07	0.52	0.32	0.00		0.03	0.03		0.03	0.03	0.00	47.52	47.52	0.01	0.00	47.64
Total	**0.07**	**0.52**	**0.32**	**0.00**	**0.03**	**0.03**	**0.06**	**0.01**	**0.03**	**0.04**	**0.00**	**47.52**	**47.52**	**0.01**	**0.00**	**47.64**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	1.62	0.00	0.00	1.62
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.62**	**1.62**	**0.00**	**0.00**	**1.62**

3.5 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.61	4.03	2.56	0.00		0.27	0.27		0.27	0.27	0.00	395.78	395.78	0.05	0.00	396.81
Total	**0.61**	**4.03**	**2.56**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**	**0.00**	**395.78**	**395.78**	**0.05**	**0.00**	**396.81**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.03	0.29	0.21	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	41.98	41.98	0.00	0.00	42.00
Worker	0.07	0.08	0.83	0.00	0.16	0.01	0.17	0.01	0.01	0.01	0.00	126.95	126.95	0.01	0.00	127.11
Total	**0.10**	**0.37**	**1.04**	**0.00**	**0.17**	**0.02**	**0.19**	**0.01**	**0.02**	**0.02**	**0.00**	**168.93**	**168.93**	**0.01**	**0.00**	**169.11**

3.5 Building Construction - 2012

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.61	4.03	2.56	0.00		0.27	0.27		0.27	0.27	0.00	395.78	395.78	0.05	0.00	396.81
Total	**0.61**	**4.03**	**2.56**	**0.00**		**0.27**	**0.27**		**0.27**	**0.27**	**0.00**	**395.78**	**395.78**	**0.05**	**0.00**	**396.81**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.03	0.29	0.21	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	41.98	41.98	0.00	0.00	42.00
Worker	0.07	0.08	0.83	0.00	0.16	0.01	0.17	0.01	0.01	0.01	0.00	126.95	126.95	0.01	0.00	127.11
Total	**0.10**	**0.37**	**1.04**	**0.00**	**0.17**	**0.02**	**0.19**	**0.01**	**0.02**	**0.02**	**0.00**	**168.93**	**168.93**	**0.01**	**0.00**	**169.11**

3.5 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.04	0.24	0.16	0.00		0.02	0.02		0.02	0.02	0.00	25.65	25.65	0.00	0.00	25.71
Total	**0.04**	**0.24**	**0.16**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**25.65**	**25.65**	**0.00**	**0.00**	**25.71**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73	2.73	0.00	0.00	2.73
Worker	0.00	0.00	0.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	8.05	8.05	0.00	0.00	8.06
Total	**0.00**	**0.02**	**0.06**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**10.78**	**10.78**	**0.00**	**0.00**	**10.79**

3.5 Building Construction - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.04	0.24	0.16	0.00		0.02	0.02		0.02	0.02	0.00	25.65	25.65	0.00	0.00	25.71
Total	**0.04**	**0.24**	**0.16**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**25.65**	**25.65**	**0.00**	**0.00**	**25.71**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.73	2.73	0.00	0.00	2.73
Worker	0.00	0.00	0.05	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	8.05	8.05	0.00	0.00	8.06
Total	**0.00**	**0.02**	**0.06**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**10.78**	**10.78**	**0.00**	**0.00**	**10.79**

3.6 Paving - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.06	0.34	0.21	0.00		0.03	0.03		0.03	0.03	0.00	26.46	26.46	0.00	0.00	26.56
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.06**	**0.34**	**0.21**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**26.46**	**26.46**	**0.00**	**0.00**	**26.56**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58	1.58	0.00	0.00	1.58
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.58**	**1.58**	**0.00**	**0.00**	**1.58**

3.6 Paving - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.06	0.34	0.21	0.00		0.03	0.03		0.03	0.03	0.00	26.46	26.46	0.00	0.00	26.56
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.06**	**0.34**	**0.21**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**26.46**	**26.46**	**0.00**	**0.00**	**26.56**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.58	1.58	0.00	0.00	1.58
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.58**	**1.58**	**0.00**	**0.00**	**1.58**

3.7 Architectural Coating - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.59					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.55	2.55	0.00	0.00	2.56
Total	**0.59**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.55**	**2.55**	**0.00**	**0.00**	**2.56**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.32	2.32	0.00	0.00	2.32
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.32**	**2.32**	**0.00**	**0.00**	**2.32**

