Appendix B:
Air Quality - Greenhouse Gas

B.1 - Air Quality/ Green House Gas Impact Analysis Report

Air Quality and Greenhouse Gas Analysis Report
Redlands Crossing Center
Redlands, California

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ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AB	Assembly Bill
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
CalEEMod	California Emissions Estimator Model
CEQA	California Environmental Quality Act
CO	carbon monoxide
CO_2	carbon dioxide
DPM	diesel particulate matter
EPA	Environmental Protection Agency
$MTCO_2e$	metric tons of carbon dioxide equivalent
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
NO_x	nitrogen oxides
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
ppm	parts per million
ppt	parts per trillion
ROG	reactive organic gases
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SO_x	sulfur oxides
URBEMIS	Urban Emissions Computer Model
VOC	volatile organic compounds

SECTION 1: EXECUTIVE SUMMARY

1.1 - Purpose and Methods of Analysis

The following air quality and greenhouse gas analysis was prepared to evaluate whether the estimated criteria air pollutant and greenhouse gas emissions generated from the project would cause significant impacts to air resources in the project area. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The methodology follows the CEQA Air Quality Handbook prepared by the South Coast Air Quality Management District (SCAQMD) for quantification of emissions and evaluation of potential impacts to air resources (South Coast Air Quality Management District 1993 and South Coast Air Quality Management District 2011c).

1.2 - Project Summary

1.2.1 - Site Location

The Project is located in the City of Redlands, California as shown in Exhibit 1. The project site is bounded on the west by Tennessee Street and State Road 210, on the north by San Bernardino Avenue, on the east by Karon Street, and on the south by future Pennsylvania Avenue as shown on a local map in Exhibit 2. Land uses surrounding the Project include vacant land designated for commercial development to the north and south, existing residential areas to the east, and State Route (SR) 210 immediately to the west of the Project.

1.2.2 - Project Description

The Project proposes to develop a regional shopping center that consists of approximately 275,500 square feet of commercial retail uses on approximately 32.96 acres. The Project site is situated at the southeast corner of Tennessee Street and San Bernardino Avenue, and west of the proposed New York Avenue extension. The Project includes 215,000 square feet for the proposed Redlands Crossing Center (Parcel 10) and 60,500 square feet (Parcels 1-9) consisting of three (3) fast food with drive-thru spaces, three (3) retail spaces, a fast food without drive-thru and retail, a retail with drive-thru space and a restaurant. In addition, approximately 1,349 parking spaces will provided for the 275,500 square feet of commercial retail space. The site plan is shown in Exhibit 3.

The area between the extension of New York Street and Karon Avenue immediately east of the Project site to be developed as described above is under common ownership with the Project site. However, activities in this area will consist of off-site mass grading and infrastructure improvements provided to support development of the Project site. Off-site improvements within this area include stormdrain facility improvements related to the construction of New York Street, a block wall immediately to the West of Karon Street and mass grading to “match” grade elevations between Karon Street and future New York Street. Development of this off-site area which is a remainder parcel of the proposed Tentative Parcel Map associated with this project, beyond the activities

described above, is not being proposed as part of this Project, and is outside of the scope of this Environmental Impact Report.

Redlands Crossing Center

The proposed Redlands Crossing Center would consist of an approximate area of 215,000 square feet. The Redlands Crossing Center is proposed for build-out at the northwest corner of the extension of New York Avenue and Pennsylvania Avenue in Redlands. Access to the Redlands Crossing Center will be located off San Bernardino Avenue, Tennessee Street, New York Street, and Pennsylvania Avenue. The Redlands Crossing Center will offer groceries and general retail merchandise including, but not limited to, alcohol for offsite consumption, pool chemicals, petroleum products, pesticides, and paint products. The Redlands Crossing Center will operate 24 hours per day. The Center may have outdoor seasonal sales and storage. In addition, a garden center with an exterior customer pick-up facility for pre-paid bagged, garden supplies, such as potting soil, mulch, and manure are planned for. The garden center will operate 24 hours per day. The exterior pick-up facility will have an attendant to assist customer loading. The exterior pick-up facility will not accommodate direct sales. The exterior pick-up facility will operate the same hours as the Redlands Crossing Center and garden center.

The Center will also include a Tire & Lube Express, which will provide routine servicing and preventive maintenance of vehicles. The tire and lube facility will have limited hours of operation (Monday through Sunday 8:00 a.m. to 10:00 p.m.). In addition, the Center will also include a pharmacy and possibly a vision, hearing and medical care center, food service, a photo studio and photo finishing center, a banking center and an arcade, and other similar services inside the store. The store building will include, without limitation, truck doors, trash compactors, recycling area, and loading facilities. Table 1 summarizes the approximate Redlands Crossing Center square footage.

Table 1: Redlands Crossing Center Square Footage

Component	Approximate Square Feet
General Merchandise Sales Area	103,264
Seasonal/Indoor Garden Sales Area	4,201
Grocery Sales Area	31,214
Grocery Support Area	12,595
TLE* Service and Support Area	3,638
TLE Retail Sales Area	1,082
Retail Tenant Area	5,088
Stockroom/Receiving Area	15,706
Ancillary Area	13,564
Interior Subtotal	**190,352**

Table 1 (cont.): Redlands Crossing Center Square Footage

Component	Approximate Square Feet
Outdoor Garden Center Area	5,762
Total	**196,114**
Square Footage to be Analyzed in EIR (0.09% larger than actual)**	**215,000**

* Tire & Lube Express
** This analysis analyze as a worst case scenario the total square footage of the Walmart to be approximately 215,000 square feet, which is approximately 0.09 percent larger than the actual square footage proposed (i.e. 196,114 square feet).
Source: Perkowitz & Ruth Architects.

Implementation of the Project will also increase the amount of impervious surfaces onsite, which could affect groundwater recharge due to the loss of soil infiltration. To facilitate groundwater recharge, the permeable areas onsite have been maximized through site design considerations, including vegetated swales, a nutrient separating baffle box and inlet inserts before discharging into one of five infiltration basins. The design feature allows the majority of drainage from impervious surface to flow to permeable areas for onsite infiltration. One surface level infiltration basin and four (4) underground infiltration basins have been incorporated into the site plan to maximize onsite infiltration.

Parcels 1 - 9

The Project includes development of nine parcels (Parcels 1-9), consisting of approximately 60,500 square feet of building area, and will be located west and north of the Redlands Crossing Center along Tennessee Street and San Bernardino Avenue. These Parcels will be entitled for various commercial/retail uses including three drive-thru fast-food facilities, one retail facility with a drive-thru lane. Implementation of the Project will also incorporate, as previously described, one surface level infiltration basin and four (4) underground infiltration basins. Parcel 1 will be entitled for retail and a gas station, which will be located at the southwest corner of the Project site, near the intersection of Tennessee Street and Pennsylvania Avenue. The gas station will include six pumps (12 dispensers), 3,000 square feet of retail uses with a drive-thru component, and a self-service car wash. Parcels 1-9 will be graded and constructed at the same time the Redlands Crossing Center is graded and constructed (Table 2: Site Summary). Generally, the color scheme, landscaping, etc. of Parcels 1-9 will be in similar design as the Redlands Crossing Center design (i.e. California contemporary retail). See Section Design and Appearance, below, for additional information in this regard.

In addition, parcel 15 of the Project will consist of an approximately 0.52 acre detention pond. See Table 2 for a site summary of proposed uses within the Project site.

Table 2: Site Summary

Parcels	Approximate Building Sq. Ft.	Parking Provided	Proposed Use
1	3,000	17	Retail
2	3,500	36	Fast Food w/Drive-thru
3	8,000	39	Retail
4	11,000	46	Retail
5	12,300	108	Fast Food w/o Drive-thru/Retail
6	6,700	36	Retail w/Drive-thru
7	9,000	91	Restaurant
8	3,500	45	Fast Food w/Drive-thru
9	3,500	40	Fast Food w/Drive-thru
10	215,000	891	Major Retail
11	N/A	N/A	Detention Pond
Total	**275,500**	**1,349**	

Notes:
Source: Adams Engineering, March 25, 2008.
Source: Kimley-Horn.

1.2.3 - Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities exposed. Sensitive population groups include children, the elderly, the acutely ill, the chronically ill, especially those with cardio-respiratory diseases. Residential areas are also considered to be sensitive to air pollution because residents (including children and the elderly) tend to be home for extended periods of time, resulting in sustained exposure to air pollutants present. For purposes of CEQA, the SCAQMD, in its Localized Significance Threshold Methodology (South Coast Air Quality Management District 2008a, page 3-2), considers a sensitive receptor to be a location where a sensitive individual could remain for 24-hours or longer, such as residences, hospitals, or convalescent facilities. Commercial and industrial facilities are not included in the definition because employees do not typically remain onsite for 24-hours. However, when assessing the impact of pollutants with 1-hour or 8-hour standards (such as nitrogen dioxide and carbon monoxide), commercial and/or industrial facilities would be considered worker receptors for those purposes.

The closest existing sensitive receptors are residences located approximately 25 meters (82 feet) to the east and southeast of the project across Karon Street. A review of the City of Redlands General Plan (City of Redlands 1995) indicates that the areas to the north, south, and west of the Project site have been designated as commercial and, therefore, would not involve the future location of sensitive receptors in these areas. The closest schools are the Lugonia School located 0.8 mile east of the

Project, Clement Middle School located 1.0 miles east of the Project, and the Packinghouse Christian Academy located 0.6 mile west of the Project.

1.3 - Summary of Analysis Results

The following is a summary of the analysis results, according to impact.

Impact AIR-1: The project would not conflict with or obstruct implementation of the applicable air quality plan. Less than significant with mitigation.

Impact AIR-2: The project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation. Less than significant with mitigation.

Impact AIR-3: The Project could result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors). Construction: Less than significant with mitigation. Operation: Significant and unavoidable.

Impact AIR-4: The Project would not expose sensitive receptors to substantial pollutant concentrations. Less than significant with mitigation.

Impact AIR-5: The Project would not create objectionable odors affecting a substantial number of people. Less than significant with mitigation.

Impact GHG-1: The project would generate direct and indirect greenhouse gas emissions; however, these emissions would not result in a significant impact on the environment. Less than significant with mitigation.

Impact GHG-2: The project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. Less than significant.

1.4 - Mitigation Measures Applied to the Project

Construction Criteria Air Pollutant Measures

MM AQ-1 During construction, one of the following scenarios shall be applied:

- A maximum of 15,700 horsepower hours per day for the off-road equipment shall be used and the off-road equipment shall have Tier 2 engines or higher.
- A maximum of 12,100 horsepower hours per day for the off-road equipment shall be used.

MM AQ-2 During construction, paving shall not occur during the building or grading phases. Paving can occur during architectural coating (painting).

MM AQ-3 Paint used during construction of the project shall have a volatile organic compound content less than 125 grams per liter.

Operational Criteria Air Pollutant Measures

Mitigation Measure T-6a is also required.[1]

MM AQ-4 Electrical hookups shall be provided in all loading docks for transportation refrigeration units visiting the site.

MM AQ-5 The City of Redlands shall improve traffic flow by signal synchronization along San Bernardino Avenue, Tennessee Street, and Pennsylvania Avenue.

MM AQ-6 All dock and delivery areas shall be posted with signs informing truck drivers of the California Air Resources Board regulations including the following:

a) Truck drivers shall turn off engines when not in use;

b) All delivery trucks servicing the project shall not idle for more than five minutes per truck trip per day; and

c) Telephone numbers of the building facilities manager and the California Air Resources Board to report violations.

MM AQ-7 The project shall incorporate pedestrian pathways between onsite uses. Site design and building placement shall provide pedestrian connections between internal and external facilities. Physical barriers such as walls, berms, landscaping, merchandising, and slopes that impede bicycle or pedestrian circulation shall be eliminated. Sidewalks shall be a minimum of five feet wide.

MM AQ-8 Transportation Demand Management (TDM) Program: A TDM program shall be instituted for the project or the buildings shall join an existing program located within a quarter mile radius from the project site. The TDM program shall do the following:

a) Publish ride-sharing information for ride sharing vehicles and provide a website or message board for coordinating rides.

b) Ensure that appropriate bus route information is placed in each building.

c) Advertise the TDM Program to the project's employees.

[1] There are a variety of mitigation measures in the Transportation section of the EIR that would improve motor vehicle traffic flow. However, no reduction is taken for those measures because they encourage motor vehicle use. Cities with limited motor vehicle lanes, abundant and safe bicycle lanes, and dedicated alternate transportation lanes will observe reductions in vehicle miles traveled.

MM AQ-9 Bicycle parking shall be provided in safe and convenient locations throughout the project, within 30 feet from all main entrances.

MM AQ-10 In the Redlands Crossing Center building, there shall be at least one locker for each employee working during the peak day. A minimum of five percent of the lockers shall be at least 38 inches high by 12 inches wide by 15 inches deep and reserved for employees who bicycle to work.

MM AQ-11 Class II bicycle lanes shall be provided on the new sections of roadway constructed or sides of any roadways that are widened as part of this project.

MM AQ-12 The project shall have a Maintenance Plan for any detention basins, which includes a description of the routine and non-routine maintenance. The Plan shall include the following components:

- Routine inspections, particularly after major rainfall events, to check for obstructions and damage and to remove debris/trash.
- Vegetation management, including prohibiting the use of fertilizers and pesticides in and around the basins to minimize entry into downstream waters or the underwater basin.
- Routine trash, debris, and litter removal
- Structural component check, to inspect the outlet structure, inlet, orifice, emergency spillway (if applicable) on a regular basis
- Non-routine maintenance such as bank erosion stabilization and ensuring that all surfaces of the basin are vegetated for proper infiltration of runoff.
- Sediment removal once per year to ensure that the depth of the accumulated sediment is less than 25 percent of the original design depth. Sediment blocking inlets or outlets should be removed.

Greenhouse Gas Operational Measures

MM GHG-1 Redlands Crossing Center shall use refrigerants in its refrigerator and freezer system with an average global warming potential of 1,893 or lower.

Source: Census 2000 Data, The CaSIL, MBA GIS 2009.

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NORTH

5 2.5 0 5 Miles

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Exhibit 1
Regional Location Map

REDLANDS CROSSING CENTER
AIR QUALITY AND GREENHOUSE GAS ANALYSIS REPORT

Source: San Bernardino County NAIP, 2009.

Exhibit 2
Local Vicinity Map
Aerial Base

NORTH

670 335 0 670 Feet

Michael Brandman Associates

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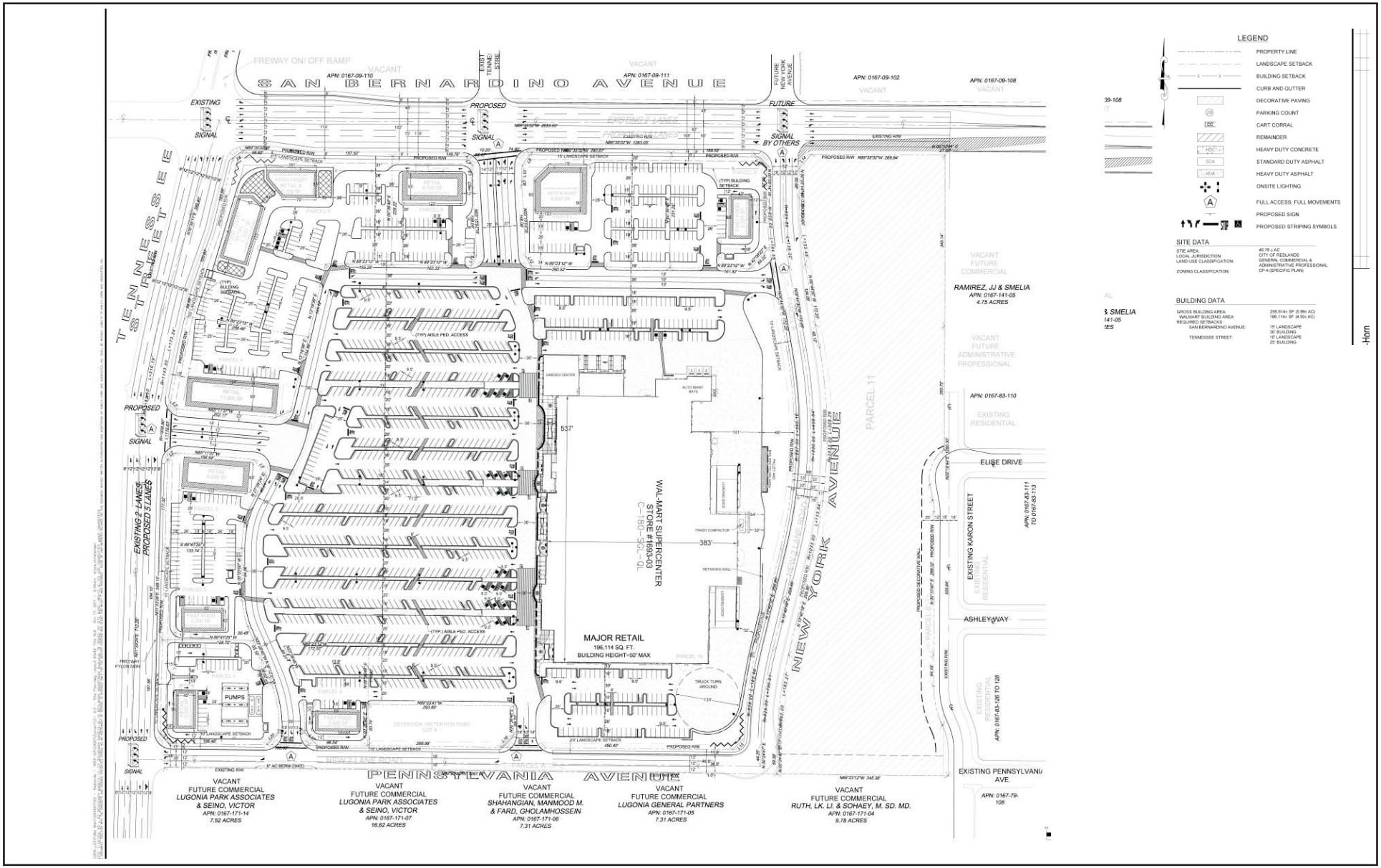
REDLANDS CROSSING CENTER
AIR QUALITY AND GREENHOUSE GAS ANALYSIS REPORT



Source: Kimley-Horn and Associates, Inc., October 2011.

NORTH

270 135 0 270 Feet

Michael Brandman Associates

06290016 • 11/2011 | 3_site_plan.cdr

Exhibit 3
Proposed Site Plan

REDLANDS CROSSING CENTER
AIR QUALITY AND GREENHOUSE GAS ANALYSIS REPORT

SECTION 2: LOCAL AND REGIONAL ENVIRONMENTAL SETTING

2.1 - Existing Physical Setting

2.1.1 - Local Climate

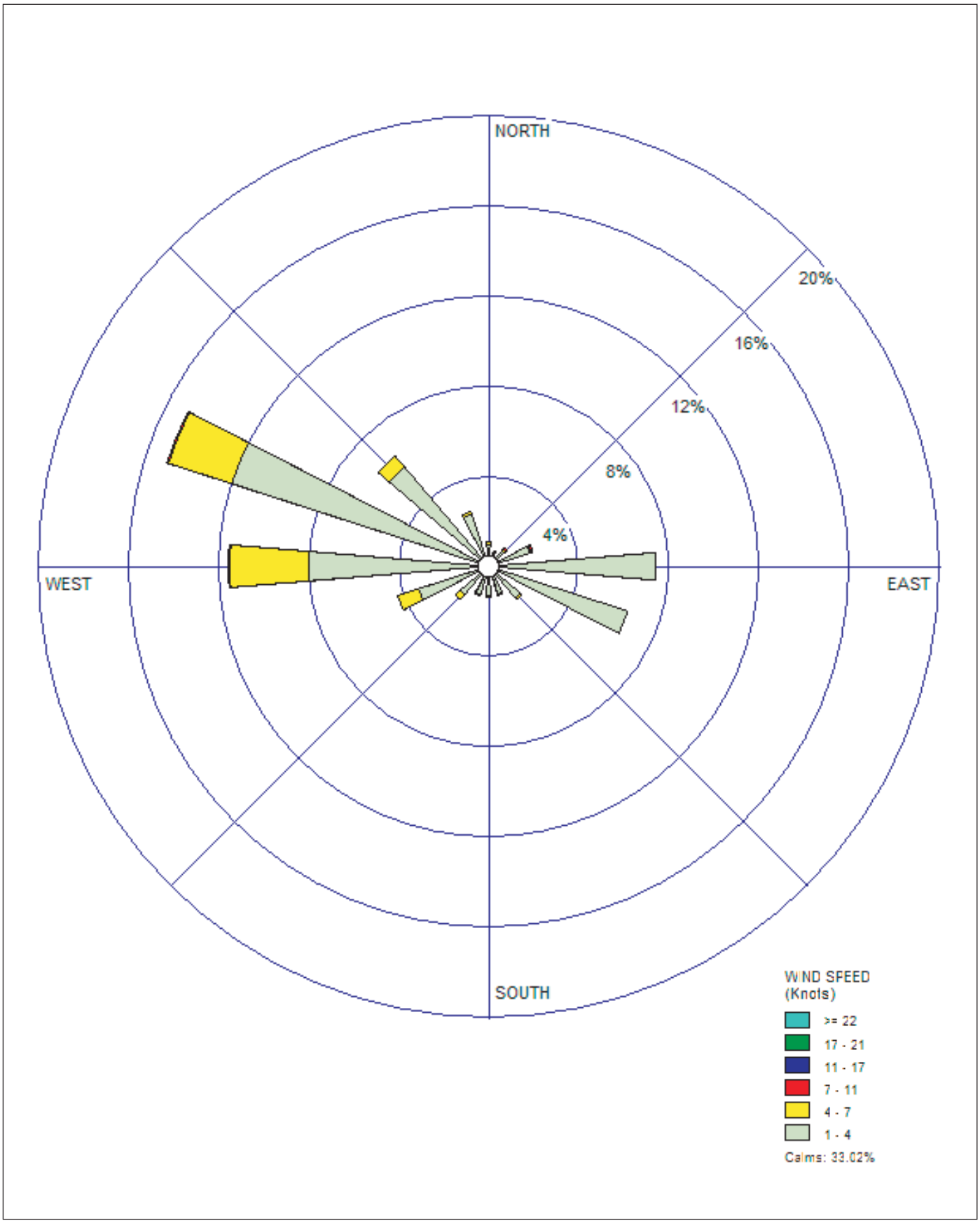
The project is located in the City of Redlands in the County of San Bernardino and is within the South Coast Air Basin (basin). To the west of the basin is the Pacific Ocean. To the north and east of the basin are the San Gabriel, San Bernardino, and San Jacinto mountains, while the southern limit of the basin is the San Diego County line. The basin consists of Orange County, all of Los Angeles County except for the Antelope Valley, the non-desert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The air quality in the basin is impacted by dominant airflows, topography, atmospheric inversions, location, season, and time of day.

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the region form natural horizontal barriers to the dispersion of air contaminants. Air pollution created in the coastal areas and around the Los Angeles area is transported inland until it reaches the mountains where the combination of mountains and inversion layers generally prevent further dispersion. This poor ventilation results in a gradual degradation of air quality from the coastal areas to inland areas. Air stagnation may occur during the early evening and early morning periods of transition between day and nighttime flows. The region also experiences periods of hot, dry winds from the desert, known as Santa Ana winds. If the Santa Ana winds are strong, they can surpass the sea breeze, which blows from the ocean to the land, and carry the suspended dust and pollutants out to the ocean. If the winds are weak, they are opposed by the sea breeze and cause stagnation, resulting in high pollution events.

Exhibit 4 provides a wind rose[2] for the SCAQMD Redlands air monitoring station located about eight miles southeast of the project site. As can be seen from Exhibit 4, the local dominant wind blows predominantly from the west quadrant. The annual average annual wind speed is about 2 mph. These data were developed by the SCAQMD for the year 2007 and are considered representative of meteorological conditions at the project site.

The annual average temperature varies little throughout much of the basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas where the project site is located.

[2] A wind rose is used to depict the frequency of wind directions and wind speed at a location. Air quality is often correlated with the dominant transport directions of the wind as depicted in the wind rose.



Source: Michael Brandman Associates and ISC/AERMOD View.

Michael Brandman Associates

Exhibit 4
Wind Rose - Redlands (2007)

The climatological station closest to the project site is a National Weather Service Cooperative weather station located in Redlands. Climatological data from the National Weather Service at this station spanning the period 1971-2000 indicate an annual average temperature of 64.5 Fahrenheit, with December the coldest month (mean minimum daily temperatures of 39.8° Fahrenheit) and July and August, the warmest months of the year (mean daily maximum temperatures of 95° Fahrenheit).

The majority of the annual rainfall in the basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thunderstorms in the coastal regions and slightly heavier showers in the eastern portion of the basin along the coastal side of the mountains. The climatological data from the Redlands National Weather Service Coop station spanning the period 1971-2000 indicate an annual average precipitation of 13.6 inches. Eighty-five (85) percent of the annual rainfall occurs during the November to March rain season. Highest monthly average rainfall occurs during January and February. Year to year patterns in rainfall are unpredictable due to fluctuations in the weather.

General meteorological data for the Redlands area, as measured at the Redlands Municipal Airport weather station, are presented in Table 3.

Table 3: Redlands Meteorological Summary

Month	Temperature (°F)		Average Precipitation (inches)
	Average High	Average Low	
January	65.0	39.5	2.51
February	66.3	41.4	2.69
March	69.2	43.7	2.20
April	74.1	47.0	1.15
May	79.1	51.6	0.41
June	86.6	55.6	0.10
July	94.6	60.8	0.07
August	94.4	61.2	0.17
September	90.2	58.2	0.33
October	81.2	51.6	0.66
November	72.5	43.9	1.12
December	66.2	39.7	1.87
Annual Average	**78.3**	**49.5**	**13.30**

Notes:
Averages derived from measurements recorded between 1927 and 2007.
Source: Western Regional Climate Center 2007.

Temperature inversions are another important feature that limits the vertical depth through which pollution can be mixed. During the summer, coastal areas are characterized by a sharp discontinuity

between the cool marine air at the surface and the warm, sinking air aloft within the high-pressure cell over the ocean to the west. This marine/subsidence inversion allows for good local mixing, but acts like a giant lid over the Basin. The air remains stagnant, as the average wind speed in downtown Los Angeles becomes less than five mph. A second type of inversion forms on clear winter nights when cold air off the mountains to the south sinks to the valley floor while the air aloft over the valley remains warm. This forms radiation inversions. These inversions, in conjunction with calm winds, trap pollutants such as those from automobile exhaust near their source. They lead to air pollution "hotspots" in heavily developed coastal areas of the Basin, but onshore breezes often push the pollutants along canyons into the inland valleys. Summers are often periods of hazy visibility and occasionally unhealthful air, while winter air quality impacts tend to be highly localized and can consist of elevated levels of nitrogen dioxide and fine particulate matter.

2.1.2 - Local Air Quality

The local air quality can be evaluated by reviewing relevant air pollution concentrations near the project area. For evaluation purposes, the SCAQMD has divided the basin into 36 Source Receptor Areas within the Basin operating monitoring stations in most of the areas. These Source Receptor Areas are designated to provide a general representation of the local meteorological, terrain, and air quality conditions within the particular geographical area. The project is within Source Receptor Area 35, East San Bernardino Valley. The pollutant levels from SRA 35 were used to comprise a "background" for the project location.

Table 4 summarizes 2008 through 2010 published monitoring data, which is the most recent 3-year period available. The data shows that during the past few years, the project area has exceeded the ozone, PM_{10}, and $PM_{2.5}$ standards.

Table 4: Air Quality Monitoring Summary

Air Pollutant, Location	Averaging Time	Item	2008	2009	2010
Ozone	1 Hour	Max 1 Hour (ppm)	0.154	0.45	0.128
		Days > State Standard (0.09 ppm)	72	62	43
	8 Hour	Max 8 Hour (ppm)	0.121	0.122	0.112
		Days > State Standard (0.07 ppm)	100	91	82
		Days > National Standard (0.075 ppm)	75	73	61
Carbon monoxide	1 Hour*	Max 1 Hour (ppm)	2	3	3
		Days > State Standard (20 ppm)	0	0	0
		Days > National Standard (35 ppm)	0	0	0
	8 Hour	Max 8 Hour (ppm)	1.68	2.20	1.73
		Days > State Standard (9.0 ppm)	0	0	0
		Days > National Standard (9 ppm)	0	0	0

Table 4 (cont.): Air Quality Monitoring Summary

Air Pollutant, Location	Averaging Time	Item	2008	2009	2010
Nitrogen dioxide	Annual	Annual Average (ppm)	0.022	0.020	0.019
	1 Hour	Max 1 Hour (ppm)	0.091	0.084	0.069
		Days > State Standard (0.18 ppm)	0	0	0
	1 Hour 98th	1 Hour 98th Percentile**	0.069	0.07	ND
Sulfur dioxide	Annual	Annual Average (ppm)	0.001	0.000	ID
	24 Hour	Max 24 Hour (ppm)	0.003	0.002	0.002
		Days > State Standard (0.04 ppm)	0	0	0
Inhalable coarse particles (PM_{10})	Annual	Annual Average ($\mu g/m^3$)	29.1	30.2	25.9
	24 hour	24 Hour ($\mu g/m^3$)	58	52	57
		Days > State Standard (50 $\mu g/m^3$)	12	0	1
		Days > National Standard (150 $\mu g/m^3$)	0	0	0
Fine particulate matter ($PM_{2.5}$)	Annual	Annual Average ($\mu g/m^3$)	13.3	12.9	11.1
	24 Hour	24 Hour ($\mu g/m^3$)	43.5	37.8	39.3
		Days > National Standard (35 $\mu g/m^3$)	10	6	6

Abbreviations:
> = exceed ppm = parts per million $\mu g/m^3$ = micrograms per cubic meter
ID = insufficient data ND = no data max = maximum
State Standard = California Ambient Air Quality Standard
National Standard = National Ambient Air Quality Standard
Sources: California Air Resources Board 2011a. Ozone and PM_{10} from Redlands – Dearborn station; carbon monoxide, nitrogen dioxide, and $PM_{2.5}$ from San Bernardino – 4th Street; sulfur dioxide from Fontana
* 2008, 2009: South Coast Air Quality Management District 2011b; 2010 calculated from 8-hour by dividing by 0.7.
** 98th percentile for 2008 is for the 3-year period 2006-2008 from South Coast Air Quality Management District (contained in Appendix E), from San Bernardino, 129 $\mu g/m^3$ is converted to ppm by multiplying by 0.02449 and dividing by the molecular weight 46.01). The 2009 is from South Coast Air Quality Management District 2011b.

2.1.3 - Attainment Status

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or 'form' of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the Federal annual $PM_{2.5}$ standard is met if the three-year average of the annual average $PM_{2.5}$ concentration is less than or equal to the standard.

The current attainment designations for the basin are shown in Table 5. The basin is designated as nonattainment for the state and federal ozone, PM_{10}, and $PM_{2.5}$, standards. The basin is also in nonattainment for the state nitrogen dioxide annual standard, based on the 2006 – 2008 data. Based on more recent data (2007 – 2009), the basin would be in attainment for nitrogen dioxide; however, the State has not officially designated the basin as in attainment.

Table 5: South Coast Air Basin Attainment Status

Pollutant	State Status	National Status
Ozone	Nonattainment	Nonattainment
Carbon monoxide	Attainment	Attainment
Nitrogen dioxide (annual)	Nonattainment	Attainment
Nitrogen dioxide (1-hour)	Attainment	Unclassified[1]
Sulfur dioxide	Attainment	Attainment
PM_{10}	Nonattainment	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment

Notes:
[1] EPA set a new one-hour standard for nitrogen dioxide at a level of 100 parts per billion on January 25, 2010, which became effective April 12, 2010. The EPA expects to identify or designate areas not meeting the new standard, based on the existing community-wide monitoring network, by January 2012.
Source: State status from California Air Resources Board 2010b; national status from U.S. Environmental Protection Agency 2011a.

2.2 - Regulatory Setting

Air pollutants are regulated at the national, state, and air basin level; each agency has a different level of regulatory responsibility. The United States Environmental Protection Agency (EPA) regulates at the national level. The California Air Resources Board (ARB) regulates at the state level. The South Coast Air Quality Management District (SCAQMD) regulates at the air basin level.

2.2.1 - National and State

The EPA is responsible for global, international, national, and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Ambient Air Quality Standards, also known as federal standards. There are federal standards for six common air pollutants, called criteria air pollutants, which were identified from provisions of the Clean Air Act of 1970. The criteria pollutants are:

- Ozone
- Nitrogen dioxide
- Lead
- Particulate matter (PM_{10} and $PM_{2.5}$)
- Carbon monoxide (CO)
- Sulfur dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health (California Air Resources Board 2010a).

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by the ARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts-- air district prepares their federal attainment plan, which sent to ARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms.

The ARB also administers California Ambient Air Quality Standards (state standards) for the 10 air pollutants designated in the California Clean Air Act. The 10 state air pollutants are the six federal standards listed above as well visibility-reducing particulates, hydrogen sulfide, sulfates, and vinyl chloride.

The federal and State ambient air quality standards, relevant effects, properties, and sources of the pollutants are summarized in Table 6.

Several pollutants listed in Table 6 are not addressed in this analysis. Analysis of lead is not included in this report because the project is not anticipated to emit lead. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed. The project is not expected to generate or be exposed to vinyl chloride because proposed project uses do not utilize the chemical processes that create this pollutant and there are no such uses in the project vicinity. The proposed project is not expected to cause exposure to hydrogen sulfide because it would not generate hydrogen sulfide in any substantial quantity.

Table 6: Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Ozone	1 Hour	0.09 ppm	—	(a) Decrease of pulmonary function and localized lung edema in humans and animals; (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) increased mortality risk; (d) altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) vegetation damage; (f) property damage.	Ozone is a photochemical pollutant as it is not emitted directly into the atmosphere, but is formed by a complex series of chemical reactions between volatile organic compounds (VOC), NO_X, and sunlight. Ozone is a regional pollutant that is generated over a large area and is transported and spread by the wind.	Ozone is a secondary pollutant; thus, it is not emitted directly into the lower level of the atmosphere. The primary sources of ozone precursors (VOC and NO_X) are mobile sources (on-road and off-road vehicle exhaust).
	8 Hour	0.070 ppm	0.075 ppm			
Carbon monoxide (CO)	1 Hour	20 ppm	35 ppm	(a) Aggravation of angina pectoris (chest pain) and other aspects of coronary heart disease; (b) decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) impairment of central nervous system functions; (d) possible increased risk to fetuses.	CO is a colorless, odorless, toxic gas. CO is somewhat soluble in water; therefore, rainfall and fog can suppress CO conditions. CO enters the body through the lungs, dissolves in the blood, replaces oxygen as an attachment to hemoglobin, and reduces available oxygen in the blood.	CO is produced by incomplete combustion of carbon-containing fuels (e.g., gasoline, diesel fuel, and biomass). Sources include motor vehicle exhaust, industrial processes (metals processing and chemical manufacturing), residential wood burning, and natural sources.
	8 Hour	9.0 ppm	9 ppm			
Nitrogen dioxide [c] (NO_2)	1 Hour	0.18 ppm	0.100 ppm	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) contribution to atmospheric discoloration.	During combustion of fossil fuels, oxygen reacts with nitrogen to produce nitrogen oxides - NO_X (NO, NO_2, NO_3, N_2O, N_2O_3, N_2O_4, and N_2O_5). NO_X is a precursor to ozone, PM_{10}, and $PM_{2.5}$ formation. NO_X can react with compounds to form nitric acid and related particles.	NO_X is produced in motor vehicle internal combustion engines and fossil fuel-fired electric utility and industrial boilers. NO_2 concentrations near major roads can be 30 to 100 percent higher than those at monitoring stations.
	Annual	0.030 ppm	0.053 ppm			

Table 6 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Sulfur dioxide (SO_2)	1 Hour	0.25 ppm	0.075 ppm[d]	Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient sulfur dioxide levels. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.	Sulfur dioxide is a colorless, pungent gas. At levels greater than 0.5 ppm, the gas has a strong odor, similar to rotten eggs. Sulfur oxides (SO_X) include sulfur dioxide and sulfur trioxide. Sulfuric acid is formed from sulfur dioxide, which can lead to acid deposition and can harm natural resources and materials. Although sulfur dioxide concentrations have been reduced to levels well below state and federal standards, further reductions are desirable because sulfur dioxide is a precursor to sulfate and PM_{10}.	Human caused sources include fossil-fuel combustion, mineral ore processing, and chemical manufacturing. Volcanic emissions are a natural source of sulfur dioxide. The gas can also be produced in the air by dimethylsulfide and hydrogen sulfide. Sulfur dioxide is removed from the air by dissolution in water, chemical reactions, and transfer to soils and ice caps. The sulfur dioxide levels in the State are well below the maximum standards.
	3 Hour[1]	—	0.5 ppm			
	24 Hour	0.04 ppm	—			
Particulate matter (PM_{10})	24 hour	50 µg/m^3	150 µg/m^3	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) declines in pulmonary function growth in children; (c) increased risk of premature death from heart or lung diseases in the elderly. Daily fluctuations in $PM_{2.5}$ levels have been related to hospital admissions for acute respiratory conditions, school absences, and increased medication use in children and adults with asthma.	Suspended particulate matter is a mixture of small particles that consist of dry solid fragments, droplets of water, or solid cores with liquid coatings. The particles vary in shape, size, and composition. PM_{10} refers to particulate matter that is between 2.5 and 10 microns in diameter, (1 micron is one-millionth of a meter). $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter.	Stationary sources include fuel combustion for electrical utilities, residential space heating, and industrial processes; construction and demolition; metals, minerals, and petrochemicals; wood products processing; mills and elevators used in agriculture; erosion from tilled lands; waste disposal, and recycling. Mobile or transportation-related sources are from vehicle exhaust and road dust.
	Mean	20 µg/m^3	—			
Particulate matter ($PM_{2.5}$)	24 Hour	—	35 µg/m^3			
	Annual	12 µg/m^3	15.0 µg/m^3			
Visibility reducing particles	8 Hour	Extinction coefficient of 0.23 per kilometer; visibility of ten miles or more (0.07 - 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent.				

Table 6 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Sulfates	24 Hour	25 µg/m^3	—	(a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardio-pulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.	The sulfate ion is a polyatomic anion with the empirical formula SO_4^{2-}. Sulfates occur in combination with metal and/or hydrogen ions. Many sulfates are soluble in water.	Sulfates are particulates formed through the photochemical oxidation of sulfur dioxide. In California, the main source of sulfur compounds is combustion of gasoline and diesel fuel.
Lead[b]	30-day	1.5 µg/m^3	—	Lead accumulates in bones, soft tissue, and blood and can affect the kidneys, liver, and nervous system. It can cause impairment of blood formation and nerve conduction, behavior disorders, mental retardation, neurological impairment, learning deficiencies, and low IQs.	Lead is a solid heavy metal that can exist in air pollution as an aerosol particle component. Leaded gasoline was used in motor vehicles until around 1970. Lead concentrations have not exceeded state or federal standards at any monitoring station since 1982.	Lead ore crushing, lead-ore smelting, and battery manufacturing are currently the largest sources of lead in the atmosphere in the United States. Other sources include dust from soils contaminated with lead-based paint, solid waste disposal, and crustal physical weathering.
	Quarter	—	1.5 µg/m^3			
	Rolling 3-month average	—	0.15 µg/m^3			
Vinyl chloride[b]	24 Hour	0.01 ppm	—	Short-term exposure to high levels of vinyl chloride in the air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of a rare cancer, liver angiosarcoma, and have suggested a relationship between exposure and lung and brain cancers.	Vinyl chloride, or chloroethene, is a chlorinated hydrocarbon and a colorless gas with a mild, sweet odor. In 1990, ARB identified vinyl chloride as a toxic air contaminant and estimated a cancer unit risk factor.	Most vinyl chloride is used to make polyvinyl chloride plastic and vinyl products, including pipes, wire and cable coatings, and packaging materials. It can be formed when plastics containing these substances are left to decompose in solid waste landfills. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites.

Table 6 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Hydrogen sulfide	1 Hour	0.03 ppm	—	High levels of hydrogen sulfide can cause immediate respiratory arrest. It can irritate the eyes and respiratory tract and cause headache, nausea, vomiting, and cough. Long exposure can cause pulmonary edema.	Hydrogen sulfide (H_2S) is a flammable, colorless, poisonous gas that smells like rotten eggs.	Manure, storage tanks, ponds, anaerobic lagoons, and land application sites are the primary sources of hydrogen sulfide. Anthropogenic sources include the combustion of sulfur containing fuels (oil and coal).
Volatile organic compounds (VOC)		There are no State or federal standards for VOCs because they are not classified as criteria pollutants.		Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations because of interference with oxygen uptake. In general, concentrations of VOCs are suspected to cause eye, nose, and throat irritation; headaches; loss of coordination; nausea; and damage to the liver, the kidneys, and the central nervous system. Many VOCs have been classified as toxic air contaminants.	Reactive organic gases (ROGs), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably.	Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM_{10} and lower visibility.
Benzene		There are no ambient air quality standards for benzene.		Short-term (acute) exposure of high doses from inhalation of benzene may cause dizziness, drowsiness, headaches, eye irritation, skin irritation, and respiratory tract irritation, and at higher levels, loss of consciousness can occur. Long-term (chronic) occupational exposure of high doses has caused blood disorders, leukemia, and lymphatic cancer.	Benzene is a VOC. It is a clear or colorless light-yellow, volatile, highly flammable liquid with a gasoline-like odor. The EPA has classified benzene as a "Group A" carcinogen.	Benzene is emitted into the air from fuel evaporation, motor vehicle exhaust, tobacco smoke, and from burning oil and coal. Benzene is used as a solvent for paints, inks, oils, waxes, plastic, and rubber. It is used in the extraction of oils from seeds and nuts and in the manufacture of detergents, explosives, and pharmaceuticals.

Table 6 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
Diesel particulate matter (DPM)		There are no ambient air quality standards for DPM.		Some short-term (acute) effects of DPM exposure include eye, nose, throat, and lung irritation, coughs, headaches, light-headedness, and nausea. Studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems. Human studies on the carcinogenicity of DPM demonstrate an increased risk of lung cancer, although the increased risk cannot be clearly attributed to diesel exhaust exposure.	DPM is a source of $PM_{2.5}$—diesel particles are typically 2.5 microns and smaller. Diesel exhaust is a complex mixture of thousands of particles and gases that is produced when an engine burns diesel fuel. Organic compounds account for 80 percent of the total particulate matter mass, which consists of compounds such as hydrocarbons and their derivatives, and polycyclic aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust.	Diesel exhaust is a major source of ambient particulate matter pollution in urban environments. Typically, the main source of DPM is from combustion of diesel fuel in diesel-powered engines. Such engines are in on-road vehicles such as diesel trucks, off-road construction vehicles, diesel electrical generators, and various pieces of stationary construction equipment.

Notes:
ppm = parts per million (concentration) $\mu g/m^3$ = micrograms per cubic meter Annual = Annual Arithmetic Mean 30-day = 30-day average Quarter = Calendar quarter

[a] Federal standard refers to the primary national ambient air quality standard, or the levels of air quality necessary, with an adequate margin of safety to protect the public health. All standards listed are primary standards except for 3 Hour SO_2, which is a secondary standard. A secondary standard is the level of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[b] 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.

[c] Effective April 12, 2010; the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb, or 188 $\mu g/m^3$

[d] To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

Source of effects: South Coast Air Quality Management District 2007b; California Environmental Protection Agency 2002; California Air Resources Board 2009; U.S. Environmental Protection Agency 2010; U.S. Environmental Protection Agency 2000; National Toxicology Program 2005a.
Source of standards: California Air Resources Board 2010a.
Source of properties and sources: U.S. Environmental Protection Agency 1999; U.S. Environmental Protection Agency 2003; U.S. Environmental Protection Agency 2011b; U.S. Environmental Protection Agency 2009a; National Toxicology Program 2005b.

Asbestos

Asbestos is listed as a toxic air contaminant by ARB and as a Hazardous Air Pollutant by the EPA. Asbestos occurs naturally in surface deposits of several types of rock formations. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Crushing or breaking these rocks, through construction or other means, can release asbestoform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma.

There is no asbestos in the project area (U.S. Geological Survey 2011).

Toxic Air Contaminants

A toxic air contaminant, or TAC, is defined as an air pollutant which may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air. However, their high toxicity or health risk may pose a threat to public health even at very low concentrations. For those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts are not expected to occur. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the State and federal governments have set ambient air quality standards. The majority of the estimated health risk from TACs can be attributed to a relatively few compounds, the most important being PM from diesel-fueled engines, diesel particulate matter (DPM). In addition to DPM, benzene and 1,3-butadiene are also significant contributors to overall ambient public health risk in California.

Both SCAQMD and the ARB have monitoring networks in the Basin that measure ambient concentrations of certain TACs that are associated with important health-related effects and are present in appreciable concentrations in the Basin. The SCAQMD uses this information to determine health risks for a particular area. The ARB publishes annual Statewide, air basin, and location-specific summaries of the concentration levels of several TACs and their resulting cancer risks[3]. The most recent summary is the ARB Air Quality Almanac for 2009 (California Air Resources Board 2009b). The Almanac presents the relevant concentration and cancer risk data for selected TACs that pose the most substantial health risk in California based on available data. These TACs are: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and DPM. DPM is not directly measured but is indirectly estimated based on fine particulate matter measurements and

[3] Cancer risk is expressed as a probability of an individual out of a population of one million contracting cancer via a continuous exposure to TACs over a 70-year lifetime.

special studies on the chemical speciation of ambient fine particulate data along with receptor modeling techniques.

Based on the information contained in the Almanac, estimates of total cancer risk in the Basin have shown a steady decline from the early 1990s when the average cancer risk was estimated to be 1,696 in one million. By the year 2000, the cancer risk had declined to 1,005 in one million or a reduction of 41 percent. Reductions in cancer risk are expected to continue into the future as new emission controls are implemented that further reduce DPM emissions, the major component of the total cancer risk. In 2007, diesel particulate matter accounted for, on average, 79 percent of the cancer risk. Table 7 provides this summary of TACs and health risk information from the ARB Almanac for the most recent three-year period, 2007- 2009 for the Riverside Rubidoux air monitoring station located about 14 miles southwest of the project. The cancer risk attributable to the non-DPM chemicals (i.e., the nine TACs measured by the ARB described above) have also shown significant reductions at the Rubidoux location declining from an estimated cancer risk of 429 in one million in 1990 to 129 in one million in 2006, a reduction of 70 percent.

Table 7: Toxic Air Contaminant Concentration Levels and Health Risks - Riverside

TAC	Concentration(1) and Risk(2)	2005	2006	2007
Acetaldehyde	Annual Ave. Health Risk	1.7 8	0.97 5	1.08 5
Benzene	Annual Ave. Health Risk	0.51 47	0.42 39	0.40 37
1,3-Butadiene	Annual Ave. Health Risk	0.11 42	0.08 31	0.08 30
Carbon Tetrachloride	Annual Ave. Health Risk	ND	ND	ND
Chromium, Hex	Annual Ave. Health Risk	ND	ND	0.23 35
Para-Dichlorobenzene	Annual Ave. Health Risk	0.15 10	0.15 10	ND
Formaldehyde	Annual Ave. Health Risk	3.5 26	2.6 19	2.9 21
Methylene Chloride	Annual Ave. Health Risk	0.3 1	0.2 <1	0.1 <1
Perchloroethylene	Annual Ave. Health Risk	0.05 2	0.04 1	0.04 1
Diesel PM	Annual Ave. Health Risk	No monitoring data available		
Total Health Risk (without DPM)		136	105	129

Table 7 (cont.): Toxic Air Contaminant Concentration Levels and Health Risks - Riverside

TAC	Concentration[(1)] and Risk[(2)]	2005	2006	2007

Notes:
[(1)] Concentrations for Hexavalent Chromium are expressed as ng/m^3, and concentrations for DPM are expressed as µg/m^3. Concentrations for all other TACs are expressed as ppb.
[(2)] Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information is not available.
ND = no data reported Annual Ave. = annual average
Source: California Air Resources Board 2009b for the Riverside Rubidoux air monitoring station.

In addition to the measurements presented in the ARB Almanac, the SCAQMD conducted a detailed TAC emission inventory, air sampling, and dispersion modeling study called the Multiple Air Toxics Exposure Study in the South Coast Air Basin (MATES-II) (South Coast Air Quality Management District 2000) and (MATES-III) (South Coast Air Quality Management District 2008d). The MATES Studies provided information on the importance of various TACs in terms of their relative health risks as well as their spatial magnitude and distribution across the Basin. The MATES-III information can be used to characterize the "background" health risks from both regional and local TAC emission sources. The MATES-III program results indicate that the cancer risks in the area where the Project site is located are estimated to be 691 in one million of which DPM contributes approximately 84 percent of the total cancer risk. The MATES III study found that the population weighted cancer risk in the entire Basin was estimated to be 853 in one million.

State of California

ARB Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling adopts new section 2485 within Chapter 10, Article 1, Division 3, title 13 in the California Code of Regulations. The measure limits the idling of diesel vehicles to reduce emissions of toxics and criteria pollutants. The driver of any vehicle subject to this section: (1) shall not idle the vehicle's primary diesel engine for greater than five minutes at any location; and (2) shall not idle a diesel-fueled auxiliary power system for more than five minutes to power a heater, air conditioner, or any ancillary equipment on the vehicle if it has a sleeper berth and the truck is located within 100 feet of a restricted area (homes and schools).

ARB Final Regulation Order, Requirements to Reduce Idling Emissions from New and In-Use Trucks, requires that new 2008 and subsequent model-year heavy-duty diesel engines be equipped with an engine shutdown system that automatically shuts down the engine after 300 seconds of continuous idling operation once the vehicle is stopped, the transmission is set to "neutral" or "park," and the parking brake is engaged. If the parking brake is not engaged, then the engine shutdown system shall shut down the engine after 900 seconds of continuous idling operation once the vehicle

is stopped and the transmission is set to "neutral" or "park." Any project trucks manufactured after 2008 would be consistent with this rule, which would ultimately reduce air emissions.

ARB Regulation for In-Use Off-Road Diesel Vehicles. On July 26, 2007, the ARB adopted a regulation to reduce diesel particulate matter and NOx emissions from in-use (existing) off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. The ARB is enforcing that part of the rule with fines up to $10,000 per day for each vehicle in violation. Performance requirements of the rule are based on a fleet's average NOx emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirements making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less).

Statewide Truck and Bus Rule. On December 12, 2008, the ARB approved a new regulation to significantly reduce emissions from existing on-road diesel vehicles operating in California. The regulation requires affected trucks and buses to meet performance requirements between 2011 and 2023. By January 1, 2023, all vehicles must have a 2010 model year engine or equivalent. The regulation applies to all on-road heavy-duty diesel-fueled vehicles with a gross vehicle weight rating greater than 14,000 pounds, agricultural yard trucks with off-road certified engines, and certain diesel fueled shuttle vehicles of any gross vehicle weight rating. Out-of-state trucks and buses that operate in California are also subject to the regulation.

ARB Airborne Toxic Control Measure. In July 2001, the ARB approved an Air Toxic Control Measure for construction, grading, quarrying and surface mining operations to minimize emissions of naturally occurring asbestos. The regulation requires application of best management practices to control fugitive dust in areas known to have naturally occurring asbestos and requires notification to the local air district prior to commencement of ground-disturbing activities. The measure establishes specific testing, notification and engineering controls prior to grading, quarrying or surface mining in construction zones where naturally occurring asbestos is located on projects of any size. There are additional notification and engineering controls at work sites larger than one acre in size. These projects require the submittal of a "Dust Mitigation Plan" and approval by the air district prior to the start of a project.

2.2.2 - South Coast Air Quality Management District

The agency for air pollution control for the South Coast Air Basin (basin) is the South Coast Air Quality Management District (SCAQMD). SCAQMD is responsible for controlling emissions primarily from stationary sources. SCAQMD maintains air quality monitoring stations throughout the basin. SCAQMD, in coordination with the Southern California Association of Governments, is also responsible for developing, updating, and implementing the Air Quality Management Plan

(AQMP) for the basin. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as nonattainment of the federal and/or California ambient air quality standards. The term nonattainment area is used to refer to an air basin where one or more ambient air quality standards are exceeded.

One of the purposes of the 2003 AQMP is to lead the basin and portions of the Salton Sea Air Basin under SCAQMD jurisdiction into compliance with the 1-hour ozone and PM_{10} federal standards (South Coast Air Quality Management District 2003). One of the purposes of the 2007 AQMP is to lead the basin into compliance of the federal 8-hour ozone and $PM_{2.5}$ standards.

The 2003 AQMP also replaced the 1997 attainment demonstration for the federal CO standard and provided a basis for a maintenance plan for CO for the future, and updated the maintenance plan for the federal nitrogen dioxide standard that the South Coast Air Basin has met since 1992 (2003 AQMP, page 1-1).

The 2003 AQMP also incorporated new scientific data in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The 2003 AQMP utilized complex modeling to show that with the control measures, the basin would be in compliance with the federal and state standards for all pollutants by 2010, except for the state ozone and PM_{10} standards and the state ozone and PM_{10} standard after 2010 or by the earliest practicable date, as mandated by the California Health and Safety Code Section 40462. The ARB approved the 2003 AQMP on August 1, 2003. The EPA's adequacy finding on the emissions budgets for conformity determination in the basin was published in the Federal Register (69 FR 15325-15326).

The 2007 AQMP, which was adopted by the SCAQMD on June 1, 2007 (South Coast Air Quality Management District 2007b). On July 13, 2007, the SCAQMD Board adopted the 2007 Final AQMP Transportation Conformity Budgets and directed the Executive Officer to forward them to ARB for its approval and subsequent submittal to the EPA. On September 27, 2007, ARB adopted the State Strategy for the 2007 State Implementation Plan and the 2007 AQMP as part of the State Implementation Plan. On January 15, 2009, the EPA's regional administrator signed a final rule to approve in part and disapprove in part the SCAQMD 2003 1-hour ozone plan and the nitrogen dioxide maintenance plan. The parts of the plan that were approved strengthen the State Implementation Plan. The Clean Air Act does not require the disapproved portions of the plan, and the disapprovals do not start sanctions clocks.

The 2007 AQMP outlines a detailed strategy for meeting the federal health-based standards for $PM_{2.5}$ by 2015 and 8-hour ozone by 2024 while accounting for and accommodating future expected growth. The 2007 AQMP incorporates significant new emissions inventories, ambient measurements, scientific data, control strategies, and air quality modeling. Most of the reductions will be from mobile sources, which are currently responsible for about 75 percent of all smog and particulate forming emissions. The 2007 AQMP includes 37 control measures proposed for adoption by the

SCAQMD, including measures to reduce emissions from new commercial and residential developments, more reductions from industrial facilities, and reductions from wood burning fireplaces and restaurant charbroilers.

The SCAQMD is currently in the process of preparing a 2012 AQMP. The 2012 AQMP will incorporate the latest scientific and technological information and planning assumptions, including the 2012 Regional Transportation Plan/Sustainable Communities Strategy and updated emission inventory methodologies for various source categories. The development of the 2012 AQMP will face several challenges, including new and changing federal requirements, implementation of new technology measures, and the continued development of economically sound, flexible compliance approaches.