3.7 Architectural Coating - 2013

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.59					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.00	0.03	0.02	0.00		0.00	0.00		0.00	0.00	0.00	2.55	2.55	0.00	0.00	2.56
Total	**0.59**	**0.03**	**0.02**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**2.55**	**2.55**	**0.00**	**0.00**	**2.56**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.32	2.32	0.00	0.00	2.32
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**2.32**	**2.32**	**0.00**	**0.00**	**2.32**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.15	2.26	11.90	0.02	2.23	0.10	2.33	0.08	0.10	0.19	0.00	1,887.11	1,887.11	0.08	0.00	1,888.76
Unmitigated	1.15	2.26	11.90	0.02	2.23	0.10	2.33	0.08	0.10	0.19	0.00	1,887.11	1,887.11	0.08	0.00	1,888.76
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	1,230.65	1,230.65	1230.65	4,098,772	4,098,772
Total	1,230.65	1,230.65	1,230.65	4,098,772	4,098,772

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Condo/Townhouse	12.70	7.00	9.50	40.20	19.20	40.60

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	185.95	185.95	0.01	0.00	187.12
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	185.95	185.95	0.01	0.00	187.12
NaturalGas Mitigated	0.02	0.18	0.08	0.00		0.00	0.01		0.00	0.01	0.00	206.45	206.45	0.00	0.00	207.71
NaturalGas Unmitigated	0.02	0.18	0.08	0.00		0.00	0.01		0.00	0.01	0.00	206.45	206.45	0.00	0.00	207.71
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

<u>Unmitigated</u>

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Condo/Townhouse	3.86881e+006	0.02	0.18	0.08	0.00		0.00	0.01		0.00	0.01	0.00	206.45	206.45	0.00	0.00	207.71
Total		**0.02**	**0.18**	**0.08**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**206.45**	**206.45**	**0.00**	**0.00**	**207.71**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Condo/Townhouse	3.86881e+006	0.02	0.18	0.08	0.00		0.00	0.01		0.00	0.01	0.00	206.45	206.45	0.00	0.00	207.71
Total		**0.02**	**0.18**	**0.08**	**0.00**		**0.00**	**0.01**		**0.00**	**0.01**	**0.00**	**206.45**	**206.45**	**0.00**	**0.00**	**207.71**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Condo/Townhouse	639290					185.95	0.01	0.00	187.12
Total						**185.95**	**0.01**	**0.00**	**187.12**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Condo/Townhouse	639290					185.95	0.01	0.00	187.12
Total						**185.95**	**0.01**	**0.00**	**187.12**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.18	0.04	3.30	0.00		0.00	0.16		0.00	0.16	16.04	96.22	112.26	0.05	0.00	114.06
Unmitigated	1.18	0.04	3.30	0.00		0.00	0.16		0.00	0.16	16.04	96.22	112.26	0.05	0.00	114.06
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.06					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.55					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.50	0.01	0.95	0.00		0.00	0.15		0.00	0.15	16.04	92.46	108.50	0.05	0.00	110.22
Landscaping	0.08	0.03	2.36	0.00		0.00	0.01		0.00	0.01	0.00	3.76	3.76	0.00	0.00	3.84
Total	**1.19**	**0.04**	**3.31**	**0.00**		**0.00**	**0.16**		**0.00**	**0.16**	**16.04**	**96.22**	**112.26**	**0.05**	**0.00**	**114.06**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.06					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.55					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.50	0.01	0.95	0.00		0.00	0.15		0.00	0.15	16.04	92.46	108.50	0.05	0.00	110.22
Landscaping	0.08	0.03	2.36	0.00		0.00	0.01		0.00	0.01	0.00	3.76	3.76	0.00	0.00	3.84
Total	**1.19**	**0.04**	**3.31**	**0.00**		**0.00**	**0.16**		**0.00**	**0.16**	**16.04**	**96.22**	**112.26**	**0.05**	**0.00**	**114.06**

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					57.42	0.30	0.01	66.39
Unmitigated					57.42	0.30	0.01	66.39
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Condo/Townhouse	9.83826 / 6.20238					57.42	0.30	0.01	66.39
Total						**57.42**	**0.30**	**0.01**	**66.39**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Condo/Townhouse	9.83826 / 6.20238					57.42	0.30	0.01	66.39
Total						**57.42**	**0.30**	**0.01**	**66.39**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					14.10	0.83	0.00	31.60
Unmitigated					14.10	0.83	0.00	31.60
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Condo/Townhouse	69.46					14.10	0.83	0.00	31.60
Total						**14.10**	**0.83**	**0.00**	**31.60**

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Condo/Townhouse	69.46					14.10	0.83	0.00	31.60
Total						**14.10**	**0.83**	**0.00**	**31.60**

9.0 Vegetation