South Coast Air Quality Management District Rules

The AQMP for the basin establishes a program of rules and regulations administered by SCAQMD to obtain attainment of the state and federal standards. The rules and regulations that apply to this project include, but are not limited to, the following:

SCAQMD Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403 governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

SCAQMD Rule 461 applies to the transfer of gasoline from any tank truck, trailer, or railroad tank car into any stationary storage tank or mobile fueler, and from any stationary storage tank or mobile fueler into any mobile fueler or motor vehicle storage tank.

SCAQMD Rule 481 applies to all spray painting and spray coating operations and equipment. The rule states that a person shall not use or operate any spray painting or spray coating equipment unless one of the following conditions is met:

(1) The spray coating equipment is operated inside a control enclosure, which is approved by the Executive Officer. Any control enclosure for which an application for permit for new construction, alteration, or change of ownership or location is submitted after the date of adoption of this rule shall be exhausted only through filters at a design face

velocity not less than 100 feet per minute nor greater than 300 feet per minute, or through a water wash system designed to be equally effective for the purpose of air pollution control.

(2) Coatings are applied with high-volume low-pressure, electrostatic and/or airless spray equipment.

(3) An alternative method of coating application or control is used which has effectiveness equal to or greater than the equipment specified in the rule.

SCAQMD Rule 1108 governs the sale, use, and manufacturing of asphalt and limits the volatile organic compound (VOC) content in asphalt used in the South Coast Air Basin. This rule would regulate the VOC content of asphalt used during construction. Therefore, all asphalt used during construction of the project must comply with SCAQMD Rule 1108.

SCAQMD Rule 1113 governs the sale, use, and manufacturing of architectural coating and limits the VOC content in paints and paint solvents. This rule regulates the VOC content of paints available during construction. Therefore, all paints and solvents used during construction and operation of the project must comply with SCAQMD Rule 1113.

SCAQMD Rule 1143 governs the manufacture, sale and use of paint thinners and solvents used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content. This rule regulates the VOC content of solvents used during construction. Solvents used during the construction phase must comply with this rule.

SCAQMD Rule 1186 limits the presence of fugitive dust on paved and unpaved roads and sets certification protocols and requirements for street sweepers that are under contract to provide sweeping services to any federal, state, county, agency or special district such as water, air, sanitation, transit, or school district.

SCAQMD Rule 1303 governs the permitting of re-located or new major emission sources, requiring Best Available Control Measures and setting significance limits for PM_{10} among other pollutants.

SCAQMD Rule 1401, New Source Review of Toxic Air Contaminants, specifies limits for maximum individual cancer risk, cancer burden, and noncancer acute and chronic hazard index from new permit units, relocations, or modifications to existing permit units which emit toxic air contaminants.

SCAQMD Rule 2202, On-Road Motor Vehicle Mitigation Options, is to provide employers with a menu of options to reduce mobile source emissions generated from employee commutes, to comply with federal and state Clean Air Act requirements, Health & Safety Code Section 40458, and Section 182(d)(1)(B) of the federal Clean Air Act. It applies to any employer who employs 250 or more employees on a full or part-time basis at a worksite for a consecutive six-month period calculated as a monthly average.

SECTION 3: CLIMATE CHANGE SETTING

3.1 - Climate Change

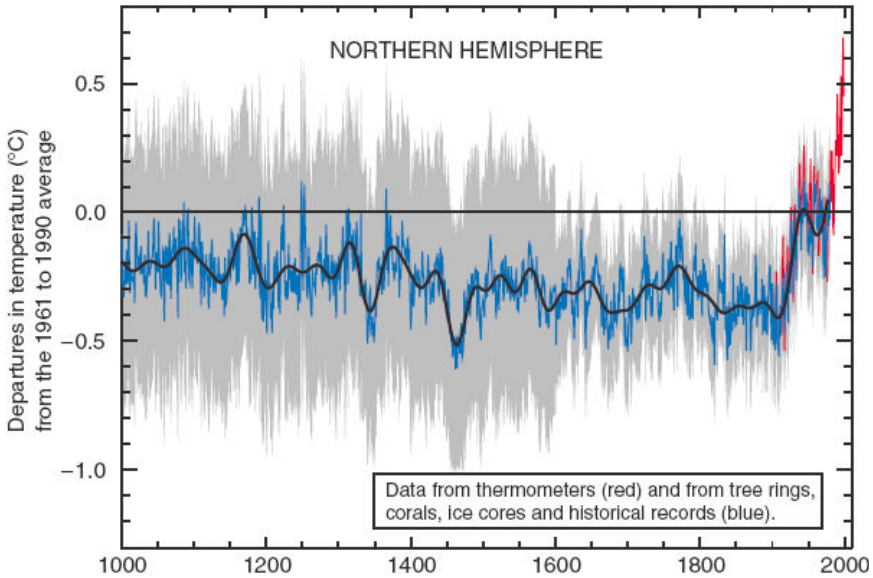
Climate change is a change in the average weather of the earth that is measured by alterations in wind patterns, storms, precipitation, and temperature. These changes are assessed using historical records of temperature changes occurring in the past, such as during previous ice ages. Many of the concerns regarding climate change use this data to extrapolate a level of statistical significance specifically focusing on temperature records from the last 150 years (the Industrial Age) that differ from previous climate changes in rate and magnitude.

The United Nations Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of greenhouse gases needed to stabilize global temperatures and climate change impacts. In its Fourth Assessment Report, the IPCC predicted that the global mean temperature change from 1990 to 2100, given six scenarios, could range from 1.1 degrees Celsius (°C) to 6.4°C. Regardless of analytical methodology, global average temperatures and sea levels are expected to rise under all scenarios (Intergovernmental Panel on Climate Change 2007a). The report also concluded that "[w]arming of the climate system is unequivocal," and that "[m]ost of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations."

Some have questioned the validity of the IPCC's report by claiming that the peer review process could have been inadequate. A recent audit concluded that 48 percent of the chapters in the Fourth Assessment Report received a grade of "F" meaning that 59 percent or fewer of the sources were peer reviewed (NoConsensus.org 2010).

Some question the validity of the temperature graph used by the IPCC in some form in the Third and Fourth Assessment Reports. The graph is shown in Figure 1 (source Intergovernmental Panel on Climate Change 2001). The figure shows that temperatures are relatively stable until 1900, when the temperature increases rapidly. Some scientists have had trouble duplicating the data used for the graph (McIntyre and McKitrick 2003) and indicated when the data is correctly handled "shows the 20th century climate to be unexceptional compared to earlier centuries" (McKitrick 2005). Hans von Storch, a German climate scientist, claimed that the methods used by Mann et al. probably underestimated the temperature fluctuations in the past by a factor of two or more (Von Storch et al. 2004).

Figure 1: Historical Temperature Changes



Consequences of Climate Change in California

In California, climate change may result in consequences such as the following (from California Climate Change Center 2006 and Moser et al. 2009).

- **A reduction in the quality and supply of water from the Sierra snowpack.** If heat-trapping emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. This can lead to challenges in securing adequate water supplies. It can also lead to a potential reduction in hydropower.
- **Increased risk of large wildfires.** If rain increases as temperatures rise, wildfires in the grasslands and chaparral ecosystems of southern California are estimated to increase by approximately 30 percent toward the end of the 21st century because more winter rain will stimulate the growth of more plant "fuel" available to burn in the fall. In contrast, a hotter, drier climate could promote up to 90 percent more northern California fires by the end of the century by drying out and increasing the flammability of forest vegetation.
- **Reductions in the quality and quantity of certain agricultural products.** The crops and products likely to be adversely affected include wine grapes, fruit, nuts, and milk.
- **Exacerbation of air quality problems.** If temperatures rise to the medium warming range, there could be 75 to 85 percent more days with weather conducive to ozone formation in Los Angeles and the San Joaquin Valley, relative to today's conditions. This is more than twice the increase expected if rising temperatures remain in the lower warming range. This increase in air quality problems could result in an increase in asthma and other health-related problems.

- **A rise in sea levels resulting in the displacement of coastal businesses and residences.** During the past century, sea levels along California's coast have risen about seven inches. If emissions continue unabated and temperatures rise into the higher anticipated warming range, sea level is expected to rise an additional 22 to 35 inches by the end of the century. Elevations of this magnitude would inundate coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.
- **An increase temperature and extreme weather events.** Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California. More heat waves can exacerbate chronic disease or heat-related illness.
- **A decrease in the health and productivity of California's forests.** Climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.

3.2 - Greenhouse Gases

Gases that trap heat in the atmosphere are referred to as greenhouse gases. The effect is analogous to the way a greenhouse retains heat. Common greenhouse gases include water vapor, carbon dioxide, methane, nitrous oxides, chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, ozone, and aerosols. Natural processes and human activities emit greenhouse gases. The presence of greenhouse gases in the atmosphere affects the earth's temperature. It is believed that emissions from human activities, such as electricity production and vehicle use, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations.

Climate change is driven by forcings and feedbacks. Radiative forcing is the difference between the incoming energy and outgoing energy in the climate system. Positive forcing tends to warm the surface while negative forcing tends to cool it. Radiative forcing values are typically expressed in watts per square meter. A feedback is a climate process that can strengthen or weaken a forcing. For example, when ice or snow melts, it reveals darker land underneath which absorbs more radiation and causes more warming. The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere. The global warming potential of a gas is essentially a measurement of the radiative forcing of a greenhouse gas compared with the reference gas, carbon dioxide.

Individual greenhouse gas compounds have varying global warming potential and atmospheric lifetimes. Carbon dioxide, the reference gas for global warming potential, has a global warming potential of one. The global warming potential of a greenhouse gas is a measure of how much a given mass of a greenhouse gas is estimated to contribute to global warming. To describe how much global warming a given type and amount of greenhouse gas may cause, the carbon dioxide equivalent is used. The calculation of the carbon dioxide equivalent is a consistent methodology for comparing greenhouse gas emissions since it normalizes various greenhouse gas emissions to a consistent reference gas, carbon dioxide. For example, methane's warming potential of 21 indicates that

methane has 21 times greater warming affect than carbon dioxide on a molecule per molecule basis. A carbon dioxide equivalent is the mass emissions of an individual greenhouse gas multiplied by its global warming potential. Greenhouse gases defined by AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. They are described in Table 8.

Table 8: Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide is also known as laughing gas and is a colorless greenhouse gas. It has a lifetime of 114 years. Its global warming potential is 310.	Microbial processes in soil and water, fuel combustion, and industrial processes.
Methane	Methane is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 21.	Methane is extracted from geological deposits (natural gas fields). Other sources are landfills, fermentation of manure, and decay of organic matter.
Carbon dioxide	Carbon dioxide (CO_2) is an odorless, colorless, natural greenhouse gas. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chloro-fluorocarbons	These are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). Global warming potentials range from 3,800 to 8,100.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited their production in 1987.
Hydro-fluorocarbons	Hydrofluorocarbons are a group of greenhouse gases containing carbon, chlorine, and at least one hydrogen atom. Global warming potentials range from 140 to 11,700.	Hydrofluorocarbons are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons	Perfluorocarbons have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface; therefore, they have long lifetimes, between 10,000 and 50,000 years. Global warming potentials range from 6,500 to 9,200.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas.
Sources: Intergovernmental Panel on Climate Change 2007a and Intergovernmental Panel on Climate Change 2007b.		

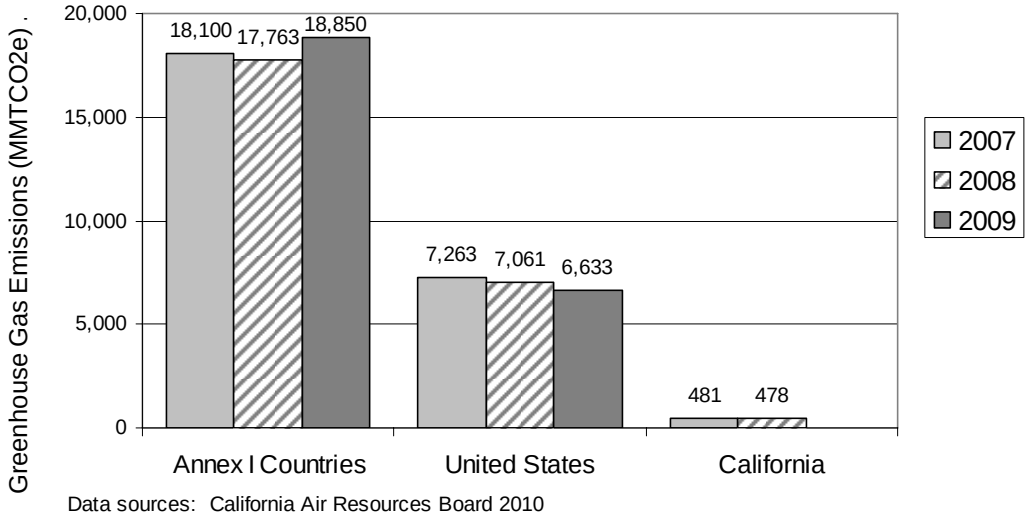
Other greenhouse gases include water vapor, ozone, and aerosols. Water vapor is an important component of our climate system and is not regulated. Ozone and aerosols are short-lived greenhouse gases; global warming potentials for short-lived greenhouse gases are not defined by the IPCC. Aerosols can remain suspended in the atmosphere for about a week and can warm the atmosphere by absorbing heat and cool the atmosphere by reflecting light. Black carbon is a type of aerosol that can also cause warming from deposition on snow.

Although there could be health effects resulting from changes in the climate and the consequences that can bring about, inhalation of greenhouse gases at levels currently in the atmosphere would not result in adverse health effects, with the exception of ozone and aerosols (particulate matter). The potential health effects of ozone and particulate matter are discussed in criteria pollutant analyses. At very high indoor concentrations (not at levels existing outside), carbon dioxide, methane, sulfur hexafluoride, and some chlorofluorocarbons can cause suffocation as the gases can displace oxygen (Centers for Disease Control and Prevention 2005, Occupational Safety and Health Administration 2003).

Emissions Inventories

Emissions worldwide were approximately 49,000 million metric tons of carbon dioxide equivalents ($MMTCO_2e$) in 2004 (Intergovernmental Panel on Climate Change 2007b). Greenhouse gas emissions in 2007, 2008, and 2009 are shown in Figure 2. Annex I parties refer to countries that joined the United Nations Framework Convention on Climate Change.

Figure 2: Greenhouse Gas Emissions Trends



Data sources: California Air Resources Board 2010
U.S. Environmental Protection Agency 2011
United Nations Framework Convention on Climate Change 2010
Notes: 2009 California data not available; Annex I 2007 data is rounded to nearest hundred

City of Redlands

The City of Redlands reported its greenhouse gas emissions for 2008 and 2020 in its Community Sustainability Plan.

Table 9: City of Redlands Greenhouse Gas Emissions

Sector	Greenhouse Gas Emissions[1]	
	2008	2020
Residential natural gas	64,168	72814
Commercial/industrial natural gas	85,131	98,776
Stationary sources	124,045	143,842
Off-road equipment	37,782	41,841
Agriculture	2,864	1,460
Residential electricity	62,315	70,712
Commercial/industrial electricity	88919	102,895
Solid waste management	16812	17,517
Wastewater treatment	3154	3,500
Water conveyance	19187	22,273
SF6 from electrical consumption	1831	2,104
Total	506208	577,734

Notes:
[1] The units for the emissions were not provided; however, it is probably metric tons of carbon dioxide equivalents (MTCO2e).
Source: Redlands 2011.

3.3 - Regulatory Environment

3.3.1 - International

Climate change is a global issue; therefore, many countries around the world have made an effort to reduce greenhouse gases.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations. On March 21, 1994, the United States joined a number of countries around the world in signing the United Nations Framework Convention on Climate Change. Under the Convention, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and

adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

Kyoto Protocol. A particularly notable result of the United Nations Framework Convention on Climate Change efforts is a treaty known as the Kyoto Protocol, which went into effect on February 16, 2005. When countries sign the Kyoto Protocol, they demonstrate their commitment to reduce their emissions of greenhouse gases or engage in emissions trading. More than 170 countries are currently participating in the Kyoto Protocol. Industrialized countries are required to reduce their greenhouse gas emissions by an average of 5 percent below their 1990 levels by 2012. In 1998, United States Vice President Al Gore symbolically signed the Protocol; however, in order for the Kyoto Protocol to be formally ratified, the United States Congress must approve it. Congress did not do this during the Clinton Administration. Former President George W. Bush did not submit the Protocol to Senate to be ratified based on the exemption granted to China. President Barack Obama has not taken action regarding the Kyoto Protocol because it is about to end.

3.3.2 - National

Greenhouse Gas Endangerment. *Massachusetts v. EPA* (Supreme Court Case 05-1120) was argued before the United States Supreme Court on November 29, 2006, in which it was petitioned that the EPA regulate four greenhouse gases, including carbon dioxide, under Section 202(a)(1) of the Clean Air Act. A decision was made on April 2, 2007, in which the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act. The Court held that the Administrator must determine whether emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride—in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a

national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). The second phase of the national program would involve proposing new fuel economy and greenhouse gas standards for model years 2017 – 2025 by September 1, 2011.

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of *heavy-duty trucks and buses*. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and 15 percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the agencies are proposing engine and vehicle standards starting in the 2014 model year which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by 2018 model year.

Mandatory Reporting of Greenhouse Gases. The Consolidated Appropriations Act of 2008, passed in December 2007, requires the establishment of mandatory greenhouse gas reporting requirements. On September 22, 2009, the EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule. The rule requires reporting of greenhouse gas emissions from large sources and suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions are required to submit annual reports to the EPA.

New Source Review. The EPA issued a final rule on May 13, 2010 that establishes thresholds for greenhouse gases that define when permits under the New Source Review Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. This final rule "tailors" the requirements of these Clean Air Act permitting programs to limit which facilities will be required to obtain Prevention of Significant Deterioration and Title V permits. In the preamble to the revisions to the federal code of regulations, EPA states:

> This rulemaking is necessary because without it the Prevention of Significant Deterioration and Title V requirements would apply, as of January 2, 2011, at the 100 or 250 tons per year levels provided under the Clean Air Act, greatly increasing the number of required permits, imposing undue costs on small sources, overwhelming the resources of permitting authorities, and severely impairing the functioning of the programs. EPA is relieving these resource burdens by phasing in the applicability of these programs to greenhouse gas sources, starting with the largest greenhouse gas emitters. This rule establishes two initial steps of the phase-in. The rule also commits the agency to take certain actions on future steps addressing smaller sources, but excludes certain smaller sources from Prevention of Significant Deterioration and Title V permitting for greenhouse gas emissions until at least April 30, 2016.

EPA estimates that facilities responsible for nearly 70 percent of the national greenhouse gas emissions from stationary sources will be subject to permitting requirements under this rule. This includes the nation's largest greenhouse gas emitters—power plants, refineries, and cement production facilities.

3.3.3 - California

Title 24. Although not originally intended to reduce greenhouse gases, California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. All buildings for which an application for a building permit is submitted on or after January 1, 2011 must follow the 2008 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

California Green Building Standards. On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard which buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official.

The California Green Building Standards Code (code section in parentheses) requires:

- **Short-term bicycle parking.** If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1).
- **Long-term bicycle parking.** For buildings with over 10 tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.2).
- **Designated parking.** Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.6.2 (5.106.5.2).
- **Recycling by Occupants.** Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling.
- **Construction waste.** A minimum 50-percent diversion of construction and demolition waste from landfills, increasing voluntarily to 65 and-75 percent for new homes and 80-percent for commercial projects. All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled.
- **Wastewater reduction.** Each building shall reduce the generation of wastewater by one of the following methods:
  1. The installation of water-conserving fixtures or
  2. Utilizing nonpotable water systems (5.303.4).
- **Water use savings.** 20-percent mandatory reduction in indoor water use with voluntary goal standards for 30, 35 and 40-percent reductions.
- **Water meters.** Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day.
- **Irrigation efficiency.** Moisture-sensing irrigation systems for larger landscaped areas.
- **Materials pollution control.** Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring and particle board.
- **Building commissioning.** Mandatory inspections of energy systems (i.e. heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies.

Pavley Regulations. California AB 1493, enacted on July 22, 2002, required the ARB to develop and adopt regulations that reduce greenhouse gases emitted by passenger vehicles and light duty trucks. The regulation was stalled by automaker lawsuits and by the EPA's denial of an implementation waiver. On January 21, 2009, the ARB requested that the EPA reconsider its

previous waiver denial. On January 26, 2009, President Obama directed that the EPA assess whether the denial of the waiver was appropriate. On June 30, 2009, the EPA granted the waiver request.

The standards phase in during the 2009 through 2016 model years. When fully phased in, the near term (2009-2012) standards will result in about a 22-percent reduction compared with the 2002 fleet, and the mid-term (2013-2016) standards will result in about a 30-percent reduction. Several technologies stand out as providing significant reductions in emissions at favorable costs. These include discrete variable valve lift or camless valve actuation to optimize valve operation rather than relying on fixed valve timing and lift as has historically been done; turbocharging to boost power and allow for engine downsizing; improved multi-speed transmissions; and improved air conditioning systems that operate optimally, leak less, and/or use an alternative refrigerant.

Executive Order S-3-05. California Governor Arnold Schwarzenegger announced on June 1, 2005, through Executive Order S-3-05, the following reduction targets for greenhouse gas emissions:

- By 2010, reduce greenhouse gas emissions to 2000 levels.
- By 2020, reduce greenhouse gas emissions to 1990 levels.
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be an aggressive, but achievable, mid-term target. The Climate Action Team's Report to the Governor in 2006 contains recommendations and strategies to help ensure the 2020 targets in Executive Order S-3-05 are met.

Low Carbon Fuel Standard - Executive Order S-01-07. The Governor signed Executive Order S-01-07 on January 18, 2007. The order mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. In particular, the executive order established a Low Carbon Fuel Standard and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, the ARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. This analysis supporting development of the protocols was included in the State Implementation Plan for alternative fuels (State Alternative Fuels Plan adopted by California Energy Commission on December 24, 2007) and was submitted to ARB for consideration as an "early action" item under AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

SB 1368. In 2006, the State Legislature adopted Senate Bill (SB) 1368, which was subsequently signed into law by the Governor. SB 1368 directs the California Public Utilities Commission to adopt a performance standard for greenhouse gas emissions for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from

resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Because of the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants. Accordingly, the new law will effectively prevent California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. Thus, SB 1368 will lead to dramatically lower greenhouse gas emissions associated with California's energy demand, as SB 1368 will effectively prohibit California utilities from purchasing power from out-of-state producers that cannot satisfy the performance standard for greenhouse gas emissions required by SB 1368. The California Public Utilities Commission adopted the regulations required by SB 1368 on August 29, 2007.

SB 97 and the CEQA Guidelines Update. Passed in August 2007, SB 97 added Section 21083.05 to the Public Resources Code. The code states "(a) On or before July 1, 2009, the Office of Planning and Research shall prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by this division, including, but not limited to, effects associated with transportation or energy consumption. (b) On or before January 1, 2010, the Resources Agency shall certify and adopt guidelines prepared and developed by the Office of Planning and Research pursuant to subdivision (a)." Section 21097 was also added to the Public Resources Code. It provided CEQA protection until January 1, 2010 for transportation projects funded by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 or projects funded by the Disaster Preparedness and Flood Prevention Bond Act of 2006, in stating that the failure to adequately analyze the effects of greenhouse gases would not violate CEQA.

On April 13, 2009, the Office of Planning and Research submitted to the Secretary for Natural Resources its recommended amendments to the CEQA Guidelines for addressing greenhouse gas emissions. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. Following a 55-day public comment period and two public hearings, the Natural Resources Agency proposed revisions to the text of the proposed Guidelines amendments. The Natural Resources Agency transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

The CEQA Amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of greenhouse gas emissions in CEQA documents. The CEQA Amendments fit within the existing CEQA framework by amending existing CEQA Guidelines to reference climate change.

A new section, CEQA Guidelines Section 15064.4, was added to assist agencies in determining the significance of greenhouse gas emissions. The new section allows agencies the discretion to determine whether a quantitative or qualitative analysis is best for a particular project. However, little guidance is offered on the crucial next step in this assessment process—how to determine whether the project's estimated greenhouse gas emissions are significant or cumulatively considerable.

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts respectively. Greenhouse gas mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze greenhouse gas emissions in an EIR when a project's incremental contribution of emissions may be cumulatively considerable, however it does not answer the question of when emissions are cumulatively considerable.

Section 15183.5 permits programmatic greenhouse gas analysis and later project-specific tiering, as well as the preparation of Greenhouse Gas Reduction Plans. Compliance with such plans can support a determination that a project's cumulative effect is not cumulatively considerable, according to proposed Section 15183.5(b).

In addition, the amendments revised Appendix F of the CEQA Guidelines, which focuses on Energy Conservation. The sample environmental checklist in Appendix G was amended to include greenhouse gas questions.

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that greenhouse gases emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. ARB is the state agency charged with monitoring and regulating sources of greenhouse gases. AB 32 states the following:

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The ARB Board approved the 1990 greenhouse gas emissions level of 427 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) on December 6, 2007 (California Air Resources Board 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 $MMTCO_2e$. Emissions in 2020 in a "business as usual" scenario are estimated to be 596 $MMTCO_2e$.

Under AB 32, the ARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California. Discrete early action measures are currently underway or are enforceable by January 1, 2010. The ARB has 44 early action measures that apply to the transportation, commercial, forestry, agriculture, cement, oil and gas, fire suppression, fuels, education, energy efficiency, electricity, and waste sectors. Of these early action measures, nine are considered discrete early action measures, as they are regulatory and enforceable by January 1, 2010. The ARB estimates that the 44 recommendations are expected to result in reductions of at least 42 $MMTCO_2e$ by 2020, representing approximately 25 percent of the 2020 target.

The ARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 (California Air Resources Board 2008). The Scoping Plan identifies recommended measures for multiple greenhouse gas emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 greenhouse gas target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. "Capped" strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. "Uncapped"

strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional greenhouse gas emission reductions.[4]

SB 375. Passing the Senate on August 30, 2008, SB 375 was signed by the Governor on September 30, 2008. According to SB 375, the transportation sector is the largest contributor of greenhouse gas emissions, which emits over 40 percent of the total greenhouse gas emissions in California. SB 375 states, "Without improved land use and transportation policy, California will not be able to achieve the goals of AB 32." SB 375 does the following: (1) requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing greenhouse gas emissions, (2) aligns planning for transportation and housing, and (3) creates specified incentives for the implementation of the strategies. Concerning CEQA, SB 375, section 21159.28 states that CEQA findings determinations for certain projects are not required to reference, describe, or discuss (1) growth inducing impacts or (2) any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on global warming or the regional transportation network if the project:

1. Is in an area with an approved sustainable communities strategy or an alternative planning strategy that the ARB accepts as achieving the greenhouse gas emission reduction targets.
2. Is consistent with that strategy (in designation, density, building intensity, and applicable policies).
3. Incorporates the mitigation measures required by an applicable prior environmental document.

Executive Order S-13-08. Executive Order S-13-08 indicates that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy (California Natural Resources Agency 2009) was adopted, which is the " . . . first statewide, multi-sector, region-specific, and information-based climate change adaptation strategy in the United States." Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Renewable Electricity Standards. On September 12, 2002, Governor Gray Davis signed SB 1078 requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 changed the due date to 2010 instead of 2017. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with

[4] On March 18, 2011, the San Francisco Superior Court issued a final decision in *Association of Irritated Residents v. California Air Resources Board* (Case No. CPF-09-509562). While the Court upheld the validity of the ARB Scoping Plan for the implementation of AB 32, the Court enjoined ARB from further rulemaking under AB 32 until ARB amends its CEQA environmental review of the Scoping Plan to address the flaws identified by the Court.

renewable energy by 2020. Governor Schwarzenegger also directed the ARB (Executive Order S-21-09) to adopt a regulation by July 31, 2010, requiring the state's load serving entities to meet a 33 percent renewable energy target by 2020. The ARB Board approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23.

3.3.4 - Regional and Local

South Coast Air Quality Management District

The project is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). SCAQMD Regulation XXVII currently includes three rules:

- The purpose of Rule 2700 is to define terms and post global warming potentials.
- The purpose of Rule 2701, SoCal Climate Solutions Exchange, is to establish a voluntary program to encourage, quantify, and certify voluntary, high quality certified greenhouse gas emission reductions in the SCAQMD.
- Rule 2702, Greenhouse Gas Reduction Program, was adopted on February 6, 2009. The purpose of this rule is to create a Greenhouse Gas Reduction Program for greenhouse gas emission reductions in the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

City of Redlands

The City of Redlands City Council adopted the Community Sustainability Plan on March 1, 2011. This plan is discussed in Impact GHG-2.

SECTION 4: MODELING PARAMETERS AND ASSUMPTIONS

4.1 - Construction

Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and prevailing weather conditions. Construction emissions result from onsite and offsite activities. Onsite emissions principally consist of exhaust emissions (NO_x, SO_x, CO, VOC, PM_{10}, and $PM_{2.5}$) from heavy-duty construction equipment, motor vehicle operation, and fugitive dust (mainly PM_{10}) from disturbed soil. Additionally, paving operations and application of architectural coatings would release VOC emissions. Offsite emissions are caused by motor vehicle exhaust from delivery vehicles, worker traffic, and road dust (PM_{10} and $PM_{2.5}$).

Emissions were estimated using the California Emissions Estimator Model Version 2011.1.1 (CalEEMod), which was released March 22, 2011.

It was assumed that construction would occur in the year 2012 and would last approximately one year. This is based on the buildout date assumption of 2013. The duration of construction is shown in Table 10. As shown in the table, the project would have an expedited construction schedule compared with the defaults.

Table 10: Construction Duration

Phase	Duration (days)	
	CalEEMod Default	Project
Grading – main site	105	40
Grading – outparcels	—	10
Building	740	210
Paving of parking lots and roads	20	20
Coating	55	55
Total	—	260*

Notes:
* For the unmitigated scenario, it is assumed that building, paving, and coating would overlap; therefore, the total days is not the sum of the days.
Source: CalEEMod and Michael Brandman Associates

There would be 10 smaller buildings that would range between 3,000 and 12,300 square feet and the Redlands Crossing Center building at 215,000 square feet. As shown in Table 10, building construction would only take 28 percent of the time and grading would only take 38 percent of the time compared with the CalEEMod default. The CalEEMod default construction equipment list is based on survey data based on the size of the sites (i.e., there is data for a 34 acre site). To account for the shortened phases, the following equipment were added to the default assumptions:

- Grading of main site: +1 rubber tired dozer, +2 tractors
- Building: +2 welders, +3 generator sets, +1 crane

The construction equipment list used for the unmitigated scenario is shown in Table 11.

Table 11: Construction Equipment Assumptions (Unmitigated)

Phase	Equipment	Number	Hours per day	Horsepower	Load Factor
Grading of main site	Excavators	2	8	157	0.57
	Graders	1	8	162	0.61
	Rubber Tired Dozers	3	8	358	0.59
	Scrapers	2	8	356	0.72
	Tractors/Loaders/Backhoes	4	8	75	0.55
Grading of outparcels and detention basins	Excavators	1	8	157	0.57
	Graders	1	8	162	0.61
	Rubber Tired Dozers	1	8	358	0.59
	Scrapers	1	8	356	0.72
	Tractors/Loaders/Backhoes	2	8	75	0.55
Paving of parking lots and roads, road striping	Pavers	2	8	89	0.62
	Paving Equipment	2	8	82	0.53
	Rollers	2	8	84	0.56
Building Construction (including bus station)	Cranes	2	7	208	0.43
	Forklifts	3	8	149	0.3
	Generator Sets	4	8	84	0.74
	Tractors/Loaders/Backhoes	3	7	75	0.55
	Welders	3	8	46	0.45
Architectural Coating	Air Compressors	1	6	78	0.48
Source: Michael Brandman Associates and CalEEMod					

Other parameters which are used to estimate emissions such as the worker and vendor trips and trip lengths utilize the CalEEMod defaults, with the addition of 5 daily haul trips during grading, which is to haul the construction equipment to the site or for any import/export of material. The trips assumptions are provided in Table 12.

Table 12: Construction Trips Assumptions

Phase	Trips per day			Trip Length (miles)		
	Worker	Vendor	Haul	Worker	Vendor	Haul
Grading of main project	30	0	5	10.8	7.3	20
Grading of outparcels	15	0	0	10.8	7.3	20
Paving	15	0	1	10.8	7.3	20
Building	91	45	0	10.8	7.3	20
Coating	18	0	0	10.8	7.3	20

Notes:
Worker fleet is light duty mix; vendor fleet is a heavy duty truck mix; hauling vehicle mix is heavy-heavy duty trucks (all CalEEMod defaults)
Source: CalEEMod defaults

Paving. VOC emissions from paving is based on a total of 26.45 acres. This includes 17.35 acres of parking lots (from the site plan) and 9.1 acres of roads (San Bernardino Avenue 122 feet by 1,200 feet; Tennessee Street 88 feet by 1,200 feet; Pennsylvania Avenue 48 feet by 1,350 feet; New York Avenue 66 feet by 1,200 feet – values are approximate). The addition of the mitigation measures requiring roadway improvements may increase the days paving and related activities take place. However, since the air quality analysis is based on the daily emissions, these traffic related mitigation measures would not change the significance findings for the air quality analysis. The greenhouse gas analysis is based on the annual emissions; however, this increase is accounted for in the baseline emissions and is not substantial.

Grading. The quantity of fugitive dust estimated by CalEEMod is based on the number of equipment used during grading. Tractors, graders, and dozers would impact 0.5 acres per 8 hour day and scrapers would impact 1 acre per 8 hour day. Excavators are not listed; however, for this analysis, it is assumed that they would impact 0.5 acres per day as well. Therefore, considering the equipment assumed during grading, there would be 7 acres disturbed per day on the main site and 3.5 acres per day on the outparcel site. This analysis assumes that grading of the main site would last for 40 days; therefore, there would be 280 total acres disturbed during the phase (7 acres x 40 days). During grading of the outparcel site, there would be 35 total acres disturbed (3.5 acres x 10 days). The digging of the detention pond is included in the overall grading emissions from the use of onsite offroad equipment. It is assumed for purposes of this analysis that there would be no import or export of soil.

SCAQMD Rule 403 requires fugitive dust generating activities follow best available control measures to reduce emissions of fugitive dust. These measures are accounted for in CalEEMod as “mitigation” because the model categorizes the measures as “mitigation,” even though they are technically not mitigation. The best available control measures and the associated measure in CalEEMod are displayed in Table 13.

Table 13: Best Available Control Measures

Best Available Control Measure[1]	Associated Measure in CalEEMod [2]
Clearing and Grubbing 02-1 Maintain stability of soil through pre-watering of site prior to clearing and grubbing. 02-2 Stabilize soil during clearing and grubbing activities. 02-3 Stabilize soil immediately after clearing and grubbing activities. **Earth Moving Activities** 08-1 Pre-apply water to depth of proposed cuts 08-2 Re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction 08-3 Stabilize soils once earth-moving activities are complete	Water exposed surfaces three times per day
Import/Export of Bulk Materials 09-1 Stabilize material while loading to reduce fugitive dust emissions. 09-2 Maintain at least six inches of freeboard on haul vehicles. 09-3 Stabilize material while transporting to reduce fugitive dust emissions. 09-4 Stabilize material while unloading to reduce fugitive dust emissions. 09-5 Comply with Vehicle Code Section 23114.	Water exposed surfaces three times per day
Landscaping 10-1 Stabilize soils, materials, slopes Guidance: Apply water to materials to stabilize; maintain materials in a crusted condition; maintain effective cover over materials; stabilize sloping surfaces using soil until vegetation or ground cover can effectively stabilize the slopes; hydroseed prior to rain season.	Replace ground cover in disturbed areas when unused for more than 10 days (assumes a 5 percent reduction for this measure pursuant to reference: South Coast Air Quality Management District 2007c)
Staging Areas 13-1 Stabilize staging areas during use by limiting vehicle speeds to 15 miles per hour.	Reduce speed on unpaved roads to 15 miles per hour.
Traffic Areas for Construction Activities 15-1 Stabilize all off-road traffic and parking areas. 15-2 Stabilize all haul routes. 15-3 Direct construction traffic over established haul routes. Guidance: Apply gravel/paving to all haul routes as soon as possible to all future roadway areas; barriers can be used to ensure vehicles are only used on established parking areas/haul routes.	Water exposed surfaces three times per day
Sources: [1] SCAQMD Rule 403; [2] CalEEMod output in Appendix A.	

4.2 - Operations

Operational or long-term emissions occur over the life of the Project. Both mobile and area sources generate operational emissions. Area source emissions arise from consumer product usage, heaters that consume natural gas, gasoline-powered landscape equipment, gasoline service station, and architectural coatings (painting). Mobile source emissions from motor vehicles are the largest single long-term source of air pollutants from the operation of the Project and consist of emissions from delivery trucks and customer and worker vehicles. Small amounts of emissions would also occur from area sources such as the consumption of natural gas for heating, from landscaping emissions, consumer product usage, and from the operation of the service station.

The operational emissions were estimated using the California Emissions Estimator Model Version 2011.1.1 (CalEEMod), which was released March 22, 2011. Refrigerant emissions were estimated using the spreadsheets prepared by Michael Brandman Associates and contained in Appendix A.

4.2.1 - Motor Vehicle Emissions

Estimates of motor vehicle emissions requires information on four parameters: trip generation, mix of vehicles accessing the Project (i.e., car versus type of truck), length of each trip made by each type of vehicle, and emission factor (quantity of emission for each mile traveled or time spent idling by each vehicle). Each of these parameters is discussed below.

Delivery Trucks

The number of delivery trucks was estimated from the type of retail/commercial operation and information available from similar Wal-Mart projects and from similar retail/commercial projects. The number of delivery truck trips is provided in Table 14.

Table 14: Estimated Daily Delivery Truck Trips

Project Building	Vehicle Class[1]	Delivery Trucks Trips (one way trips per day)
Parcel 1	4+ axle 4+ Axle (with TRU)	2 2
Parcel 2	4+ axle (with TRU)	2
Parcel 3	2 axle	2
Parcel 4	2 axle	2
Parcel 5	4+ axle (TRU)	4
Parcel 6	2 axle	2
Parcel 7	4+ axle (with TRU)	2
Parcel 8	4+ axle (with TRU)	2
Parcel 9	4+ axle (with TRU)	2

Table 14 (cont.): Estimated Daily Delivery Truck Trips

Project Building	Vehicle Class[1]	Delivery Trucks Trips (one way trips per day)
Redlands Crossing Center	4+ axle (without TRU) 4+ axle (with TRU) 2 axle	10 4 14
Total	—	50

Notes:
[1] 2 axle vehicles are represented by the EMFAC light heavy duty 2 vehicle class; 4+ axle vehicles are represented by the EMFAC heavy-heavy duty vehicle class; all vehicles are assumed to be diesel-fueled
TRU = transport refrigeration unit

Table 15: Truck Trip Summary

Vehicle Class	Category	One Way Trips per day	Percentage of Total (%)
2 axle	Light heavy duty truck (LHDT2)	20	40
4+ axle	Heavy-heavy duty trucks (HHDT)	30	60
Source: Summarized from table above			

The average trip distance for the Redlands Crossing Center delivery trucks was assumed to be 20 miles as the distance to the nearest Walmart distribution centers in Mira Loma and Fontana, California.

Worker, Customer, and Other Trips

The percentages of worker and customer trips are from CalEEMod defaults. The trip generation rates are from the project Traffic Impact Analysis (Urban Crossroads 2011) and are shown in Table 16.

Table 16: Trip Generation Rates

Land Use	Quantity	Units	Trip Generation Rate (trips/unit/day)		
			Weekday	Saturday	Sunday
Free standing discount superstore	215.0	TSF	53.13	64.07	56.12
Specialty retail	25.7	TSF	44.32	42.04	20.43
High-turnover sit down restaurant	9.0	TSF	127.15	158.37	131.84
Fast food without drive through	12.3	TSF	716.00	696.00	556.80
Fast food with drive through	10.5	TSF	496.12	722.03	542.72
Gas/service station with market and car wash	12	VFP	152.84	210.99	168.79

Table 16 (cont.): Trip Generation Rates

Land Use	Quantity	Units	Trip Generation Rate (trips/unit/day)		
			Weekday	Saturday	Sunday
Total	272.5 12	TSF VFP	—	—	—

Notes:
TSF = thousand square feet; VFP = vehicle fueling positions
Source: Urban Crossroads 2011.

The Traffic Impact Analysis assumed that there would be an internal capture of 10 percent for all uses. Internal capture is a percent reduction attributed to trips internal to the site; trips may be made between individual retail uses on-site and can be made either by walking or using internal roadways without using external streets.

Pass-by trips are intermediate stops on the way from an origin to a primary destination without a route diversion. Pass-by trips are attracted from passing the site on an adjacent street or roadway that offers direct access to the generator. The high-turn over sit down restaurant and the fast food restaurant(s) without a drive-through would have a pass-by reduction of 43 percent. The fast food restaurant(s) with a drive-through would have a pass-by reduction of 50 percent. The gas station would have a pass-by reduction of 56 percent.

CalEEMod assumes that "primary" trips travel 100 percent of the trip distance; "diverted" trips travel 25 percent of the trip length; and pass-by trips are 0.1 miles in length. Therefore, it is assumed for these purposes that the internal capture and pass-by trips are 0.1 miles in length (and are attributed in CalEEMod as pass-by trips). There are zero diverted trips and the rest of the percentage are primary trips.

The percentages for customer, worker, and other trips are from the CalEEMod defaults.

The vehicle mix for customer and worker trips is shown in Table 17, as derived from the URBEMIS2007 model for the year 2013. Light-heavy duty trucks (1 and 2), medium duty trucks, and heavy-heavy duty trucks are taken out of the mix, as they are accounted for in the delivery truck mix.

Table 17: Vehicle Mix for Customer/Worker Trips

Vehicle Class	Vehicle Mix (%)
Light duty automobile (LDA)	53.3
Light duty truck (LDT1)	7.6
Light duty truck (LDT2)	24.0
Medium duty truck (MDT)	11.1
Urban bus (UB)	0.1
Motorcycle (MC)	2.9
Motor home (MH)	1.0
Source: See Appendix B	

The trip lengths for the customer base are derived from the trade area in the Urban Decay Analysis prepared by the Natelson Dale Group (Natelson Dale Group 2011). The trade area for the grocery components of the project is 5 miles, based on Figure I-1 in the Urban Decay Analysis. The trade area for the non-grocery components of the project includes the primary market area and the secondary market area (Figure I-2 in the Urban Decay Analysis) and is assumed to be 8.3 miles (the average of the distances to the edges of the east and west secondary market areas: 4, 4, 12, 12, 6, 4, 12, and 12 miles). The grocery sales and support component of Walmart is 43,809 square feet, 16 percent of the total square feet in the project (272,500 square feet). Therefore, a weighted average of the two is 7.8 miles, which is used for the customer trips. The trip length for the worker trips is 9.5 miles, from CalEEMod. The non-work trips is 7.8 miles (increased from the CalEEMod default of 7.3). A summary of the trip lengths is as follows:

- Customer and Other: 7.8 miles per trip
- Workers: 9.5 miles per trip

Emission Factors

The emission factors (from EMFAC2007) required to estimate the mobile source emissions are embedded in the CalEEMod emissions model.

4.2.2 - Other Emissions

Natural Gas. Natural gas emissions refer to the emissions that occur when natural gas is combusted on the project site for heating water, space heating, stoves, or other uses. Criteria air pollutant and greenhouse gas emissions were estimated using CalEEMod defaults.

Indirect Electricity. Indirect electricity refers to the greenhouse gas emissions generated by offsite power plants to supply the electricity required for the project. The CalEEMod defaults for energy intensity were used.

Water Transport. There would be greenhouse gas emissions generated from the electricity required to supply and treat the water to be used on the project site. The water consumption for the project is shown in Table 18. The project would use 5,408,205 gallons of water per year (2 million gallons for domestic and 3.4 million gallons for irrigation).

Table 18: Project Daily Water Consumption

Use	Daily Water Consumption (gallons)		
	Domestic	Irrigation	Total
Redlands Crossing Center	4,274	7,336	11,610
Parcels 1-9	1,181	2,026	3,207
Total	5,455	9,362	14,817
Source: Project Environmental Impact Report (Section 3.16, Utilities)			

Waste. There would be greenhouse gas emissions from the decomposing waste generated by the project. Based on estimates in the project Environmental Impact Report, the project would generate 4.8 pounds of waste per square foot per year; therefore, the project would generate 654 tons of solid waste per year (4.8 pounds x 272,500 square feet). The CalEEMod defaults, considering the project's land uses, is 1,328 tons per year. To be more conservative, the CalEEMod default waste generation is used in this analysis.

Refrigeration System and Air Conditioning. During operation, there may be leakages of refrigerants (hydrofluorocarbons) from air conditioners and the refrigeration system. Hydrofluorocarbons are typically used for refrigerants, which are long-lived greenhouse gases (see Table 8 for more information). Emissions were estimated using the procedures described in Appendix A.

4.3 - Localized Construction Analysis Modeling Parameters

The construction emissions for the localized assessment were extracted from the CalEEMod model considering only emissions generated from onsite construction activities such as from construction equipment exhaust (off-road diesel) and fugitive dust from earth-moving activities. A review of the CalEEMod model outputs indicated that the highest emissions generated from onsite construction activities are associated with the mass grading activities of the project site. Therefore, grading emissions during this construction activity were evaluated in the localized assessment. The maximum daily grading emissions are provided in Table 19.

Table 19: Maximum Daily Onsite Construction Emissions

Construction Activity	Emissions (pounds/day)[1]			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Mass Grading	158	85	17	11

Note:
[1] Emissions shown for the grading activity and assume compliance with applicable rules. The PM_{10} and $PM_{2.5}$;emissions are in the "mitigated" output in CalEEMod because the project will comply with Rule 403, which includes dust control measures as specified in Rule 403 and shown in Table 13.
Source: See Appendix A for the CalEEMod emissions model outputs.

The modeling assessment used the meteorological data for the year 2007 as provided by the SCAQMD for their Redlands monitoring station, which is located 2.5 miles southeast of the Project site[5]. A construction area of 10.5 acres was assumed based on the extent of the area that could be disturbed in a day as derived from the CalEEMod model, which considers the amount of work that construction equipment can accomplish in a day. Two construction emission sources were evaluated:

- Onsite construction equipment exhaust emissions were represented by an area source distributed over the 10.5-acre construction area with a release height of five meters (16.5 feet); and
- An area source with a size of 10.5 acres and a ground-level release height was used to represent the onsite emissions of fugitive dust.

The two onsite construction emission sources were located along southeastern corner of Project property line across from the closest residences along Karon Street. Construction was assumed to occur over an 8-hour day on weekdays.

It should be noted that nitrogen dioxide present in the atmosphere is formed from two sources. One source is the direct emission of nitrogen dioxide from the combustion of fuel. The second source involves the formation of nitrogen dioxide in the atmosphere due to reactions of oxides of nitrogen emissions and ambient concentrations of ozone and reactive hydrocarbons. The concentrations of nitrogen dioxide increases as the distance from the emission source increases, but only to a certain point, since dispersion dilutes the concentrations. The Ozone Limiting Method (OLM) was used in the AERMOD model to convert the NO_X emissions to nitrogen dioxide based on the distance from the source to the receptor and background ozone concentrations.

4.4 - Localized Operational Analysis Modeling Parameters

The assessment of local operational impacts was accomplished for three scenario years:

[5] The year 2007 is the only year with valid meteorological data provided by the SCAQMD for the Redlands monitoring station.

- Scenario 2010 representing an existing condition in accordance with the project's traffic impact study (Urban Crossroads 2011); although the project would not be operational it is assumed for purposes of this analysis that the project would be operational
- Scenario 2013 representing the expected build out year when the project would commence operations
- Scenario 2030 representing a long-term future Horizon Year

Note that the project impacts during the above three scenario years result from the changes in emissions that occur over time associated with the various project emission sources such as motor vehicles and transport refrigeration units. These emission changes occur as a result of future vehicle turnover to newer and cleaner vehicle models and the implementation of regulatory mandated emission control technologies. The aforementioned project impacts are incremental in nature and result from the changes in project emissions.

Estimation of Onsite Mobile Source Operational Emissions

The predominant sources of onsite operational emissions are the motor vehicles and trucks that access the project site. Such emissions result from the delivery truck traffic that arrives, unloads, and departs daily from the various project buildings and from the daily customer and worker traffic accessing the project's parking lots. Additional operational emissions also arise from the combustion of natural gas for heating, landscape emissions, operation of the gasoline service station, and from the use of consumer products. In this assessment, four main emission sources were evaluated as to their localized operational impacts on air quality.

- Delivery truck exhaust emissions from traffic that would move onto the project site from the entrances along San Bernardino Avenue, Tennessee Street, and the future Pennsylvania Avenue;
- Truck idling emissions at loading docks;
- Emissions associated with the use of TRUs, which are used in the transport of perishable food items; and
- Automobile traffic from workers and customers while traveling and idling within the parking lots

The estimation of the onsite mobile source emissions requires the specification of several key pieces of information including the number of vehicle trips by vehicle type, trip travel lengths, vehicle idling time, and emission factors that define the amount of emissions as a function of vehicle speed and distance traveled or amount of idling time per vehicle.

Pollutant emissions from the various onsite mobile sources were calculated using information derived from the project description, project traffic study, truck delivery information for Walmart operations, and mobile source emission factors from the ARB EMFAC2007 emissions factor model (California Air Resources Board 2006). Vehicle trip distances were determined from the project's site plan as the

distance from the nearest project entrance to the various project buildings. The emission factors for the project's mobile source operational emissions were based on the fleet years 2010, 2013, and 2030. Vehicle travel speeds while traveling onsite were assumed to be 10 miles per hour (mph) for both trucks and customer vehicles. Delivery trucks were assumed to idle for 15 minutes per day at the building loading areas pursuant to guidance from the SCAQMD (South Coast Air Quality Management District 2011f) while customer vehicles were assumed to idle for 1 minute per day while in the parking lots. The inventory of diesel truck trips was presented earlier in Table 14.

Each delivery truck will idle not more than 15 minutes per day while loading/unloading at the building loading docks. The SCAQMD in its comment letters recommends a 15-minute truck idling assumption (5 minutes while arriving at the loading dock, 5 minutes unloading/loading, and 5 minutes waiting to depart). This is a very conservative assumption, as California law has a 5-minute idling restriction. In addition, Walmart has an automatic shutoff on its heavy-duty trucks, which limits idling to 3 minutes.

Another conservative assumption in this analysis is that the vehicle age applied the default truck distribution contained in the EMFAC mobile source emission model that includes a fleet of trucks spanning a 25-year time frame (i.e., a mix of vehicles from 1988 to 2013).

Delivery truck traffic was assumed to access the project site from three main driveways:

1. From Tennessee Street;
2. From Pennsylvania Avenue; and
3. From San Bernardino Avenue.

Delivery trucks servicing the Walmart store were assumed to operate over a 24-hour day while the delivery trucks servicing the remaining parcels were assumed to operate over a 12-hour schedule.

Emissions are also associated with the customer and employee motor vehicles that would visit the various retail and commercial facilities as these vehicles travel and idle within the parking lots. The emission calculation for parking lot access was based on the number of vehicle trips expected to access the project during a Saturday and also the Saturday peak traffic period. The parking lot usage assumed a 24-hour operation in keeping with the 24-hour operation of the large Walmart store.

Appendix B provides a detailed tabulation of the criteria pollutant mobile source emission factors assumed in this assessment. The emission factors were derived from the ARB EMFAC2007 mobile source emission model as a function of fleet year, vehicle class (axle number), vehicle speed, and pollutant.

Estimation of Emissions from Natural Gas Usage

Small amounts of criteria pollutant emissions would also be released from the combustion of natural gas within the project buildings for water and air heating. The natural gas emissions were estimated from CalEEMod and apportioned to each building according to building size.

Emission Source Characterization

Each of the emission source types described above also requires geometrical and emission release specifications for use in the air dispersion model. Exhibit 5 provides the location of the various project facilities and emission source locations. Table 20 provides a summary of the assumptions used to configure the various emissions. By way of explanation, the following definitions are used in defining the emission source geometrical configurations referred to in Table 20:

- Point source: a single identifiable local source of emissions; it is approximated in the AERMOD air dispersion model as a mathematical point in the modeling region with a location and emission characteristics such as height of release, temperature, etc. (Example: a stack or vent);
- Area source: a diffuse source of emissions released uniformly over a broad area (Example: a parking lot);
- Volume source: an area source with a third dimension (Example: construction area using off-road equipment with a height of release); and
- Line source: a series of volume sources along a path (Example: vehicular traffic along a street).

Table 20: Summary of Emission Source Configurations

Emission Source Type	Geometric Configuration	Relevant Assumptions
Onsite Diesel Truck Traffic	Line Sources	• See Table 14 for an inventory of truck operations • Stack release height: 4.1 meters (13.6 feet) • Vehicle Speed: 4.5 mps (10 mph) • Length of the line source (distance from the facility entrances on San Bernardino Ave, Tennessee Ave, Pennsylvania Ave to the loading docks of the respective facilities) • Vehicle types: heavy duty and light heavy duty diesel delivery trucks • Emission factor: ARB EMFAC2007
Onsite Diesel Truck Idling	Point Sources located at each facility	• Stack release height: 4.1 meters (13.6 feet) • Stack release characteristics > Stack diameter: 0.1 meter (0.3 feet) > Stack velocity: 51.9 mps (170 feet/sec) > Stack temperature: 366 °k (200° F) • Idle time: 15 minutes per truck per day • Vehicle type: heavy duty and light heavy duty diesel delivery trucks • Emission factor: ARB EMFAC2007

Table 20 (cont.): Summary of Emission Source Configurations

Emission Source Type	Geometric Configuration	Relevant Assumptions
Onsite Diesel Truck TRU	Point Sources at each facility loading dock; emissions also include operation while traveling onsite	• Stack release height: 4.1 meters (13.6 feet) • TRU Size: 35 horsepower (typical size)
Parking Lots	Area Source, one per major facility	• Release height: 1 meter (3.3 feet) • Emission factors derived from EMFAC2007 at 10 mph onsite travel and 2 mph for idling (1 minute/per vehicle) • Vehicle trips based on project traffic study
Gasoline Service Station	Point sources for loading and breathing loses; volume sources for refueling and spillage losses	• Emission factors and stack parameters derived from CAPCOA 1997 • Fuel throughput: 6.4 million gallons/year • Assumes 80% of emissions from 5am through 7pm and 20% during the remainder of the day
Natural Gas	Point source	• Vent located 5 feet above the building top • Estimated from the URBEMIS model and apportioned according to building size
Retail/Commercial Facility Operations	All facilities	• 24/7 365 days/yr for Wal-Mart store customer and worker vehicles and truck deliveries • 12-hour schedule 365 days per year for customer and worker vehicles and delivery trucks at other stores

Receptor Network

The assessment also requires that a network of receptors be specified such that the impacts can be computed at the various locations within the network. For purposes of this assessment, the following receptor network was used:

- Lines of receptors spaced 70 meters (230 feet) along the project boundary line then spaced out to 500 (1,640 feet) meters in increments of 100 meters (330 feet);
- Receptors located at nearby sensitive receptors such as at residences immediately to the east of the project

Exhibit 6 shows the various receptor locations.

Dispersion Model

The assessment of air quality and health risk impacts from pollutant emissions from this project applied the U.S. EPA AERMOD Model which is the air dispersion model accepted by the SCAQMD for performing air quality impact analyses. AERMOD predicts pollutant concentrations from point, area, volume, line, and flare sources with variable emissions in terrain from flat to complex with the inclusion of building downwash effects from buildings on pollutant dispersion. It captures the

essential atmospheric physical processes and provides reasonable estimates over a wide range of meteorological conditions and modeling scenarios.

General Model Assumptions

The basic options used in the dispersion modeling are summarized in Table 21.

Table 21: General Modeling Assumptions

Feature	Option Selected
Terrain processing	Elevated terrain
Emission source configuration	See Table 20 above
Regulatory Dispersion Options	Default Assumptions Used
Land Use	Urban
Coordinate System	UTM
Building downwash	Included in Calculations
Meteorological Data	SCAQMD Redlands Meteorological Data for 2007 (only year of valid data from this location)
NO2 Assessment Methodology	Ozone Limiting Method using ozone data from the SCAQMD Redlands air monitoring station for 2007
Receptor height	0 meters

As indicated in Table 21, account was taken of the effects of building downwash on the dispersion of emissions from the various sources located on the project's property. Building downwash occurs when the aerodynamic turbulence, induced by nearby buildings, causes pollutants emitted from an elevated source to be mixed rapidly toward the ground (downwash). This results in potentially higher ground-level concentrations than if the buildings were not present. The dispersion model contains algorithms to account for building downwash effects. The required information includes the location of the emission source, location of adjacent buildings, and the building geometry in terms of length, width, and height. For purposes of this analysis, the emission source and building locations were taken from the project site plan. The building geometries assumed a building height of 10 meters (35 feet) for the Wal-Mart store and the future buildings on Parcel 11 and 6 meters (20 feet) for all other buildings.

Meteorological Data

Hourly meteorological data are also required to operate the AERMOD model to determine the direction and rate of dispersion of emissions released into the atmosphere. Meteorological data for use in the air dispersion model was obtained from the SCAQMD website for their Redlands Air Monitoring Station for the year 2007, the only period of valid data provided by the SCAQMD for performing air dispersion modeling assessments using the Redlands meteorological data.

4.5 - Health Risk Assessment of Toxic Air Contaminants Methodology

The health risk assessment (HRA) of toxic air contaminants requires one additional step beyond that for assessment the criteria pollutants. This step involves applying a risk characterization model to the results from the air dispersion model to estimate potential health risks at each sensitive receptor location. An HRA is a guide that helps to determine if current or future exposure to a chemical or substance could affect the health of a population. The State of California Office of Environmental Health Hazard Assessment (OEHHA) develops methods for conducting health risk assessments. As defined under the Air Toxics "Hotspots" Information and Assessment Act of 1987 ["AB 2588" (Chapter 1252, Statutes of 1987), California Health and Safety Code Section 44306], "A health risk assessment means a detailed comprehensive analysis prepared pursuant to Section 44361 to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations and to assess and quantify both the individual and population-wide health risks associated with those levels of exposure" (California Environmental Protection Agency 1987).

The operation of the project would result in the release of two primary TACs that pose the greatest potential to cause a health risk to the community surrounding the project. These two TACs are diesel particulate matter (DPM) from the operation of diesel-powered trucks and transport refrigeration units and benzene from the operation of a gasoline service station that would be located at the southwest corner of the project. Exposure to these TACs would have the potential to cause health risks in terms of excess risk of cancer and chronic and acute non-cancer health effects as discussed below. The most relevant health effects of DPM and benzene were discussed earlier in Table 6 above.

The air dispersion model, receptor locations, and meteorological data used in the HRA used the same information as that used in the assessment of criteria pollutant impacts described earlier in Section 4.4.

4.5.1 - Cancer Health Risk Assessment Methodology

The cancer risk from DPM and benzene is calculated by multiplying the annual average DPM and benzene concentrations calculated using the AERMOD model and an inhalation exposure factor as in Equation 1 below (California Environmental Protection Agency 2003).

Cancer Risk = Inhalation cancer potency factor x Dose-inhalation (EQ-1)

Where:

Cancer Risk = Total individual lifetime excess cancer risk defined as the cancer risk a hypothetical individual faces if exposed to carcinogenic emissions from a particular facility continuously, 24 hours/day, for a 70-year lifetime; this risk is defined as an excess risk because it is above and beyond the background cancer risk to the population contributed by emission sources not related to the project; cancer risk is expressed in terms of risk per million exposed individuals.

Inhalation cancer potency factor (CPF) = 1.1 (milligrams per kilogram per day)$^{-1}$ for DPM and 0.1 (milligrams per kilogram per day)$^{-1}$ for benzene; inhalation is the principal exposure pathway for cancer impacts for both DPM and benzene

Dose-inhalation = C_{air} x (DBR x A x EF x ED x 10^{-6} /AT) x 10^{6} (EQ-2)

Where:

C_{air} = Annual average DPM and benzene concentrations calculated from the AERMOD model in μg/m^3

DBR = Daily breathing rate
A = Inhalation absorption factor
EF = Exposure frequency
ED = Exposure duration
AT = Averaging time period over which the exposure is averaged

Values for the components of the Inhalation Exposure Factor are shown in Table 19.

Table 22: Values of the Inhalation Exposure Factor for DPM and Benzene

Receptor	CP - DPM (mg/kg-dy)$^{-1}$	CP – Benzene (mg/kg-dy)$^{-1}$	DBR (liters/kg-day)	EF (days/yr)	ED (yrs)	AT (days)
Sensitive/ Residential	1.1	0.1	302	350	70	25,550
Source: South Coast Air Quality Management District 2005						

Applying Equations 1 and 2 with the values for the various factors shown in Table 22, the Cancer Risk for DPM and benzene individually and the total cancer risk are then calculated as:

Cancer $Risk_{DPM}$ = C_{DPM} x 318.5 (risk per million for sensitive receptors from DPM)

Cancer $Risk_{Benz}$= C_{Benz} x 29.0 (risk per million for sensitive receptors from benzene)

Total Cancer $Risk_{SR}$ = Cancer $Risk_{DPM}$ + Cancer $Risk_{Benz}$ (risk per million for sensitive receptors)

Where:

$Risk_{DPM}$ = cancer risk from DPM emissions
$Risk_{BENZ}$ = cancer risk from benzene emissions
SR = risk at locations of sensitive receptors

4.5.2 - Non-Cancer Health Risk Characterization

Chronic Non-Cancer Impacts

Exposures to TACs such as DPM and benzene can also cause chronic (long-term) related non-cancer illnesses such as reproductive effects, respiratory effects, eye sensitivity, immune effects, kidney effects, blood effects, central nervous system, birth defects, or other adverse environmental effects. Risk characterization for non-cancer health risks from DPM and benzene is expressed as a hazard index (HI). The HI is a ratio of the predicted concentration of the project's emissions to a concentration considered acceptable to public health professionals, termed the Reference Exposure Level (REL). A significant risk is defined by the SCAQMD as an HI of 1 or greater. When evaluating chronic non-cancer effects due to TAC exposures, a hazard quotient (HQ) is established for each individual TAC as follows and for each target organ[6] affected by the individual TAC:

$$HQ_i = C_{air}/REL_i \qquad \text{(EQ-9)}$$

Where:

HQ_i = chronic hazard quotient for each TAC

C_{air} = Annual average concentration of each TAC ($\mu g/m^3$)

REL = Chronic Reference Exposure Level ($\mu g/m^3$)

To evaluate the potential for adverse non-cancer health effects from simultaneous exposure to multiple TACs such as DPM and benzene, the HQs for all TACs that affect the same target organ are summed yielding a hazard index (HI) as follows:

$$HI_{to} = \Sigma_{tO}\, HQ_{tac} \qquad \text{(EQ-12)}$$

Where:

HI_{to} = sum of the hazard quotients for all TACs affecting the same target organ

HQ_{tac} = hazard quotient for TAC and target organ.

The California OEHHA has assigned a chronic non-cancer REL of 5 $\mu g/m^3$ for DPM and a chronic non-cancer REL of 60 $\mu g/m^3$ for benzene (California Environmental Protection Agency 2009). The HQs for TACs that produce effects in the same target organ and tissues results in an HI that reflects possible cumulative hazards. Both DPM and benzene have effects on the respiratory system which accounts for essentially all of the potential chronic non-cancer hazards from these TACs. Therefore, the only HI calculated was for the respiratory system.

[6] A target organ is a biological organ(s) most adversely affected by exposure to a chemical substance and includes the respiratory system, cardiovascular system, eyes, nervous system, hematological system, immune system, reproductive system, developmental system, skin, and endocrine system.

Acute Non-Cancer Impacts

Estimation of a short-term acute non-cancer hazard index is estimated in a similar manner to the chronic long-term non-cancer hazard index. Both estimations estimate the hazard index as the ratio of the estimated concentration of a TAC divided by a REL, or in this case a REL established for acute exposures. Of the two TACs evaluated in this report, only benzene has been assigned an acute REL by the California OEHHA (California Environmental Protection Agency 2009). The value of the benzene REL is 1,300 $\mu g/m^3$. However, for purposes of the estimation of the acute hazard, the value of the air concentration of benzene as calculated using the AERMOD air dispersion model is an average over six hours in accordance with the toxic exposure to benzene (California Environmental Protection Agency 2009).

4.5.3 - Emission Source Estimates

DPM Emissions

The sources of DPM from the project are associated with emissions from the:

- Diesel truck traffic exhaust;
- Diesel truck idling (15 minutes per truck delivery for all buildings);
- Diesel emissions from worker/customer, urban bus, and motor home vehicles; and
- Operation of the TRUs.

For the assessment of health risks to sensitive/residential receptors, the DPM emissions factors derived from the ARB EMFAC model were developed as an average of fleet emission factors over a 70-year time period commencing in 2010 (2010 to 2080 average emissions) and in 2013 (2013 to 2083 average emissions). For the year 2030 assessment, the DPM emission factors from the EMFAC2007 model in the year 2030 were utilized. The DPM emission factors used in this assessment are provided in Table 23.

Table 23: Average Mobile Source DPM Emission Factors for Project Operations

Scenario Year --------- >	2010	2013	2030
Averaging Period ------ >	(2010 – 2079)	(2013-2082)	2030
DPM Exhaust Emission Factors (1)			
Exhaust Emissions(2)			
4+ axle truck (g/mi)	0.22	0.17	0.10
2 axle truck (g/mi)	0.05	0.05	0.05
Customer/worker vehicles/bus (g/mi)	0.15	0.14	0.17
TRU (g/hp-hr)(4)	0.05	0.04	0.02
DPM Idle Emission Factors(3)			
4+ axle truck (g/hr)	0.34	0.22	0.17
2 axle truck (g/hr)	0.82	0.81	0.81
TRU (g/hp-hr) (4)	0.05	0.04	0.02

Table 23 (cont.): Average Mobile Source DPM Emission Factors for Project Operations

Scenario Year --------- >	2010	2013	2030
Averaging Period ------ >	(2010 – 2079)	(2013-2082)	2030

Notes:
(1) All motor vehicle emission factors were derived from the EMFAC2007 model for the SCAQMD
(2) Exhaust emissions for the 4+ axle (HHD DSL) and 2 axle (LDH2 DSL) trucks assumed a travel speed of 10 mph; air temperature of 65° F and a relative humidity of 50 percent were assumed as representative of annual weather conditions
(3) The idling emission factors for the 4+ axle and 2 axle trucks assumed a speed of 0 mph
(4) The TRU emission factors were derived from the ARB OFFROAD 1007 model; TRU size = 35hp as a typical TRU engine size
Source: Appendix C

Benzene Emissions

Benzene emissions are associated with the operation of a gasoline service station located at the southwestern corner of the project. Benzene emissions were estimated considering the following emission processes:

- Offloading of cargo tank trucks into the storage tanks at the station (Loading emissions);
- Gasoline vapors released from the storage tank due to temperature and pressure changes within the storage tank vapor space (Breathing emissions);
- Vehicle refueling process (Refueling emissions), and
- Spillage of fuels during vehicle fueling (Spillage emissions).

Emissions from the gasoline service station were estimated using the methods published by the Toxics Committee of the California Air Pollution Control Officers Association (1997).

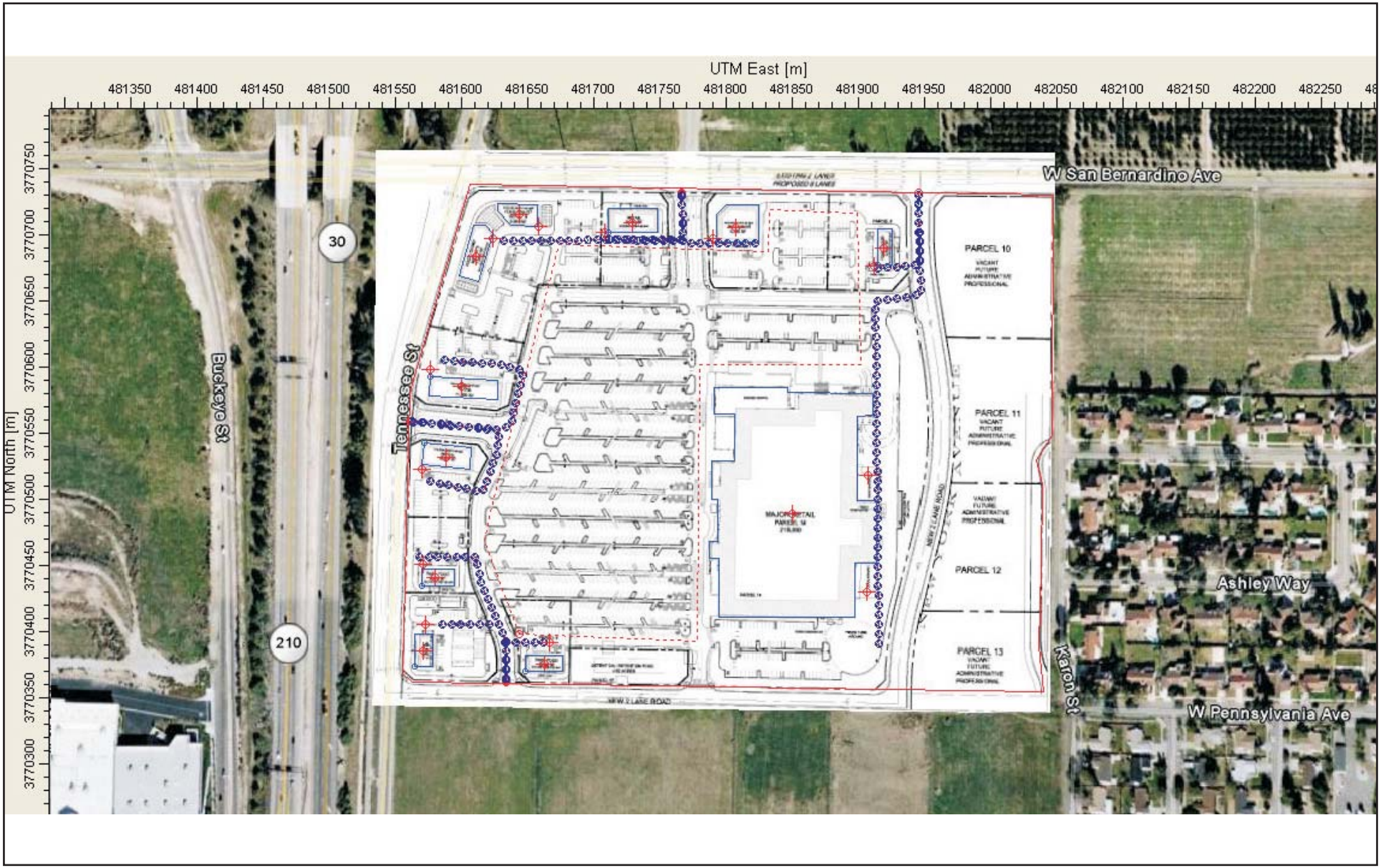
The emission factors for benzene emissions associated with the gasoline service station were derived from the SCAQMD 2007 guidelines and are shown in Table 24.

Table 24: Benzene Emission Factors for Service Station

Operation	Benzene (pounds of benzene per 1,000 gallons of fuel)
Service Station	
Loading	0.001260
Breathing	0.000075
Refueling	0.000960
Spillage	0.004200

Source: Appendix C and California Air Pollution Control Officers Association 1997.

The benzene emission factors were assumed to be constant over both the 70-year and 40-year exposure periods. An annual gasoline throughput of 6.4 million gallons was assumed to estimate benzene emissions. This amounts to the delivery of tanker truck with two 8,800 gallon tanks each day.



Source: Michael Brandman Associates and ISC/AERMOD View.

NORTH

Michael Brandman Associates

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Exhibit 5
Location of Onsite Emission Sources

REDLANDS CROSSING CENTER
AIR QUALITY AND GREENHOUSE GAS ANALYSIS REPORT

Source: Michael Brandman Associates and ISC/AERMOD View.

NORTH

Michael Brandman Associates

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Exhibit 5
Location of Onsite Emission Sources

REDLANDS CROSSING CENTER
AIR QUALITY AND GREENHOUSE GAS ANALYSIS REPORT

SECTION 5: AIR QUALITY IMPACT ANALYSIS

This section calculates the expected emissions from construction and operation of the project as a necessary requisite for assessing the regulatory significance of project emissions on a regional and localized level.

5.1 - CEQA Guidelines

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines. A significant impact would occur if the project would:

a) Conflict with or obstruct implementation of the applicable air quality plan;
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable national or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
d) Expose sensitive receptors to substantial pollutant concentrations; or
e) Create objectionable odors affecting a substantial number of people.

While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, SCAQMD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. The applicable SCAQMD thresholds and methodologies are contained under each impact statement below.

5.2 - Impact Analysis

Air Quality Plan

Impact AIR-1:	**The project would not conflict with or obstruct implementation of the applicable air quality plan.** **[CEQA Air Quality Threshold a]**

Impact Analysis

According to the 1993 SCAQMD Handbook (pages 12-2 and 12-3), there are two key indicators of consistency with the AQMP:

1. Indicator: Whether the project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP. Project applicability: applicable and assessed below.
2. Indicator: A project would conflict with the AQMP if it will exceed the assumptions in the AQMP in 2010 or increments based on the year of project build-out and phase. The Handbook indicates that key assumptions to use in this analysis are population number and location and a regional housing needs assessment. The parcel-based land use and growth assumptions and inputs used in the Regional Transportation Model run by the Southern California Association of Governments that generated the mobile inventory used by the SCAQMD for AQMP are not available and it is unknown if the land uses in city/county general plans are used in the projections. Nevertheless, a discussion in this regard is included in this analysis.

In addition to indicator 1 above, consistency with the AQMP will also be determined based on if the project complies with applicable control measures, rules, and regulations, as discussed below.

Project's Contribution to Air Quality Violations

According to the SCAQMD, the project is consistent with the AQMP if the project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP (South Coast Air Quality Management District 1993, page 12-3).

As shown in Impact AIR-2, the project could violate any air quality standard or contribute substantially to an existing or projected air quality violation for nitrogen dioxide during construction.

Control Measures

The second indicator of whether the project could conflict with or obstruct implementation of the air quality plan is by assessing the project's compliance with the control measures in the 2003 and the 2007 AQMPs.

The 2003 AQMP contains a number of land use and transportation control measures including the following: the District's Stationary and Mobile Source Control Measures; State Control Measures proposed by ARB; and Transportation Control Measures provided by Southern California Association of Governments. ARB's strategy for reducing mobile source emissions include the following approaches: new engine standards; reduce emissions from in-use fleet, require clean fuels, support alternative fuels and reduce petroleum dependency, work with EPA to reduce emissions from national and state sources, and pursue long-term advanced technology measures (AQMP 2003, page 4-25). Transportation control measures provided by Southern California Association of Governments include those contained in the Regional Transportation Plans, the most current version of which is the 2008 Regional Transportation Plan. The Regional Transportation Plan has control measures to reduce emissions from on-road sources by incorporating strategies such as high occupancy vehicle interventions, transit, and information-based technology interventions (AQMP 2003, page 4-19). The project indirectly would comply with the control measures set by ARB and Southern California Association of Governments.

The focus of the 2007 AQMP is to demonstrate attainment of the federal $PM_{2.5}$ ambient air quality standard by 2015 and the federal 8-hour ozone standard by 2024, while making expeditious progress toward attainment of state standards. The proposed strategy, however, does not attain the previous federal 1-hour ozone standard by 2010 as previously required prior to the recent change in federal regulations. This is to be accomplished by building upon improvements from the previous plans and incorporating all feasible control measures while balancing costs and socioeconomic impacts. The 2007 AQMP indicates that $PM_{2.5}$ is formed mainly by secondary reactions or sources. Therefore, instead of reducing fugitive dust, the strategy for reducing $PM_{2.5}$ focuses on reducing precursor emissions of SO_x, directly emitted $PM_{2.5}$, NO_x, and VOC.

The Final 2007 AQMP control measures consist of four components. The first component is SCAQMD's Stationary and Mobile Source Control Measures. The Final 2007 AQMP includes 30 short-term and mid-term stationary and seven mobile source control measures for SCAQMD implementation. A complete listing of the measures is in the 2007 AQMP and includes measures such as VOC reductions from gasoline transfer and dispensing facilities, further NO_x reductions from space heaters, localized control program for PM emission hot spots, urban heat island, energy efficiency and conservation, etc. Some of the measures will become new rules and some will be amendments to existing rules. When the rules pass, the owner-operator will follow the applicable rules.

The second component is ARB's Proposed State Strategy, which includes short- and mid-term control measures aimed at reducing emissions from sources that are primarily under state jurisdiction, including on-road and off-road mobile sources, and consumer products. These measures are required in order to achieve the remaining emission reductions necessary for $PM_{2.5}$ attainment. ARB's strategy includes measures such as improvements to California's Smog Check Program, expanded passenger vehicle retirement, cleaner in-use heavy-duty trucks, reductions from port related sources,

cleaner off-road equipment, evaporative and exhaust strategies, pesticide strategies, etc. When these measures are implemented by the ARB, the project would be required to follow them.

The third component is SCAQMD Staff's Proposed Policy Options to Supplement ARB's Control Strategy. SCAQMD staff believe that a combination of regulatory actions and public funding is the most effective means of achieving emission reductions. As such, the 2007 Final AQMP proposes three policy options for the decision makers to consider in achieving additional reductions. The first option is to incorporate the SCAQMD proposed additional control measures as a menu of selections further reducing emissions from sources primarily under state and national jurisdiction. The second option is to have the State fulfill its NO_x emission reduction obligations under the 2003 AQMP by 2010 for its short-term defined control measures plus additional reductions needed to meet the NO_x emission target between 2010 and 2014. The third option is based on the same rate of progress under Policy Option 1, but it relies heavily on public funding assistance to achieve the needed NO_x reductions via accelerated fleet turnover to post-2010 on-road emission standards or the cleanest off-road engine standards in effect today or after 2010. This strategy does not apply to the project.

The fourth component consists of Regional Transportation Strategy and Control Measures provided by Southern California Association of Governments. Transportation plans within the basin are statutorily required to conform to air quality plans in the region, as established by the 1990 Federal Clean Air Act and reinforced by other Acts. The region must demonstrate that its transportation plans and programs conform to the mandate to meet the federal ambient air quality standards in a timely manner. The Regional Transportation Plan, prepared by the Southern California Association of Governments, is developed every 4 years with a 20-year planning horizon to meet the long-term transportation planning requirements for emission reductions from on-road mobile sources within the basin. The biennial Regional Transportation Improvement Program requires that the short-term implementation requirements of the Transportation Conformity Rule be met by Southern California Association of Governments. The first 2 years of the program are fiscally constrained and demonstrate timely implementation of a special category of transportation projects called Transportation Control Measures. In general, Transportation Control Measures are those projects that provide emission reductions from on-road mobile sources, based on changes in the patterns and modes by which the regional transportation system is used. Strategies are grouped into three categories: high occupancy vehicle strategy, transit and systems management, and information-based technology (traveling during a less congested time of day). Southern California Association of Governments approved the transportation measures in the Regional Transportation Plan, which have been included in the region's air quality plans. The Transportation Control Measures will be implemented and will subsequently reduce emissions in the basin.

Geographical areas in the state that exceed the federal air quality standards are called nonattainment areas. The project area is in nonattainment for ozone, PM_{10}, $PM_{2.5}$, and nitrogen dioxide. State Implementation Plans (SIPs) show how each area will attain the federal standards. To do this, the SIPs identify the amount of pollutant emissions that must be reduced in each area to meet the standard

and the emission controls needed to reduce the necessary emissions. On September 27, 2007, ARB adopted its State Strategy for the 2007 SIP. In 2009, the SIP was revised to account for emissions reductions from regulations adopted in 2007 and 2008 and clarifies ARB's legal commitment. There are currently proposed revisions and a 2011 Progress Report. The South Coast is currently 94 percent of the way towards achieving the 2014 emissions levels identified in its $PM_{2.5}$ SIP. The SIP takes into account ARB rules and regulations. The project will comply with applicable rules and regulations.

The project would comply with all applicable rules and regulations. Therefore, the project complies with this criterion.

Land Use

According to Chapter 12 of the SCAQMD, CEQA, Air Quality Handbook, the purpose of the consistency finding is to determine whether a project is inconsistent with the assumptions and objectives of the regional air quality plans, and thus whether it would interfere with the region's ability to comply with federal and State air quality standards. If a project is inconsistent, local governments need to consider project modifications or inclusion of mitigation to eliminate the inconsistency. Consistency with the AQMP implies that a project is consistent with the goals, objectives, and assumptions in the respective plan to achieve the national and State air quality standards. To assess the environmental impacts of new or renovated developments accurately, environmental pollution and population growth are projected for future scenarios.

Since the AQMP could be based on local general plans (there is no direct evidence that suggests this), projects that are deemed consistent with the general plan are found to be consistent with the AQMP. The City of Redlands General Plan has designated the project area as "commercial" to accommodate business growth in the project vicinity. Since the project's intended land use is consistent with the current General Plan, implementation of the project would not require any amendments to the City's zoning designations for the project site. Therefore, the project would be within the City's General Plan designation and is consistent with the adopted SCAQMD AQMP according to this criterion.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Mitigation Measures AQ-1 and AQ-2 are required.

Level of Significance Before Mitigation

Less than significant.

Project's Contribution to Air Quality Violations

Impact AIR-2	**The project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation.** **[CEQA Air Quality Threshold b]**

Impact Analysis

The potential for violation of ambient air quality standards was judged based on three criteria:

Criterion 1: localized significance analysis for construction.

Criterion 2: localized significance analysis for operation.

Criterion 3: CO hotspot assessment for operational motor vehicle emissions at intersections.

Localized Analysis Methodology

The localized analysis assesses the impact of onsite project emissions to sensitive receptors located within the vicinity of the project. The SCAQMD, in its Localized Significance Threshold Methodology (South Coast Air Quality Management District 2008, page 3-2) indicates that only onsite emissions are included in the localized analysis. In order to estimate the impact to sensitive receptors, the future concentration of pollutants must be calculated at the location of the sensitive receptors and compared with a standard or threshold. Onsite construction emissions were estimated using CalEEMod as discussed in Section 4.1 of this report. Onsite operational emissions are estimated using the methodology as discussed in Section 4.2 of this report. Then, those emissions are input into an air dispersion model, the U.S. EPA AERMOD Model, to simulate the transport and dispersion of Project-related emissions released from onsite construction and operational activities. These impacts were then compared to the applicable SCAQMD localized concentration thresholds and ambient air quality standards to access the regulatory significance of these impacts.

Note that the SCAQMD's localized methodology only applies to nitrogen dioxide, CO, PM_{10}, and $PM_{2.5}$ (see page 1-2 of South Coast Air Quality Management District 2008a). Ozone and VOC are not included because it is not a localized pollutant and modeling for ozone is complex and speculative to occur at the project level; ozone is addressed under the regional analysis (see Impact AIR-3). Sulfur dioxide, sulfates, visibility reducing particles, and hydrogen sulfide are not modeled because the Basin is in attainment for those pollutants and the project would not emit those pollutants in sufficient quantity (background concentrations are low). Diesel particulate matter and benzene are assessed in Impact AIR-4. For additional modeling assumptions, please refer to Section 4, Modeling Parameters and Assumptions.

Criterion 1: Localized Significance Analysis – Construction

Table 25 provides a comparison of the Project's localized construction impacts with the SCAQMD's significance thresholds and the ambient air quality standards without mitigation. Note that the impact estimates for PM_{10} and $PM_{2.5}$ include compliance with SCAQMD Rule 403 regarding fugitive dust as discussed previously in Table 13 above. The highest impacts from construction occurred along the southeast corner fence line of the construction area along Pennsylvania Avenue.

Table 25: Localized Construction Impacts

Air Pollutant	Averaging Time, Units	Local Project Impact	Background Air Quality	Total	Standard/ Threshold	Significant Impact?
Carbon monoxide (CO)	1-hour, ppm	0.7	3	3.7	20.0	No
	8-hour, ppm	0.1	2.2	2.3	9.0	No
Nitrogen dioxide (NO_2)	1-hour, ppm	0.114	0.091	0.205	0.18	Yes
Particulate matter (PM_{10})	24-hour, $\mu g/m^3$	10.2	NA	10.2	10.4	No
	Annual, $\mu g/m^3$	0.7	NA	0.7	1.0	No
Particulate matter ($PM_{2.5}$)	24-hour, $\mu g/m^3$	8.6	NA	8.6	10.4	No

Notes:
NA = Not Applicable; background levels are not defined for PM_{10} and $PM_{2.5}$ for purposes of significance testing
ppm = parts per million (a unit of concentration); $\mu g/m^3$ = micrograms per cubic meter (a unit of concentration)
Sources:
– Local project impacts are from project specific dispersion modeling; model output is in Appendix B
– Background air quality for CO and NO_2 from Table 4.
– Total = local project impact + background air quality
– Standard/threshold: NO_2 is California 1-hour standard, CO 1-hour is the State standard, and CO 8-hour is the State standard (see Table 6); PM_{10} and $PM_{2.5}$ thresholds are from South Coast Air Quality Management District 2011a.

Concentrations from the Project during construction would exceed the SCAQMD's localized construction significance threshold for NO_2 but not exceed the significance thresholds for CO, PM_{10}, and $PM_{2.5}$. As a result, the Project would result in a significant localized air quality impact during construction.

After application of mitigation, the impact of Project construction NOx emissions at the nearest sensitive receptor would result in a total nitrogen dioxide impact less than the significance threshold of 0.18 ppm, as shown in Table 26. Reducing the hours of equipment operation per day and/or requiring that the engines are Tier 2 or higher would reduce NOx emissions (mitigation measure AQ-1). The mitigation is applied in CalEEMod by requiring Tier 2 engines and reducing the hours of the equipment. Similar to Mitigation Measure AQ1, Mitigation Measure AQ-2 would reduce the equipment in operation at one time.

Table 26: Localized Construction Impacts (Mitigated)

Air Pollutant	Averaging Time, Units	Local Project Impact	Background Air Quality	Total	Standard/ Threshold	Significant Impact?
Nitrogen dioxide (NO_2)	1-hour, ppm	0.078	0.091	0.169	0.18	No

Sources:
– Local project impacts are from project specific dispersion modeling; model output is in Appendix B
– Background air quality from Table 4.
– Total = local project impact + background air quality
– Standard/threshold: NO_2 is California 1-hour standard

Criterion 2: Localized Significance Analysis - Operation

The results of the criteria pollutant impact assessment are shown in Table 27, Table 28, and Table 28 from the Project operations along with a comparison with the SCAQMD localized thresholds for NO_2, CO, PM_{10}, and $PM_{2.5}$ for the years 2010, 2013, and 2030, respectively. The residential receptors with the highest localized operational impacts were found to the east of the Project across Karon Street. The results contained in the tables indicates that operation of the Project would not exceed the SCAQMD's localized significance thresholds for any pollutant during any analysis year. Therefore, operation of the Project would not result in a significant localized air quality impact.

Table 27: Localized Operational Impacts - 2010

Air Pollutant	Averaging Time, Units	Local Project Impact	Background Air Quality	Total	Standard/ Threshold	Significant Impact?
Carbon monoxide (CO)	1-hour, ppm	0.1	3	3.1	20.0	No
	8-hour, ppm	0.06	2.2	2.3	9.0	No
Nitrogen dioxide (NO_2)	1-hour, ppm	0.012	0.091	0.103	0.18	No
	1-hour, ppm	0.010	0.07	0.08	0.10	No
Particulate matter (PM_{10})	24-hour, $\mu g/m^3$	0.23	NA	0.23	2.5	No
Particulate matter (PM_{10})	Annual, $\mu g/m^3$	0.06	NA	0.06	1.0	No
Particulate matter ($PM_{2.5}$)	24-hour, $\mu g/m^3$	0.18	NA	0.18	2.5	No

Notes:
NA = Not Applicable; background levels are not defined for PM_{10} and $PM_{2.5}$ for purposes of significance testing
ppm = parts per million (a unit of concentration); $\mu g/m^3$ = micrograms per cubic meter (a unit of concentration)
Sources:
– Local project impacts are from project specific dispersion modeling; model output is in Appendix B
– Background air quality for CO and NO_2 from Table 4.
– Total = local project impact + background air quality
– Standard/threshold: NO_2 is California 1-hour standard, CO 1-hour is the State standard, and CO 8-hour is the State standard (see Table 6); PM_{10} and $PM_{2.5}$ thresholds are from South Coast Air Quality Management District 2011a.

Table 28: Localized Operational Impacts - 2013

Air Pollutant	Averaging Time, Units	Local Project Impact	Background Air Quality	Total	Standard/ Threshold	Significant Impact?
Carbon monoxide (CO)	1-hour, ppm	0.08	3	3.1	20.0	No
	8-hour, ppm	0.04	2.2	2.2	9.0	No
Nitrogen dioxide (NO_2)	1-hour, ppm	0.011	0.091	0.102	0.18	No
	1-hour, ppm	0.010	0.07	0.08	0.10	No
Particulate matter (PM_{10})	24-hour, $\mu g/m^3$	0.28	NA	0.28	2.5	No
Particulate matter (PM_{10})	Annual, $\mu g/m^3$	0.08	NA	0.08	1.0	No
Particulate matter ($PM_{2.5}$)	24-hour, $\mu g/m^3$	0.18	NA	0.18	2.5	No

Notes:
NA = Not Applicable; background levels are not defined for PM_{10} and $PM_{2.5}$ for purposes of significance testing
ppm = parts per million (a unit of concentration); $\mu g/m^3$ = micrograms per cubic meter (a unit of concentration)
Sources:
– Local project impacts are from project specific dispersion modeling; model output is in Appendix B
– Background air quality for CO and NO_2 from Table 4.
– Total = local project impact + background air quality
– Standard/threshold: NO_2 is California 1-hour standard, CO 1-hour is the State standard, and CO 8-hour is the State standard (see Table 6); PM_{10} and $PM_{2.5}$ thresholds are from South Coast Air Quality Management District 2011a.

Table 29: Localized Operational Impacts - 2030

Air Pollutant	Averaging Time, Units	Local Project Impact	Background Air Quality	Total	Standard/ Threshold	Significant Impact?
Carbon monoxide (CO)	1-hour, ppm	0.04	3	3.0	20.0	No
	8-hour, ppm	0.02	2.2	2.2	9.0	No
Nitrogen dioxide (NO_2)	1-hour, ppm	0.009	0.091	0.100	0.18	No
	1-hour, ppm	0.007	0.07	0.077	0.10	No
Particulate matter (PM_{10})	24-hour, $\mu g/m^3$	0.25	NA	0.25	2.5	No
Particulate matter (PM_{10})	Annual, $\mu g/m^3$	0.07	NA	0.07	1.0	No
Particulate matter ($PM_{2.5}$)	24-hour, $\mu g/m^3$	0.20	NA	0.20	2.5	No

Table 29 (cont.): Localized Operational Impacts - 2030

Air Pollutant	Averaging Time, Units	Local Project Impact	Background Air Quality	Total	Standard/ Threshold	Significant Impact?

Notes:
NA = Not Applicable; background levels are not defined for PM_{10} and $PM_{2.5}$ for purposes of significance testing
ppm = parts per million (a unit of concentration); $\mu g/m^3$ = micrograms per cubic meter (a unit of concentration)
Sources:
– Local project impacts are from project specific dispersion modeling; model output is in Appendix B
– Background air quality for CO and NO_2 from Table 4.
– Total = local project impact + background air quality
– Standard/threshold: NO_2 is California 1-hour standard, CO 1-hour is the State standard, and CO 8-hour is the State standard (see Table 6); PM_{10} and $PM_{2.5}$ thresholds are from South Coast Air Quality Management District 2011a.

Criterion 3: CO Hot Spot Assessment

Carbon monoxide (CO) "hot spot" thresholds ensure that emissions of CO associated with traffic impacts from a project in combination with CO emissions from existing and forecasted regional traffic do not exceed state or federal standards for CO at any traffic intersection impacted by the project. Project concentrations may be considered significant if a CO hot spot intersection analysis determines that project generated CO concentrations cause a localized violation of the state CO 1-hour standard of 20 ppm, state CO 8-hour standard of 9 ppm, federal CO 1-hour standard of 35 ppm, or federal CO 8-hour standard of 9 ppm.

Within an urban setting, motor vehicle exhaust is the primary source of CO emissions. Consequently, the highest ambient CO concentrations are generally found within close proximity to congested intersection locations. A CO hotspot analysis is the appropriate tool to determine if emissions of CO from the operation of the project would exceed federal or State ambient air quality standards for CO. During typical meteorological conditions, CO concentrations tend to decrease as the distance from the emission source (congested intersection) increases. For purposes of providing a worst-case impact analysis, CO concentrations are typically analyzed at the most congested intersection locations, because if impacts were less than significant in close proximity to the most congested intersections, impacts would also be less than significant at less congested intersections.

This analysis follows guidelines recommended by the CO Protocol (University of California, Davis 1997) and the SCAQMD. According to the CO Protocol, intersections with Level of Service (LOS) E or F require detailed analysis. In addition, intersections that operate under LOS D conditions in areas that experience meteorological conditions favorable to CO accumulation require a detailed analysis. The SCAQMD recommends that a local CO hot spot analysis be conducted if the intersection meets one of the following criteria: 1) the intersection is at LOS D or worse and where the project increases the volume to capacity ratio by 2 percent, or 2) the project decreases LOS at an intersection from C to D.

To examine potential traffic impacts from the Project, a Traffic Impact Analysis was prepared by Urban Crossroads in 2011. This study examined the traffic volumes and Levels of Service (LOS) at intersections surrounding the project both with and without the project-generated traffic. Traffic projections were made for the Project in 2010, 2013, and 2030.

In 2010, according to the information presented in Table 5-1 in the Traffic Impact Analysis, there are eight intersections that meet those conditions outlined by the SCAQMD to require further analysis: 8, 9, 11, 12, 14, 31, 40, and 41. In 2013, according to the information presented in Table 6-1 in the Traffic Impact Analysis, there are 13 intersections would require further analysis in either the weekday or Saturday peak hour: 8, 9, 10, 11, 12, 14, 17, 20, 21, 31, 34, 40, and 41. In 2030, according to the information presented in Table 7-1 in the Traffic Impact Analysis, there are 18 intersections that would require further analysis.

The approach for this analysis estimates the CO impact at the five intersections for each year with the greatest volumes. The volumes are contained in Appendix 2.1 in the Traffic Impact Analysis. The greatest volumes generally occur during the Saturday peak hour; therefore, the Saturday volumes as contained in Exhibit 5-3 (2010 with project), Exhibit 6-3 (2013 with project), and Exhibit 7-4 (2030 with project) in the Traffic Impact Analysis are used. The highest CO emissions would be expected at such intersections because these intersections exhibit the highest intersection traffic volumes and congestion. CO impacts would be expected to be less at all other intersections. In estimating traffic volumes, the traffic generated by the project was added to traffic growth in the area as well as from traffic from projects that are in the process of or have been approved by the City of Redlands.

The CO emission factors used to calculate vehicle emissions at the various intersections depend on vehicle speed and vehicle mix and were derived from the ARB EMFAC2007 mobile source emission model for the years 2013 and 2030. The results of the CO hot spot assessment are provided in Table 30, Table 31, and Table 32 for the years 2010, 2013, and 2030, respectively. Note that although the traffic volumes in later years is greater than the years prior, emission factors in later years decrease; therefore, the concentrations in 2030 are lower than in 2010 and 2013.

Table 30: Carbon Monoxide Concentrations at Intersections – 2010

Intersection	Estimated CO Concentration (ppm)		Significant Impact?
	1 Hour	8 Hour	
8: Alabama Street and Lugonia Avenue	4.4	3.2	No
9: Alabama St. and I-10 Westbound Ramps	4.3	3.1	No
10: Alabama St. and I-10 Eastbound Ramps	4.3	3.1	No
11: Alabama Street and Redlands Boulevard	4.4	3.2	No
17: Tennessee Street and Lugonia Avenue	4.4	3.2	No

Notes:
The 1 hour concentration is the CALINE4 output (see Appendix D for model output) plus the 1 hour background concentration of 3 ppm (from Table 4).
The 8 hour project increment was calculated by multiplying the 1 hour CALINE4 output by 0.7 (persistence factor), then adding the 8 hour background concentration of 2.2 ppm (from Table 4).
A significant impact would occur if the estimated CO concentration is over the 1 hour state standard of 20 ppm or the 8 hour state/federal standard of 9 ppm.

Table 31: Carbon Monoxide Concentrations at Intersections – 2013

Intersection	Estimated CO Concentration (ppm)		Significant Impact?
	1 Hour	8 Hour	
8: Alabama Street and Lugonia Avenue	4.3	3.1	No
9: Alabama St. and I-10 Westbound Ramps	4.3	3.1	No
11: Alabama Street and Redlands Boulevard	4.2	3.0	No
14: SR-210 Westbound Ramps and San Bernardino Avenue	4.4	3.2	
17: Tennessee Street and Lugonia Avenue	4.2	3.0	No

Notes:
The 1 hour concentration is the CALINE4 output (see Appendix D for model output) plus the 1 hour background concentration of 3 ppm (from Table 4).
The 8 hour project increment was calculated by multiplying the 1 hour CALINE4 output by 0.7 (persistence factor), then adding the 8 hour background concentration of 2.2 ppm (from Table 4).
A significant impact would occur if the estimated CO concentration is over the 1 hour state standard of 20 ppm or the 8 hour state/federal standard of 9 ppm.

Table 32: Carbon Monoxide Concentrations at Intersections – 2030

Intersection	Estimated CO Concentration (ppm)		Significant Impact?
	1 Hour	8 Hour	
8: Alabama Street and Lugonia Avenue	3.6	2.6	No
9: Alabama St. and I-10 Westbound Ramps	3.5	2.6	No
11: Alabama Street and Redlands Boulevard	3.5	2.6	No
12: SR-210 Eastbound Ramps and San Bernardino Avenue	3.5	2.6	No
14: SR-210 Westbound Ramps and San Bernardino Avenue	3.7	2.7	No

Notes:
The 1 hour concentration is the CALINE4 output (see Appendix D for model output) plus the 1 hour background concentration of 3 ppm (from Table 4).
The 8 hour project increment was calculated by multiplying the 1 hour CALINE4 output by 0.7 (persistence factor), then adding the 8 hour background concentration of 2.2 ppm (from Table 4).
A significant impact would occur if the estimated CO concentration is over the 1 hour state standard of 20 ppm or the 8 hour state/federal standard of 9 ppm.

The CO hot spot analysis demonstrated that project emissions of CO during operation along with emissions from other foreseeable projects in the area would not result in an exceedance of the most stringent ambient air quality standards for CO. Therefore, according to this criterion, air pollutant emissions during operation would result in a less than significant impact.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Mitigation Measures AQ-1 and AQ-2 are required.

Level of Significance After Mitigation

Less than significant.

Cumulative Impacts

Impact AIR-3:	**The Project could result in a cumulatively considerable net increase of a criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors).** **[CEQA Air Quality Threshold c]**

Impact Analysis

Section 15130(b) of the CEQA Guidelines states the following:

> The following elements are necessary to an adequate discussion of significant cumulative impacts: 1) Either: (A) A list of past, present, and probable future projects producing related

> or cumulative impacts, including, if necessary, those projects outside the control of the agency, or (B) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified, which described or evaluated regional or area wide conditions contributing to the cumulative impact.

In accordance with CEQA Guidelines 15130(b), this analysis of cumulative impacts is based on a summary of projections analysis. This analysis considers the current CEQA Guidelines, which includes the recent amendments approved by the Natural Resources Agency and effective on March 18, 2010. This analysis is based on the 2003 and 2007 AQMPs. The South Coast Air Basin is in nonattainment for ozone, particulate matter (PM_{10} and $PM_{2.5}$), and nitrogen dioxide, which means that concentrations of those pollutants currently exceed the ambient air quality standards for those pollutants. When concentrations of ozone, PM_{10}, $PM_{2.5}$, and nitrogen dioxide exceed the ambient air quality standard, then those sensitive to air pollution (i.e., children, elderly, sick) could experience health effects such as decrease of pulmonary function and localized lung edema in humans and animals, increased mortality risk, and risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans.

Under the amended CEQA Guidelines, cumulative impacts may be analyzed using other plans that evaluate relevant cumulative effects. The AQMPs describe and evaluate the future projected emissions sources in the South Coast Air Basin and sets forth a strategy to meet both state and federal Clear Air Act planning requirements and federal ambient air quality standards. Therefore, the AQMPs are relevant plans for a CEQA cumulative impacts analysis. The 2003 AQMP updates the attainment demonstration for the federal standards for ozone and PM_{10}; replaces the 1997 attainment demonstration for the federal CO standard and provides a basis for a maintenance plan for CO for the future; and updates the maintenance plan for the federal nitrogen dioxide standard that the South Coast Air Basin has met since 1992. The 2007 AQMP focuses on ozone and $PM_{2.5}$. The AQMP also incorporates significant new scientific data, emission inventories, ambient measurements, control strategies, and air quality modeling.

In accordance with CEQA Guidelines section 15064, subdivision (h)(3), a lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program. As identified in Impact AIR-1, the project complies with the control measures in the 2003 and the 2007 AQMP and all of the SCAQMD's applicable rules and regulations. Under the CEQA Guidelines Amendments, the lead agency should explain how implementing the particular requirements in the plan, regulation, or program ensures that the project's incremental contribution to the cumulative effect is not cumulatively considerable. To explain how implementing the requirements in the AQMPs ensures the project's incremental contribution to the cumulative effect is not cumulatively

consideration, the following three-pronged analysis was performed. To result in a less than significant impact, the following criteria must be true:

1. Regional analysis: emissions of nonattainment pollutants must be below the regional significance thresholds. This is an approach recommended by the SCAQMD in its comment letters.
2. Summary of projections: the project must be consistent with current air quality attainment plans including control measures and regulations. This is an approach consistent with Section 15130(b) of the CEQA guidelines.
3. Cumulative health impacts: the project must result in less than significant cumulative health effects from the nonattainment pollutants. This approach correlates the significance of the regional analysis with health effects, consistent with the court decision, *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1219-20.

The South Coast Air Quality Management District 1993 Handbook suggests three voluntary approaches to determine cumulative significance. The first approach is a 1-percent-per-year reduction (or 18 percent over 18 years to the year 2010) in project emissions of VOC, NO_x, CO, PM_{10}, and SO_x. This approach is not straightforward and operational reductions are not easy to quantify. The second approach is not applicable because it relies on SCAQMD Regulation XV, which was repealed in 1995 and therefore is not applicable. The third approach is to reduce the rate of growth in vehicle miles traveled and trips. In this approach, the rate of growth in vehicle miles traveled and trips "should be held to the rate of population or household growth." Data that was used by Southern California Association of Governments in the AQMP should be used in this approach; however, that data is not available. Therefore, the approaches in the 1993 SCAQMD Handbook pertaining to cumulative impacts are not used.

Criterion 1: Regional Impact Analysis

If an area is in nonattainment for a criteria pollutant, then the background concentration of that pollutant has historically been over the ambient air quality standard. It follows that if a project exceeds the regional threshold for that nonattainment pollutant, then it would result in a cumulatively considerable net increase of that pollutant and result in a significant cumulative impact.

The Basin is in nonattainment for nitrogen dioxide, PM_{10}, $PM_{2.5}$, and ozone. Therefore, if the project exceeds the regional thresholds for PM_{10}, or $PM_{2.5}$, then it contributes to a cumulatively considerable impact for those pollutants. Additionally, if the project exceeds the regional threshold for NO_x or VOC, it would contribute to the formation of ozone. If the project exceeds the threshold for NOx, it would contribute to nitrogen dioxide concentrations.

Regional emissions include those generated from all onsite and offsite activities. Regional significance thresholds have been established by the SCAQMD because emissions from projects in

the Basin can potentially contribute to the existing emission burden and possibly affect the attainment and maintenance of ambient air quality standards. Projects within the South Coast Air Basin region with regional emissions in excess of any of the thresholds presented in Table 33 are considered to have a significant regional air quality impact.

Effective April 12, 2010, EPA promulgated a new federal ambient air quality standard for the annual average nitrogen dioxide. The current SCAQMD significance thresholds do not take into account this new standard. The SCAQMD may update its significance thresholds for NOx and nitrogen dioxide; however, there is no indication regarding what the new thresholds will be. The new federal standard of 0.100 ppm is based on the 3-year average of the 98th percentile of the daily maximum 1-hour average. The state standard is 0.18 ppm, which is not to be exceeded at all. Therefore, the two cannot be easily compared. This analysis uses the current SCAQMD thresholds to determine significance for nitrogen dioxide and NOx.

Project impacts on a regional scale may occur many miles away from the project site. Project emissions when added to the overall emission burden of the Basin could result in a cumulatively significant impact. To address this impact, estimates were made of the project's regional construction and operational emissions using CalEEMod, as discussed in Section 4 of this report. Regional emissions are derived from both onsite emission sources and offsite emission sources such as off-road construction equipment, and customer, worker, and delivery vehicle activity.

Regional Construction Impacts

Construction emissions are calculated during each period according to the type and level of construction activity occurring during the period. Activities can be discreet or overlapping. Emissions occur from construction equipment, fugitive dust, asphalt paving, architectural coating, and worker and delivery vehicles. Table 33 summarizes the project's short-term regional construction emissions without application of mitigation measures for each construction activity (however, the particulate matter emissions do include compliance with the mitigation measures outlined in SCAQMD Rule 403). As shown in Table 33, without mitigation, the project's construction emissions would exceed the SCAQMD regional emission thresholds for VOC and NO_x during construction. Therefore, the short-term construction emissions would have a potentially significant regional impact.

Table 33: Construction Air Pollutant Emissions

Source	Onsite and Offsite Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Grading of main project	19.2	158.0	87.3	0.2	17.6	11.3
Grading of outparcels	8.9	72.2	40.5	0.1	7.4	4.8
Paving	9.4	35.7	22.2	<0.1	3.4	3.1
Building	12.2	76.9	53.6	0.1	6.7	5.1
Coating	116.0	3.1	3.1	0.0	0.5	0.3
Overlapping: Paving, Building, Coating	*137.6*	*115.7*	*78.9*	*0.1*	*10.6*	*8.5*
Maximum Daily Emissions	137.6	158.0	87.3	0.2	17.6	11.3
Significance Threshold	75	100	550	150	150	55
Significant Impact?	Yes	Yes	No	No	No	No

Notes:
The maximum daily emissions refer to the maximum emissions that would occur in one day. It is assumed that paving, building, and coating would overlap.
VOC = volatile organic compounds NO_x = nitrogen oxides CO = carbon monoxide
SO_x = sulfur oxides PM_{10} and $PM_{2.5}$ = particulate matter
Source of emissions: Appendix A: CalEEMod Output.
Source of thresholds: South Coast Air Quality Management District 2011a.

Emissions with the incorporation of mitigation measures are shown in Table 34. As shown in the table, mitigation reduces emissions to less than significant. The emissions reductions from AQ-1 are estimated by CalEEMod. The emission reductions from AQ-2 (not allowing overlap) are manually estimated by changing the overlapping additions. To attribute the emission reductions from AQ-3: the unmitigated emissions were estimated assuming 250 grams of VOC per Liter; assuming 125 grams per Liter would reduce emissions by half.

Table 34: Construction Air Pollutant Emissions (Mitigated)

Source	Onsite and Offsite Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Grading of main project	46.1	95.8	70.7	0.1	11.9	6.7
Grading of outparcels	8.9	72.2	40.5	0.1	7.4	4.8
Paving (parking lots, roads)	9.4	35.7	22.2	<0.1	3.4	3.1
Building	12.2	76.9	53.6	0.1	6.7	5.1
Coating	58.0	3.1	3.1	0.0	0.5	0.3
Overlapping: Paving, Coating	*67.4*	*38.8*	*25.3*	*<0.0*	*3.9*	*3.4*
Overlapping: Building, Coating	*70.2*	*80.0*	*56.7*	*0.1*	*7.2*	*5.4*
Maximum Daily Emissions	70.2	95.8	70.7	0.1	11.9	6.7
Significance Threshold	75	100	550	150	150	55
Significant Impact?	No	No	No	No	No	No

Notes:
- The maximum daily emissions refer to the maximum emissions that would occur in one day.
- To attribute reductions from mitigation measure AQ-3: the unmitigated emissions were estimated assuming 250 grams of VOC per Liter; assuming 125 grams per Liter would reduce emissions by half.

VOC = volatile organic compounds NOx = nitrogen oxides CO = carbon monoxide
SOx = sulfur oxides PM10 and PM2.5 = particulate matter
Source of emissions: Appendix A: CalEEMod Output.
Source of thresholds: South Coast Air Quality Management District 2011a.

Regional Operational Impacts

Mobile source emissions from motor vehicles are the largest single long-term source of air pollutants from the operation of the project and consist of emissions from delivery trucks and customer and worker vehicles. Small amounts of emissions are also generated from area sources such as landscaping equipment, use of consumer products, natural gas consumption, and architectural coating/painting and from the operation of the service station.

Operational emissions (unmitigated) from operational emission sources as derived from CalEEMod and from the service station for the years 2010, 2013, and 2030 (summer season) are shown in Table 35, Table 36, Table 37, respectively. Winter emissions during 2030 are shown in Table 38. As shown in the tables, emissions of VOC, NOx, CO, and PM_{10} exceed the regional threshold during all years. Winter emissions vary slightly but are also significant for the same pollutants (see Appendix A for the output). Also, as shown in the tables, emissions are lower for VOC, NOx, and CO in future years, as the vehicle fleet is assumed to be more efficient.

Table 35: Regional Operational Emissions – 2010

Source	Summer Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Mobile: Employee, Customers	202	165	1,979	2	220	9
Mobile: Delivery trucks	3	23	16	<1	2	1
Natural gas	<1	3	2	<1	<1	<1
Coating and consumer products	7	0	0	0	0	0
Service Station	21	0	0	0	0	0
Total Daily Emissions	233	191	1,997	2	222	10
Significance Threshold	55	55	550	150	150	55
Significant Impact?	Yes	Yes	Yes	No	Yes	No

Notes:
VOC = volatile organic compounds NO_x = nitrogen oxides CO = carbon monoxide
SO_x = sulfur oxides PM_{10} and $PM_{2.5}$ = particulate matter
Source for emissions: Appendix A: CalEEMod Output.
Source of thresholds: South Coast Air Quality Management District 2011a.

Table 36: Regional Operational Emissions – 2013

Source	Summer Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Mobile: Employee, Customers	167	121	1567	2	219	9
Mobile: Delivery trucks	2	17	12	<1	2	1
Natural gas	<1	3	2	<1	<1	<1
Coating and consumer products	7	0	0	0	0	0
Service Station	21	0	0	0	0	0
Total Daily Emissions	197	141	1,581	2	221	10
Significance Threshold	55	55	550	150	150	55
Significant Impact?	Yes	Yes	Yes	No	Yes	No

Notes:
VOC = volatile organic compounds NO_x = nitrogen oxides CO = carbon monoxide
SO_x = sulfur oxides PM_{10} and $PM_{2.5}$ = particulate matter
Source of emissions: Appendix A: CalEEMod Output.
Source of thresholds: South Coast Air Quality Management District 2011a.

Table 37: Regional Operational Emissions – 2030 (Summer)

Source	Summer Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Mobile: Employee, Customers	98	46.2	713	2	221	10
Mobile: Delivery trucks	1	6.3	4	<1	1	<1
Natural gas	<1	2.5	2	<1	<1	<1
Coating and consumer products	7	0.0	0	0	0	0
Service Station	21	0.0	0	0	0	0
Total Daily Emissions	127	55.0	719	2	222	10
Significance Threshold	55	55	550	150	150	55
Significant Impact?	Yes	Yes	Yes	No	Yes	No

Notes:
VOC = volatile organic compounds NO_x = nitrogen oxides CO = carbon monoxide
SO_x = sulfur oxides PM_{10} and $PM_{2.5}$ = particulate matter
Source of emissions: Appendix A: CalEEMod Output.
Source of thresholds: South Coast Air Quality Management District 2011a.

Table 38: Regional Operational Emissions – 2030 (Winter)

Source	Winter Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Mobile: Employee, Customers	98	52.6	708	2	221	10
Mobile: Delivery trucks	6	6.4	4	<1	1	<1
Natural gas	<1	2.5	2	<1	<1	<1
Coating and consumer products	7	0.0	0	0	0	0
Service Station	21	0.0	0	0	0	0
Total Daily Emissions	132	61.5	714	2	222	10
Significance Threshold	55	55	550	150	150	55
Significant Impact?	Yes	Yes	Yes	No	Yes	No

Notes:
VOC = volatile organic compounds NO_x = nitrogen oxides CO = carbon monoxide
SO_x = sulfur oxides PM_{10} and $PM_{2.5}$ = particulate matter
Source of emissions: Appendix A: CalEEMod Output.
Source of thresholds: South Coast Air Quality Management District 2011a.

As shown above, the operation of the Project would exceed the SCAQMD's regional operational significance thresholds for VOC, NO_x, CO, and PM_{10}. VOC and NO_x are precursors in the formation of ozone and both contribute to the formation of PM_{10} and $PM_{2.5}$, pollutants for which the Basin has been identified as a non-attainment area (i.e., an area exceeding national or State standards). Thus, even though the project's incremental emissions by themselves would not likely exceed the ozone,

PM_{10} and $PM_{2.5}$ standards, their contribution to the overall SCAQMD regional emission burden would add to a cumulatively considerable impact. Therefore, the project does not meet Criterion 1.

Note that as discussed in Impact AIR-2, during operation the project would not exceed the ambient air quality standards for the pollutants assessed. This is based on localized emissions and concentrations. The analysis under this impact assesses the emissions based on the "regional" thresholds identified by the SCAQMD. Based on the regional thresholds, the cumulative impact is significant.

Criterion 2: Consistency with Existing Air Quality Plans

The geographic scope for cumulative criteria pollution from air quality impacts is the South Coast Air Basin, because that is the area in which the air pollutants generated by the sources within the basin circulate and are often trapped. The SCAQMD is required to prepare and maintain an AQMP and a State Implementation Plan to document the strategies and measures to be undertaken to reach attainment of ambient air quality standards. While the SCAQMD does not have direct authority over land use decisions, it recognized that changes in land use and circulation planning are necessary to maintain clean air. The SCAQMD evaluated the entire basin when it developed the AQMP.

According to the analysis contained in Impact AIR-1, the project is not consistent with the most recent AQMP and State Implementation Plan without mitigation. Therefore, the project presents a significant impact according to this criterion.

Criterion 3: Cumulative Health Impacts

The basin is in nonattainment for ozone, nitrogen dioxide, PM_{10}, and $PM_{2.5}$, which means that the background levels of those pollutants are at times higher than the ambient air quality standards. The air quality standards were set to protect public health, including the health of sensitive individuals (i.e., elderly, children, and the sick). Therefore, when the concentration of those pollutants exceeds the standard, it is likely that some sensitive individuals in the population will experience health effects as described above in the sub-section, Air Pollutants. However, the health effects are a factor of the dose-response curve. Concentration of the pollutant in the air (dose), the length of time exposed, and the response of the individual are factors involved in the severity and nature of health impacts. If a significant health impact results from Project emissions, it does not mean that 100 percent of the population would experience health effects. There are no models or methodology to calculate with certainty what health risks would be experienced from potential cumulative impacts.

The regional analysis of construction emissions indicates that without mitigation, the project would exceed the SCAQMD regional significance thresholds for VOC and NO_x (ozone precursors). In addition, long-term operational emissions of VOC and NO_x are over the District's significance thresholds. Because ozone is a secondary pollutant (it is not emitted directly but formed by chemical reactions in the air), it can be formed miles downwind of the project site. Project emissions of VOC and NO_x may contribute to the background concentration of ozone and cumulatively cause health effects. Project emissions of NOx may contribute to the background concentration of nitrogen dioxide and cause health effects.

Health impacts from ozone exposure may or may not include the following:

(a) Pulmonary function decrements and localized lung edema in humans and animals

(b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals

(c) Increased mortality risk

(d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans

Short-term exposure to ozone can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (SCAQMD AQMP 2003). Children who live in high ozone communities and who participate in multiple sports have been observed to have a higher asthma risk. This is a significant cumulative health impact associated with ground-level ozone concentrations.

Health effects from nitrogen dioxide may include the following:

(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups
(b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes
(c) Contribution to atmospheric discoloration

Additionally, during operation, the project could result in a significance cumulative contribution to PM_{10}. Sensitive individuals may experience health impacts when concentrations of those pollutants exceed the ambient air quality standards. Health impacts from particulate matter may include the following: (a) exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) declines in pulmonary function growth in children; (c) and/or increased risk of premature death from heart or lung diseases in the elderly.

Although CO would exceed the regional significance thresholds during operation, there would not be significant health effects because the main source of CO is from motor vehicles. CO can accumulate at project impacted intersections. However, according to the CO hotspot shown in Impact AIR-2, the project would not result in an exceedance of the CO ambient air quality standard at project impacted intersections. The standards are set to protect the health of sensitive individuals. Therefore, the project would not result in health effects from CO exposure.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

Mitigation Measures AQ-1 through AQ-11 are required.

Level of Significance After Mitigation

Construction: Less than significant. Mitigation Measures AQ-1, AQ-2, and AQ-3 would reduce the significance of construction emissions, as shown in Table 34.

Operation: Significant and unavoidable. The project would result in a cumulatively significant impact even after mitigation because of the exceedances of the SCAQMD's regional emission thresholds for VOC, NOx, CO, and PM_{10}. The project may result in cumulative health effects from cumulative exposures from ozone, nitrogen dioxide, and PM_{10}. The emission reductions resulting form the implementation of Mitigation Measures AQ-5, AQ-7, AQ-8, AQ-9, AQ-10, AQ-11, and T-6a would result in approximately a 1 percent reduction in motor vehicle emissions (see Table 3.17-6 in the Greenhouse Gas EIR section for documentation). This reduction would not reduce operational emissions to less than significant.

Sensitive Receptors

Impact AIR-4	**The Project would not expose sensitive receptors to substantial pollutant concentrations.** **[CEQA Air Quality Threshold d]**

Impact Analysis

Sensitive Receptors

Those who are sensitive to air pollution include children, the elderly, and persons with preexisting respiratory or cardiovascular illness. For purposes of CEQA, the SCAQMD considers a sensitive receptor to be a location where a sensitive individual could remain for 24 hours, such as residences, hospitals, or convalescent facilities. Commercial and industrial facilities are not included in the definition because employees do not typically remain onsite for 24 hours. However, when assessing the impact of pollutants with 1-hour or 8-hour standards (such as nitrogen dioxide and carbon monoxide), commercial and/or industrial facilities would be considered sensitive receptors for those purposes.

The closest existing sensitive receptors are residences located approximately 25 meters (82 feet) to the east and southeast of the project across Karon Street. A review of the City of Redlands General Plan (City of Redlands 1995) indicates that the areas to the north, south, and west of the Project site have been designated as commercial and, therefore, would not involve the future location of sensitive receptors in these areas. The closest schools are the Lugonia School located 0.8 mile east of the Project, Clement Middle School located 1.0 miles east of the Project, and the Packinghouse Christian Academy located 0.6 mile west of the Project.

Criterion 1: Localized Significance Thresholds

The localized construction analysis uses thresholds that represent the maximum emissions for a project that would not 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. The thresholds are also based on the location of the sensitive receptors. If the project results in emissions less than those thresholds, it follows that the Project would not cause or contribute to an exceedance of the standard and, therefore, would not expose sensitive receptors to substantial pollutant concentrations.

The localized construction analysis discussed in Impact AIR-2 demonstrated that the project could exceed the ambient air quality standard for nitrogen dioxide before mitigation. The ambient air quality standards are set to protect the health of sensitive individuals. Therefore, the project could impact sensitive receptors during construction. This is a potentially significant impact.

The localized operational analysis discussed in Impact AIR-2 demonstrated that the project would not exceed the localized thresholds or standards during operation. Therefore, the Project would not expose sensitive receptors to substantial pollutant concentrations during operation.

Criterion 2: CO Hot Spot Analysis

The CO hot spot threshold analysis presented in the discussion of Impact AQ-2 found that the CO emissions from project-related traffic, combined with CO emissions resulting from the growth in background traffic and identified development projects, would not result in the formation of a CO hot spot and, thus, not result in an exceedance of the CO air quality standards. The standards are set to protect the health of sensitive individuals. Because the standards would not be exceeded, the project would not result in a significant impact related to CO. Therefore, the project meets Criterion 2.

Criterion 3: Toxic Air Contaminants

Cancer risk is expressed in terms of a probability that an individual out of a population of one million people would contract cancer because of continuous exposure to toxic air contaminants over a specified period. For sensitive receptors such as residences, this exposure period is a lifetime of 70 years.

The SCAQMD health risk significance thresholds (South Coast Air Quality Management District 2011a) specifically state that the cancer threshold (10 in one million cancer risk) is based on the incremental increase. Communications with SCAQMD staff indicate that the SCAQMD does not discourage lead agencies from reporting the total cumulative impact from all sources in the basin on an individual receptor; however the SCAQMD has not requested that a lead agency use the incremental threshold (10 in 1 million cancer risk) to determine cumulative significance. As stated by the SCAQMD:

> "If we did, every project in the basin would be significant as I don't believe there is a single area with less than 10 in a million cancer risk based on MATES III. I believe our thresholds were designed so as to capture the truly significant projects under CEQA. As our agency and others (EPA, ARB) spend considerable resources outside of CEQA project reviews to clean up the air, it doesn't seem appropriate to me to use CEQA in the manner described (i.e.,

basin-wide risks determine project specific impacts)." [Email communication received from Ian MacMillan, SCAQMD on October 4, 2011]

This analysis addresses the impact to sensitive receptors, not onsite or offsite worker receptors, since the sensitive receptors (residences) would receive a greater impact than offsite workers. The offsite workers would not be exposed to the onsite pollutants for as long as the residences because they would only be there for eight hours or less.

The California Division of Occupational Safety and Health (Cal/OSHA) and the Centers for Disease Control and Prevention protects workers from safety hazards, including high air pollutant concentrations (i.e., see http://www.osha.gov/dep/index.html, http://www.cdc.gov/niosh/construction/, and http://www.cdc.gov/niosh/topics/indoorenv/constructionieq.html).

Onsite workers are not required to be addressed through this health risk assessment process. A document published by the California Air Pollution Control Officers Association (2009), Health Risk Assessments for Proposed Land Use Projects, indicates that onsite receptors are included in risk assessments if they are persons not employed by the project. Persons not employed by the project would not remain onsite for any significant period. Therefore, a health risk assessment for onsite workers is not required or recommended. The document also states that the guidance does not include how risk assessments for construction projects should be addressed in CEQA. Risks near construction projects are expected to be included at a later time as the toxic emissions from construction activities are better quantified. The equipment used during construction would emit DPM, which has been identified by the ARB as a carcinogen. However, the DPM emissions during construction are short term in nature. Determination of the health risk from DPM is considered over a 70-year exposure time for sensitive receptors (California Environmental Protection Agency 2003). Therefore, considering the short timeframe during which DPM emissions would be emitted during construction, exposure to DPM is anticipated to be less than significant during construction.

During operation of the project, diesel-powered delivery vehicles would emit DPM emissions from truck exhausts, idling, and the use of transport refrigeration units. A health risk assessment of these DPM emissions was performed to assess the health consequences from the DPM emissions from the onsite truck activity associated with project operations on nearby sensitive receptors such as residences. Estimates of DPM emissions were prepared using the trip generation and vehicle information from the project traffic impact analysis, the diesel truck inventory established for the project and emission factors from the ARB EMFAC mobile source emission model. Because the health risks are calculated over periods of 70-years for sensitive receptors, the estimates of DPM emissions were also averaged over the exposure duration using the fleet average emission factors contained in the EMFAC2007 model.

In addition to the DPM emissions from the diesel truck traffic, the project description also calls for the operation of a gasoline service station located at the southwest corner of the project. As a result,

emissions of benzene from the operation of the service station were also analyzed in the health risk assessment. Benzene has been identified by the ARB as a toxic air contaminant having both cancer and non-cancer health impacts. The estimation of benzene emissions follows the procedures of the California Air Pollution Control Officers Association risk assessment guidelines for gasoline service stations.

The estimation of health risks followed the guidance from the California Office of Environmental Health Hazard Assessment that uses the AERMOD air dispersion model to disperse the DPM and benzene emissions and to determine health risks from nearby sensitive receptors.

The results of the HRA are provided in Table 39 for the cancer risk estimates. The results shown in this table indicate that the operation of the Project would not exceed the cancer risk significance threshold of 10 in one million set by the SCAQMD for any scenario year.

Table 39: Sensitive Receptor Cancer Risks from Project Operations

Scenario Year	Maximum Lifetime Cancer Risk[(1)] (Risk per Million)	Significance Threshold (Risk per Million)	Exceeds Significance Threshold?
2010	0.8	10	No
2013	0.8	10	No
2030	0.6	10	No

Notes:
[(1)] Includes impacts from diesel particulate matter and benzene emissions
[(2)]The maximum impacted sensitive receptor is located approximately 25 meters from the east property line of the Project in the residential areas across Karon Street.
Source: See Appendix C for the health risk assessment model output

The results of the chronic non-cancer assessment indicate that the Project would result in a hazard index of 0.0006, substantially less than the hazard index significance threshold of 1.0 as set forth by the SCAQMD. An acute non-cancer hazard index of less than 0.0001 was also estimated from the operation of the Project which is less than the SCAQMD's hazard index of 1.0.

Level of Significance Before Mitigation
Potentially significant impact.

Mitigation Measures
Mitigation Measures AQ-1 and AQ-2 are required.

Level of Significance After Mitigation
Less than significant.

Objectionable Odors

Impact AIR-5	**The Project would not create objectionable odors affecting a substantial number of people.** **[CEQA Air Quality Threshold e]**

Impact Analysis

Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of interacting factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works or visits; the type of activity they are engaged in and the sensitivity of the impacted receptor.

Project Analysis

Diesel exhaust and VOCs would be emitted during construction of the Project, which are objectionable to some; however, emissions are short-term in nature only lasting as long as the construction equipment operates, would disperse rapidly from the project site, and therefore should not be at a level to induce a negative odor response.

The odors from the operation of the Project would include the occasional scent from cooking odors from the restaurants, odors from trash and recycling, and odors from the gasoline service station. However, these emission sources are generally located within the western half of the Project and, after accounting for distance and air dispersion, would not induce a negative odor response to nearby sensitive receptors.

Poorly maintained detention basins could result in odors. Therefore, with the implementation of Mitigation Measure AQ-12, sufficient maintenance as required within of the proposed detention basin will ensure the basin will operate as intended and will not emit any objectionable odors Thus, no significant impact would result after implementation of mitigation.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Mitigation Measure AQ-12 is required.

Level of Significance After Mitigation

Less than significant.

SECTION 6: GREENHOUSE GAS IMPACT ANALYSIS

6.1 - CEQA Guidelines

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on greenhouse gases, the type, level, and impact of emissions generated by the project must be evaluated.

The following greenhouse gas significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or

(b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

6.2 - Impact Analysis

Greenhouse Gas Inventory

Impact GHG-1:	**The project would generate direct and indirect greenhouse gas emissions; however, these emissions would not result in a significant impact on the environment.**

Impact Analysis

Thresholds of Significance

A variety of agencies have developed greenhouse gas emission thresholds and/or have made recommendations for how to identify a threshold. However, the thresholds for projects in the jurisdiction of the SCAQMD remain in flux. The California Air Pollution Control Officers Association explored a variety of threshold approaches, but did not recommend one approach (2008). The ARB recommended approaches for setting interim significance thresholds (California Air Resources Board 2008b), in which a draft industrial project threshold suggests that non-transportation related emissions under 7,000 $MTCO_2e$ per year would be less than significant; however, the ARB has not approved those thresholds and has not published anything since then. The Bay Area Air Quality Management District and the San Joaquin Valley Air Pollution Control District have both developed greenhouse gas thresholds. However, those thresholds are not applicable to the Project since the Project is under the jurisdiction of the SCAQMD. The SCAQMD is in the process of developing thresholds, as discussed below.

SCAQMD Threshold Development

On December 5, 2008, the SCAQMD Governing Board adopted an interim greenhouse gas significance threshold for stationary sources, rules, and plans where the SCAQMD is lead agency (SCAQMD permit threshold) (South Coast Air Quality Management District 2008b). The SCAQMD permit threshold consists of five tiers, as follows:

- Tier 1 consists of evaluating whether or not a project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether or not the project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 is a screening threshold level to determine significance using a 90 percent emission capture rate approach and is 10,000 $MTCO_2e$ per year (with construction emissions amortized over 30 years and added to operational emissions).
- Tier 4 was not approved in the interim greenhouse gas threshold.
- Tier 5 would allow the project proponent to purchase offsite mitigation to reduce greenhouse gas emissions to less than the screening level (in Tier 3).

The SCAQMD is in the process of preparing recommended significance thresholds for greenhouse gases for local lead agency consideration ("SCAQMD draft local agency threshold"); however, the SCAQMD Board has not approved the thresholds as of the date of the NOP (South Coast Air Quality Management District 2010). The current draft thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether or not the project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 consists of screening values, which the lead agency can choose but must be consistent. A project's construction emissions are averaged over 30 years and are added to a project's operational emissions. If a project's emissions are under one of the following screening thresholds, then the project is less than significant:
    - All land use types: 3,000 $MTCO_2e$ per year
    - Based on land use type: residential: 3,500 $MTCO_2e$ per year; commercial: 1,400 $MTCO_2e$ per year; or mixed use: 3,000 $MTCO_2e$ per year
- Tier 4 has the following options:
    - Option 1: Reduce emissions from business as usual by a certain percentage; this percentage is currently undefined
    - Option 2: Early implementation of applicable AB 32 Scoping Plan measures

  - Option 3, 2020 target for service populations (SP), which includes residents and employees: 4.8 $MTCO_2e$/SP/year for projects and 6.6 $MTCO_2e$/SP/year for plans;
  - Option 3, 2035 target: 3.0 $MTCO_2e$/SP/year for projects and 4.1 $MTCO_2e$/SP/year for plans
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD discusses its draft thresholds in the following excerpt (South Coast Air Quality Management District 2008c):

> The overarching policy objective with regard to establishing a GHG [greenhouse gas] significance threshold for the purposes of analyzing GHG impacts pursuant to CEQA is to establish a performance standard or target GHG reduction objective that will ultimate contribute to reducing GHG emissions to stabilize climate change. Full implementation of the Governor's Executive Order S-3-05 would reduce GHG emissions 80 percent below 1990 levels or 90 percent below current levels by 2050. It is anticipated that achieving the Executive Order's objective would contribute to worldwide efforts to cap GHG concentrations at 450 ppm, thus, stabilizing global climate.
>
> As described below, staff's recommended interim GHG significance threshold proposal uses a tiered approach to determining significance. Tier 3, which is expected to be the primary tier by which the AQMD will determine significance for projects where it is the lead agency, uses the Executive Order S-3-05 goal as the basis for deriving the screening level. Specifically, the Tier 3 screening level for stationary sources is base on an emission capture rate of 90 percent for all new or modified projects. A 90 percent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to some type of CEQA analysis, including a negative declaration, a mitigated negative declaration, or an environmental impact.
>
> Therefore, the policy objective of staff's recommended interim GHG significance threshold proposal is to achieve an emission capture rate of 90 percent of all new or modified stationary source projects. A GHG significance threshold based on a 90 percent emission capture rate may be more appropriate to address the long-term adverse impacts associated with global climate change. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. This assertion is based on the fact that staff estimates that these GHG emissions would account for less than one percent of future 2050 statewide GHG emissions target (85 MMTCO2e/yr). In addition,

these small projects would be subject to future applicable GHG control regulations that would further reduce their overall future contribution to the statewide GHG inventory.

In summary, the SCAQMD's draft threshold uses the Executive Order S-3-05 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap carbon dioxide concentrations at 450 ppm, thus, stabilizing global climate.

Thresholds of Significance for this Project

To determine whether the Project is significant, this Project utilizes the SCAQMD draft local agency tiered threshold. The threshold is as follows:

- Tier 1: The Project is not exempt under CEQA; go to Tier 2.
- Tier 2: There is no greenhouse gas reduction plan applicable to the Project; go to Tier 3.
- Tier 3: Project greenhouse gas emissions compared with the threshold: 3,000 $MTCO_2e$ per year (see analysis below).
- Tier 4, option 1: Reduce greenhouse gas emissions from business as usual[7] by 28.4 percent. The California 2020 emissions target is 427 $MMTCO_2e$ and the 2020 business as usual is 596 $MMTCO_2e$ (California Air Resources Board 2011b). Therefore, a 28.4 percent reduction is required to reduce emissions to the target.
- Tier 4, option 3: 4.8 $MTCO_2e$ per service population per year (see analysis below). The service population refers to the quantity of workers anticipated on the project site.

Section 15064.4(b) of the CEQA Guideline amendments for greenhouse gas emissions state that a lead agency may take into account the following three considerations in assessing the significance of impacts from greenhouse gas emissions.

> **Consideration #1**: The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
>
> **Consideration #2**: Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
>
> **Consideration #3**: The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are

[7] Business as usual greenhouse gas emissions refer to emissions using protocol and emission factors from the period of 2004-2006 (prior to the adoption of AB 32 and related greenhouse gas regulations) and also do not take into account project design features or mitigation measures to reduce greenhouse gas emissions.

still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

Greenhouse Gas Inventory

This analysis is restricted to greenhouse gases identified by AB 32 and the CEQA Guidelines (section 15364.5), which include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The project would generate a variety of greenhouse gases during construction and operation, including several defined by AB 32 and the CEQA Guidelines such as carbon dioxide, methane, and nitrous oxide.

The project may also emit greenhouse gases that are not defined by AB 32 and the CEQA Guidelines. For example, the project may generate aerosols. During construction, the diesel fueled vehicles and equipment emit diesel particulate matter, which has black carbon, which is a component of aerosol. During operation, any diesel fueled trucks or vehicles could emit aerosols. Aerosols are short-lived particles, as they remain in the atmosphere for about one week. Studies have indicated that black carbon has a high global warming potential; however, the Intergovernmental Panel on Climate Change states that it has a low level of scientific certainty (Intergovernmental Panel on Climate Change 2007a).

Water vapor could be emitted from evaporated water used for landscaping, but this is not a significant impact because water vapor concentrations in the upper atmosphere are primarily due to climate feedbacks rather than emissions from project-related activities. The project would emit nitrogen oxides and volatile organic compounds, which are ozone precursors. Ozone is a greenhouse gas; however, unlike the other greenhouse gases, ozone in the troposphere is relatively short-lived and can be reduced in the troposphere on a daily basis. Stratospheric ozone can be reduced through reactions with other pollutants.

Certain greenhouse gases defined by AB 32 would not be emitted by the project. Perfluorocarbons and sulfur hexafluoride are typically used in industrial applications, none of which would be used by the project. Therefore, it is not anticipated that the project would emit perfluorocarbons or sulfur hexafluoride.

An upstream emission source (also known as life cycle emissions) refers to emissions that were generated during the manufacture of products to be used for construction of the project. Upstream emission sources for the project include but are not limited emissions from the manufacture of cement, emissions from the manufacture of steel, and/or emissions from the transportation of building materials to the seller. The upstream emissions were not estimated because they are not within the control of the project and to do so would be speculative at this time. Additionally, the California Air Pollution Control Officers Association White Paper on CEQA and Climate Change supports this conclusion by stating, “The full life-cycle of GHG [greenhouse gas] emissions from construction activities is not accounted for . . . and the information needed to characterize [life-cycle emissions] would be speculative at the CEQA analysis level” (California Air Pollution Control Officers

Association 2008). Therefore, pursuant to CEQA Guidelines Sections 15144 and 15145, upstream /life cycle emissions are speculative and no further discussion is necessary.

Construction

The project would emit greenhouse gases from upstream emission sources and direct sources (combustion of fuels from worker vehicles and construction equipment). CalEEMod was used to estimate onsite and offsite emissions. For assumptions used in estimating these emissions, please refer to Section 4.1. Greenhouse gas emissions from project construction equipment and worker vehicles are shown in Table 40. The emissions are from all phases of construction.

Table 40: Construction Greenhouse Gas Emissions

Phase	Emissions (MTCO2e)		
	Onsite	Offsite	Total
Grading of main project	289	6	295
Grading of outparcels	34	1	35
Paving	27	2	29
Building	617	187	804
Building	61	18	79
Coating	7	5	12
Installation of refrigeration system	567	0	567
Total	**1602**	**219**	**1821**
Averaged over 30 years	**53**	**7**	**61**

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalents (includes carbon dioxide, methane, nitrous oxide, and/or hydrofluorocarbons).
The emissions are averaged over 30 years because the average is added to the operational emissions, pursuant to SCAQMD recommendations.
Source: CalEEMod output (Appendix A).

Operation

Operational or long-term emissions occur over the life of the project. For assumptions used in estimating the emissions and details regarding the emissions, please refer to Section 4.2. The operational business as usual emissions for the project are shown in Table 41. Business as usual emissions refer to emissions without incorporation of regulation, project design, or mitigation measures that would reduce emissions. It is appropriate to use business as usual emissions because the threshold for this analysis correlates with AB 32. One of the goals of AB 32 is to reduce California's emissions to 1990 levels by the year 2020. If emissions were to increase without reductions from regulation (the business as usual scenario), a 28.4 percent reduction would be required to reduce emissions to 1990 levels.

Table 41: Project Operational Greenhouse Gases

Category	Subcategory	Emissions (MTCO2e)		
		Business as Usual	With Regulation	With Regulation, Project Design, Mitigation
Mobile	Customers, workers	25,920	19,722	19,525
	Trucks	500	461	461
Natural gas	Walmart	27	27	26
	Non-Walmart	507	507	507
Electricity	Walmart	985	823	782
	Non-Walmart	611	511	511
Water	Walmart	18	18	16
	Non-Walmart	5	5	5
Waste	Waste	604	498	498
Air conditioning		1581	791	791
Refrigerators	Walmart	3,801	1,810	905
	Non-Walmart	167	79	79
Subtotal – Operation		*34,726*	*25,252*	*24,106*
Subtotal – Construction (averaged over 30 years)		*61*	*61*	*61*
Total Annual Emissions		**34,787**	**25,313**	**24,167**

Notes:
$MTCO_2e$ = metric tons of carbon dioxide equivalents
- Mobile emissions include both Walmart and non-Walmart uses
- Business as usual mobile emissions reflect emission factors from 2010
- Emissions with regulation are emissions estimated by CalEEMod for the year 2020 (includes Pavley I and Low Carbon Fuel Standard mobile reductions) and also includes reductions listed in Table 42.
- Emissions with regulation, project design, and mitigation include reductions listed in Table 43 and Table 44

Source of emissions: CalEEMod (Appendix A).

Note that the estimation does not include changes in carbon storage or sequestration. Carbon is stored in biological material such as trees and lumber. There is little vegetation on the project site of this specific type, although landscaping will be provided. In addition, the structures that will be operational once the project is constructed will retain carbon. Therefore, the carbon sequestration ability of the project site pre and post project is speculative at this time.

Operational Regulation Reductions

A variety of regulations would reduce project emissions. A summary of the future regulations that would reduce project emissions are shown in Table 42 and are discussed in more detail below.

Table 42: Greenhouse Gas Reductions - Regulation

Source Category	Regulation	Reduction (%)
Mobile: customers, workers	Advanced clean cars (Pavley I, Low Carbon Fuel Standard)	Estimated by CalEEMod
Mobile: Trucks	Heavy Duty Aerodynamics	2.2
Waste	Landfill methane control	17.6
Electricity	Executive Order S-21-09, Renewables portfolio standards	16.4
Air conditioning	High-Global Warming Potential Stationary Source Refrigerant Management Program	50.0
Refrigerators		52.4

Sources:
- Mobile/customers, workers: The reduction from the Pavley I and Low Carbon Fuel Standard is estimated by CalEEMod. In addition, the ARB provides estimates of greenhouse gas reductions from those programs separately (California Air Resources Board 2010e). The ARB is active in implementing these standards and has recently integrated the requirements for reducing smog and greenhouse gas emissions into the Low-Emission Vehicle (LEV) III regulatory changes (California Air Resources Board 2011e).
- Mobile/trucks: This regulation requires existing trucks/trailers to be retrofitted with the best available technology and/or ARB approved technology. Technologies that reduce greenhouse gas emissions and improve the fuel efficiency of trucks may include devices that reduce aerodynamic drag and rolling resistance. The requirements apply to California and out-of-state registered trucks that travel to California. This regulation would reduce 0.9 million metric tons of carbon dioxide equivalents ($MMTCO_2e$) in California in 2020 (from California Air Resources Board 2011b) from 41.2 $MMTCO_2e$ (from California Air Resources Board 2010d). This regulation became effective on January 1, 2010 (California Air Resources Board 2011c)
- Waste: calculated by assuming 1.5 $MMTCO_2e$ reductions in California (from California Air Resources Board 2011b) off 8.5 $MMTCO_2e$ 2020 emissions (from California Air Resources Board 2010d). This regulation became effective June 17, 2010 (California Air Resources Board 2011d) and requires owners and operators of uncontrolled landfills to install gas collection and control systems and requires existing and newly installed gas and control systems to operate in an optimal manner.
- Electricity: To estimate electricity emissions, 641.26 pounds of carbon dioxide per MWh was used, which reflects emissions in 2006 (according to CalEEMod User's Guide), when Southern California Edison had 16.6 percent renewable energy (California Public Utilities Commission 2011). An additional 16.4 percent would be required to achieve a 33 percent reduction pursuant to the renewable electricity standard.
- Air conditioning and refrigerators: On December 9, 2009, the ARB adopted the Management of High Global Warming potential Refrigerants for Stationary Sources in the California Code of Regulations. Beginning in 2011, the rule will require leak inspection, repairs, required service practices and record keeping for large commercial and industrial systems that use more than 50 pounds of refrigerant for a single unit, about the equivalent of the refrigerant found in 100 household refrigerators. Leak inspections will vary from continuous leak monitoring to quarterly or annual leak inspections, depending on the type and size of refrigeration systems (California Air Resources Board 2011f). Reductions are as estimated in the spreadsheets located in Appendix A.

Operational Project Design Feature Reductions

Walmart has a variety of project design features that would reduce greenhouse gases, as summarized in Table 43.

Table 43: Greenhouse Gas Reductions - Walmart Design Features

Category	Walmart Design Feature	Reductions in Emissions	Strategy Consistency
Electricity: Energy Efficiency	Light Emitting Diode Signage Illumination: The Walmart building signage would use light emitting diode lighting. With lamp life ranging to 100,000 hours, using light emitting diodes reduces the need to manufacture and dispose of fluorescent lamps.	This feature would reduce electricity and waste.	ARB Scoping Plan measures 3 (Energy Efficiency), 13 (Green Building), and 15 (Recycling and Waste)
	Daylighting System: The Walmart store would include a daylighting system (skylights, electronic dimming ballasts, computer controlled daylight sensors, etc.), which automatically and continuously dims all of the lights as the daylight contribution increases.	This feature would reduce electricity required for lighting	ARB Scoping Plan measures 3 (Energy Efficiency) and 13 (Green Building)
	Night Dimming: The Walmart store would include lighting that would dim to approximately 75 percent illumination during the late night hours.	This feature would reduce electricity required for lighting.	ARB Scoping Plan measures 3 (Energy Efficiency) and 13 (Green Building)
	Super High Efficiency Heating, Ventilation, and Air Conditioning (HVAC) units: The HVAC units in the Walmart store would be super high efficiency with a weighted Energy Efficiency Ratio of 12.1 to 14.3.	The new HVAC units are 4 to 17 percent more efficient than required by Title 24 energy efficiency standards.	- ARB Scoping Plan measures 3 (Energy Efficiency) and 13 (Green Building) - CAPCOA measure E-9
	Central Energy Management: Walmart would employ an energy management system that is monitored and controlled from the Walmart corporate headquarters located in Bentonville, Arkansas. This energy management system enables corporate headquarters to monitor energy usage, analyze refrigeration temperatures, and observe HVAC and lighting performance. It also allows corporate headquarters to adjust lighting, temperature, or refrigeration set points from a central location.	This feature ensures that energy is used efficiently.	- ARB Scoping Plan measures 3 (Energy Efficiency) and 13 (Green Building) - CAPCOA measure E-20
	White Roofs: The Walmart store would have a white Thermoplastic polyolefin-type membrane roof.	The high solar reflectivity of this membrane results in lowering the cooling load by more than 10 percent.	- ARB Scoping Plan measures 3 (Energy Efficiency) and 13 (Green Building) - CAPCOA measure E-13

Table 43 (cont.): Greenhouse Gas Reductions - Walmart Design Features

Category	Walmart Design Feature	Reductions in Emissions	Strategy Consistency
	Interior Lighting Retrofit Program: All lighting in the store would utilize T-8 fluorescent lamps and electronic ballasts, which are the most efficient lighting on the market.	This feature would reduce electricity use.	ARB Scoping Plan measures 3 (Energy Efficiency) and 13 (Green Building)
	Application of Title 24 Energy Efficiency standards.	This feature would increase energy efficiency.	ARB Scoping Plan measures 3, 13
	Total Electricity Reductions	**5 percent for Walmart**	
Natural Gas	Water Heating: The grocery area in the Walmart store would capture waste heat from the refrigeration equipment to heat water.	This feature would decrease natural gas usage to heat water.	- ARB Scoping Plan measures 3 (Energy Efficiency) and 13 (Green Building)
	Total Natural Gas Reductions	**5 percent for Walmart**	
Water Conservation	Restroom Sinks: Walmart restroom sinks would use sensor-activated, low-flow faucets.	The low flow faucets reduce water usage by 77 percent, while the sensors, which regulate the amount of time the faucets flow, save approximately 20 percent in water usage over similar, manually operated systems.	- ARB Scoping Plan measure 17 (Water) - CAPCOA measure E-23
	Toilets and Urinals: Walmart urinals would use a maximum of 0.125 gallon per flush, for a savings of approximately 87.5 percent and toilets would use a maximum of 1.28 gallons per flush.	This feature would reduce indoor water use from toilets and urinals by approximately 25%.	- ARB Scoping Plan measure 17 (Water) - CAPCOA measure E-23
	Total Indoor Water Reductions	**20 percent for Walmart**	
Waste Reduction	Recycled Building Materials: Most of the Walmart would be constructed using 100 percent-recycled steel. Walmart structural steel suppliers use high efficient electric arc furnaces that use 50 percent less energy to manufacture recycled steel. In addition, all of the plastic baseboards, and much of the plastic shelving, are manufactured from recycled material.	This feature reduces emissions from upstream sources.	- ARB Scoping Plan measure 15 (Recycling and Waste)

Table 43 (cont.): Greenhouse Gas Reductions - Walmart Design Features

Category	Walmart Design Feature	Reductions in Emissions	Strategy Consistency
	Concrete: Walmart would include supplemental cementious material (fly ash) in interior and exterior floor slabs, footing and foundations, grout, and all site concrete. All poured concrete for Walmart would include up to 15-20 percent fly ash content. It is estimated that one pound of fly ash reduces one pound of greenhouse gas.	This feature would reduce upstream greenhouse gas emissions from the manufacture of concrete.	Not applicable
	Walmart Recycling Center: The Walmart store would be equipped to accept the following materials for recycling: aluminum; plastic (including bottles, bags, garment bags, shrink wrap, and bubble pack); glass; cardboard; vegetable oil; motor oil; tires; auto batteries; single-use cameras; electronic waste; silver (from photo processing).	This feature would reduce emissions from motor vehicles because customers can bring recyclables to the store and shop. Recycling reduces emissions from upstream sources (mineral extraction).	- ARB Scoping Plan measure 15 (Recycling and Waste) - CAPCOA measure D-14
	Total Waste Reductions	**Not applicable because these reductions refer to upstream emissions and reductions from waste not generated at the store.**	
Source: Michael Brandman Associates 2011. CAPCOA = California Air Pollution Control Officers Association 2008.			

Operational Mitigation Measure Reductions

Mitigation measures would reduce greenhouse gases, as summarized in Table 44.

Table 44: Greenhouse Gas Reductions - Mitigation Measures

Impact Area	Mitigation Measure in Other Impact Area	Reductions in Emissions	Strategy Consistency
Green-house Gas	Mitigation Measure GHG-1; Walmart shall use refrigerants in its refrigerators and freezers with an average global warming potential of 1,893 or lower.	Under the business as usual scenario, the global warming potential used for refrigerators and freezers for Walmart is 3785; mitigation would reduce emissions by 50 percent.	
Air Quality	Mitigation Measure AQ-5, traffic signalization	This would help traffic move more smoothly.	--
	Mitigation Measure AQ-7, pedestrian connections	Pedestrian pathways would encourage those already on the site to walk to other onsite stores in lieu of driving.	CAPCOA measure T-5 and T-6 (1 to 10%) and T-12 (1 to 4%)
	Mitigation Measure AQ-8, Transportation Demand Management (TDM) Program	Reduce motor vehicle emissions from employee trips.	CAPCOA measure T-19 (1 to 28%)

Table 44 (cont.): Greenhouse Gas Reductions - Mitigation Measures

Impact Area	Mitigation Measure in Other Impact Area	Reductions in Emissions	Strategy Consistency
	Mitigation Measure AQ-9, bicycle parking	These measures would make the project accessible to bicycles and encourage alternatives to driving.	CAPCOA measure T-1
	Mitigation Measure AQ-10, employee lockers		CAPCOA measure T-2
	Mitigation Measure AQ-11, bicycle lanes		CAPCOA measure T-4
Traffic	Mitigation Measure T-6a would require an Omnitrans bus stop at the project site. Omnitrans Route 15 runs adjacent to the project site and provides access to/from downtown Redlands and Fontana. There are buses every 30 minutes Monday through Friday and once per hour on Saturday and Sunday.	This measure may encourage people to use public transportation	- CAPCOA measure T-7 (1 to 2%) - CAPCOA 2010 measure LUT-5 (0.5 to 24.6%)
Air Quality, Traffic	**Total Motor Vehicle Reductions**	**1 percent for project**	
Water	Mitigation Measure HYD-2a requires drought resistant vegetation, efficient irrigation systems, sloped landscaped areas, and organic topdressing.	This measure would conserve water used for outdoor landscaping.	- ARB Scoping Plan measure 17 (Water) - CAPCOA measure D-17
	Mitigation measure HYD-2b requires faucet aerators or low-flow faucets in bathrooms.	The low flow faucets reduce water usage by 77 percent, while the sensors, which regulate the amount of time the faucets flow, save approximately 20 percent in water usage over similar, manually operated systems.	- ARB Scoping Plan measure 17 (Water) - CAPCOA measure E-23
	Mitigation measure HYD-2b requires low flow toilets and urinals.	Urinals and toilets could save up to 87.5 and 25 percent, respectively.	- ARB Scoping Plan measure 17 (Water) - CAPCOA measure E-23
	Total Water Reductions	**5 percent for project**	

Notes:
The strategy consistency also contains the range of reductions presented in the CAPCOA papers
CAPCOA = California Air Pollution Control Officers Association 2008
CAPCOA 2010 = California Air Pollution Control Officers Association 2010
Source: Other sections of Redlands Crossing EIR

Significance of Emissions

A summary of the greenhouse gas emissions is shown in Table 45. As shown in the table, the project exceeds the SCAQMD Draft Tier 3 and Tier 4 (option 3) thresholds. However, the project would reduce emissions by more than 28.4 percent. Therefore, emissions are less than significant after implementation of regulations, project design features, and mitigation measures.

Table 45: Significance of Greenhouse Gases

Item	Business as Usual	With Regulation, Project Design, Mitigation	Units
Total Annual Emissions	34,787	24,167	$MTCO_2e$/year
SCAQMD Draft Tier 3 threshold	3,000	3,000	$MTCO_2e$/year
Exceed Tier 3 Threshold?	Yes	Yes	—
Emissions per service population	79.8	55.4	$MTCO_2e$/SP/year
SCAQMD Draft Tier 4 (option 3) threshold	4.8	4.8	$MTCO_2e$/SP/year
Project exceeds service population threshold?	Yes	Yes	—
Percent reduction from regulation	0.0%	30.5%	%
SCAQMD Draft Tier 4 (option 1) threshold reduce emissions by this percentage	28.4%	28.4%	%
Significant impact?	—	No	—

Notes:
SP = service population and is calculated by dividing the emissions by the number of employees (436); the number of employees is from the Draft Environmental Impact Report.
Source: Summarized from the tables above

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

Mitigation measures GHG-1, AQ-5, AQ-7, AQ-8, AQ-9, AQ-10, AQ-11, HYD-2a, HYD-2b, and T-6a are required.

Level of Significance After Mitigation

Less than significant.

The project will promote the goals of AB 32. The Walmart store would retail general merchandise and groceries 24 hours a day, 7 days a week and the other components of the project would operate 12 hours per day, providing convenient access to nearby residents and employees. The project site is near public transit and accessible to bicycles and pedestrians. Collectively, these characteristics indicate that the project is planned growth within the urban footprint of Redlands and is well positioned to reduce travel lengths. The project incorporates a number of features and mitigation measures in other impact areas that would minimize greenhouse gas emissions. These features are

consistent with project-level strategies identified in the ARB's Scoping Plan and the California Air Pollution Control Officers Association white papers. Therefore, although the project would generate greenhouse gas emissions, these emissions would not have a significant impact on the environment. The project would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. Impacts would be less than significant.

The SCAQMD is in the process of preparing significance thresholds for greenhouse gases and the SCAQMD Board had not approved the thresholds as of the date of the NOP. The current draft thresholds consist of a tiered approach (South Coast Air Quality Management District 2010). One of the tiers involves reducing emissions from business as usual by at least 28.4 percent, with the requirement that the resulting emissions are under 25,000 $MTCO_2e$ per year. With implementation of project design features and regulations, greenhouse gas emissions are reduced by more than 28.4 percent, to approximately 24,200 $MTCO_2e$ per year. These reductions are consistent with the SCAQMD draft interim threshold of emissions less than 25,000 $MTCO_2e$ per year and a 28.4 percent reduction in emissions.

Greenhouse Gas Reduction Plans

Impact GHG-2	**The project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.**

Impact Analysis

City of Redlands Sustainability Plan

The City of Redlands Community Sustainability Plan was adopted in March 2011. Although it does not contain specific requirements for regulations for new or existing developments, the Sustainability Plan has applicable targets and actions as shown in Table 46. These are items that the City will develop implementing regulations and requirements over time. Many of the Walmart design features highlighted are in accord with the purposes of the sustainability plan include numerous efforts to conserve energy, conserve water and reduce waste.

Table 46: City of Redlands Sustainability Plan Targets and Actions

Category	Applicable Targets and Actions
Energy efficiency	• Achieve 10% reduction in city-wide energy consumption by 2015.
Water and wastewater	• Reduce use of potable water in landscape irrigation by 20 percent by 2020. • Incorporate rainwater harvesting technologies at the municipal, business and household level by 10% by 2015 50% by 2020 & 100% by 2025 • 50% increase in drought tolerant landscapes by 2015 • For new citywide development, expand the current landscape parking lot tree (ordinance or resolution) to include drought tolerant species.

Table 46 (cont.): City of Redlands Sustainability Plan Targets and Actions

Category	Applicable Targets and Actions
Green building	Targets: • Decrease storm water runoff rates and volumes for 1and 2 year & 24 hour storm events by 25% by 2050 • Decrease single occupancy noncommercial vehicle miles traveled by 25 percent by 2050. • Decrease weight of construction and demolition debris hauled to landfill by 90% by 2050
Green building	Actions: • Consider establishing minimum energy performance using performance-based energy modeling. Consider a minimum compliance margin of 15% better than Title 24 Part 6. Encourage non-compliance reporting, to include estimates of process, plug loads. (CALGreen voluntary measure) • Implement a 20% (40% in office/retail) reduction in domestic water usage, using EPAct as a baseline (for new construction). Develop prescriptive fixture rates for renovations. (CALGreen mandatory and voluntary measures) • Encourage 50% reduction in irrigation water usage (performance) on new construction. Possibly limit turfgrass coverage to [0-5% commercial, 50% residential]. (CALGreen mandatory measure) • Specify no- or low-VOC materials. (CALGreen mandatory measure) • Entryway systems. All major points of entry will have a permanent walk-off system (commercial only). (CalGreen voluntary measure; Nonres.) • Tobacco smoke control. Prohibit smoking within 25' of any opening or air intake of any publicly accessible building. Can apply to all new and existing buildings. (CALGreen mandatory measure)
	• Consider developing a decommissioning plan that describes the design intent for the end-of-life of new projects, including expected life span of core and shell, possible adaptive reuse scenarios, potential material reuses, recyclability of demolished materials, and disassembly of building systems.
Waste Reduction and Recycling	• Reduce mixed solid waste entering landfill by 10% by 2015 • Increase city-wide recycling by 20% by 2015 • Establish curbside food composting program by 2012 & reduce food waste to landfill by 10% by 2012
Renewable energy	Target: • Increase renewable energy from all sources by 20% by 2015, 40% by 2020 and 60% by 2025
Efficient transportation and low carbon fuels	Targets: • increase public transportation use by 10% by 2015 & increase shuttle services for relevant populations by 10% by 2015 • Reduce single-occupancy vehicle travel within city by 20% by 2020 • Increase businesses offering employee alternative transportation incentive programs by 20% by 2015 Actions: • Develop renewable fuel locations and electric plug-in stations including a map for drivers to find refueling locations.
Storing and offsetting carbon	Target: • Increase hardscape and parking lots shaded by trees by 25% by 2020
Source: City of Redlands 2011.	

Scoping Plan

The California State Legislature adopted AB 32 in 2006. AB 32 focuses on reducing greenhouse gases (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) to 1990 levels by the year 2020. Pursuant to the requirements in AB 32, the ARB adopted the Climate Change Scoping Plan (Scoping Plan) in 2008, which outlines actions recommended to obtain that goal. The Scoping Plan contains a variety of strategies to reduce the State's emissions. As shown in Table 47, the strategies are not applicable to the project.

Table 47: Inapplicable Scoping Plan Reduction Measures

Scoping Plan Reduction Measure	Reason Why Not Applicable
1. California Cap-and-Trade Program Linked to Western Climate Initiative. Implement a broad-based California Cap-and-Trade program to provide a firm limit on emissions. Link the California cap–and-trade program with other Western Climate Initiative Partner programs to create a regional market system to achieve greater environmental and economic benefits for California. Ensure California's program meets all applicable AB 32 requirements for market-based mechanisms.	When this cap-and-trade system begins, products or services (such as electricity) would be covered and the cost of the cap-and-trade system would be transferred to the consumers.
2. California Light-Duty Vehicle Greenhouse Gas Standards. Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.	This is a statewide measure that cannot be implemented by a project applicant or lead agency. When this measure is initiated, the standards would be applicable to the light-duty vehicles that would access the project site.
3. Energy Efficiency. Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.	This is a measure for the state to increase its energy efficiency standards. However, the project would increase its energy efficiency through existing regulation and project design features.
4. Renewable Portfolio Standard. Achieve 33 percent renewable energy mix statewide. Renewable energy sources include (but are not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.	Southern California Edison, which would provide power to the project, is in the process of increasing the percent of renewable energy in its portfolio. It is required to increase this percentage by the year 2020 pursuant to various regulations.
5. Low Carbon Fuel Standard. Develop and adopt the Low Carbon Fuel Standard.	This is a statewide measure that cannot be implemented by a project applicant or lead agency. When this measure is initiated, the standard would be applicable to the fuel used by vehicles that would access the project site.

Table 47 (cont.): Inapplicable Scoping Plan Reduction Measures

Scoping Plan Reduction Measure	Reason Why Not Applicable
6. Regional Transportation-Related Greenhouse Gas Targets. Develop regional greenhouse gas emissions reduction targets for passenger vehicles. This measure refers to SB 375.	The project is not related to developing greenhouse gas emission reduction targets. There are no project related requirements of SB 375. The next step is for the transit priority areas to develop a Sustainable Communities Strategy (SCS) that will include measures required to achieve the reductions adopted by the ARB. In the interim, measures like the ones listed will assist the transit priority areas in achieving the targets pending adoption of an SCS. The project is consistent with the intent of SB 375 to reduce per capita vehicle miles traveled by locating a regional shopping center adjacent to existing transportation corridors and will include pedestrian walkways, bicycle parking, and a new bus station.
7. Vehicle Efficiency Measures. Implement light-duty vehicle efficiency measures.	When this measure is initiated, the standards would be applicable to the light-duty vehicles that would access the project site.
8. Goods Movement. Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.	The project does not propose any changes to maritime, rail, or intermodal facilities or forms of transportation.
9. Million Solar Roofs Program. Install 3,000 MW of solar-electric capacity under California's existing solar programs.	This measure is to increase solar throughout California, which is being done by various electricity providers and existing solar programs.
10. Medium/Heavy-Duty Vehicles. Adopt medium and heavy-duty vehicle efficiency measures.	This is a statewide measure that cannot be implemented by a project applicant or lead agency. When this measure is initiated, the standards would be applicable to the vehicles that access the project site.
11. Industrial Emissions. Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions and provide other pollution reduction co-benefits. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission. Adopt and implement regulations to control fugitive methane emissions and reduce flaring at refineries.	The project is not an industrial land use.
12. High Speed Rail. Support implementation of a high-speed rail system.	This is a statewide measure that cannot be implemented by a project applicant or lead agency.
13. Green Building Strategy. Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.	The state is to increase the use of green building practices. The project would implement some green building strategies through existing regulation and project design features.
14. High Global Warming Potential Gases. Adopt measures to reduce high global warming potential gases.	When this measure is initiated, it would be applicable to the high global warming potential gases that would be used by the project (such as in air conditioning and refrigerators).

Table 47 (cont.): Inapplicable Scoping Plan Reduction Measures

Scoping Plan Reduction Measure	Reason Why Not Applicable
15. Recycling and Waste. Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.	The project would not contain a landfill. The State is to help increase waste diversion. The project would reduce waste with implementation of mitigation.
16. Sustainable Forests. Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.	The project site is in an urban, built-up condition. No forested lands exist onsite.
17. Water. Continue efficiency programs and use cleaner energy sources to move and treat water.	This is a measure for state and local agencies. However, the project would reduce water through mitigation measures.
18. Agriculture. In the near-term, encourage investment in manure digesters and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.	The project site is in an urban, built-up condition. No grazing, feedlot, or other agricultural activities that generate manure occur onsite or are proposed to be implemented by the project.
Source of ARB Scoping Plan Reduction Measure: California Air Resources Board 2008. Source of Project Consistency or Applicability: Michael Brandman Associates.	

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant.

SECTION 7: REFERENCES

The following references were used in the preparation of this analysis and are referenced in the text, and/or were used to provide the author with background information necessary for the preparation of thresholds and content.

CalEEMod. California Emissions Estimator Model. Version 2011.1.1. Website: http://caleemod.com/. Accessed April 22, 2011.

California Air Pollution Control Officers Association. 1997. Gasoline Service Station Industrywide Risk Assessment Guidelines. Website: www.arb.ca.gov/AB2588/rrap-iwra/GasIWRA.pdf. Accessed October 3, 2011.

California Air Pollution Control Officers Association. 2008. CEQA & Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act. Website: www.capcoa.org/. Accessed December 1, 2010.

California Air Pollution Control Officers Association. 2009. Health Risk Assessments for Proposed Land Use Projects. Website: http://www.capcoa.org/wp-content/uploads/downloads/2010/05/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf. Accessed October 20, 2011.

California Air Pollution Control Officers Association. 2010. Quantifying Greenhouse Gas Mitigation Measures. August 2010. Website: www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf, Accessed April 22, 2011.

California Air Resources Board. 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. October 2000. Website: www.arb.ca.gov/diesel/documents/rrpapp.htm. Accessed October 3, 2011.

California Air Resources Board. 2003. Revised Staff Report: Initial Statement of Reasons for Proposed Rulemaking Airborne Toxic Control Measure for In-use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator sets, and Facilities Where TRUs Operate, Section 5E. Website: www.arb.ca.gov/regact/trude03/isor.pdf. Accessed October 3, 2011.

California Air Resources Board. 2006. EMFAC2007 Mobile Source Emission Model. Website: www.arb.ca.gov/msei/onroad/latest_version.htm. Accessed October 3, 2011.

California Air Resources Board. 2007. Staff Report. California 1990 Greenhouse Gas Level and 2020 Emissions Limit. November 16, 2007. Website: www.arb.ca.gov/cc/inventory/pubs/reports/staff_report_1990_level.pdf. Accessed April 22, 2011.

California Air Resources Board. 2008. Climate Change Scoping Plan, a framework for change. December 2008. Accessed April 22, 2011. Website: www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm

California Air Resources Board. 2008b. Preliminary Draft Staff Proposal Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act. Website: http://www.arb.ca.gov/cc/localgov/ceqa/meetings/102708/prelimdraftproposal102408.pdf. Accessed August 29, 2011.

California Air Resources Board. 2009. California Air Resources Board. Vinyl Chloride. Page updated 2009. Website: www.arb.ca.gov/research/aaqs/caaqs/vc/vc.htm. Accessed April 22, 2011.

California Air Resources Board. 2009b. The California Almanac of Emissions and Air Quality. 2009 Edition. Website: www.arb.ca.gov/aqd/almanac/almanac09/almanac09.htm. Accessed October 3, 2011.

California Air Resources Board. 2010a. California Air Resources Board. September 8, 2010. Ambient Air Quality Standards. Website: www.arb.ca.gov/research/aaqs/aaqs2.pdf. Accessed April 22, 2011.

California Air Resources Board. 2010b. Area Designation Maps / State and National. 2010 State Area Designations. Changes became effective March 25, 2010. Website: www.arb.ca.gov/desig/adm/adm.htm. Accessed April 22, 2011.

California Air Resources Board. 2010c. Greenhouse Gas Inventory Data – 2000 to 2008. Updated May 12, 2010. Website: www.arb.ca.gov/cc/inventory/data/data.htm. Accessed April 22, 2011. (Note: Data is used in Figure 2)

California Air Resources Board. 2010d. Greenhouse Gas Inventory – 2020 Forecast. Website: http://www.arb.ca.gov/cc/inventory/data/forecast.htm. Accessed July 12, 2011.

California Air Resources Board. 2010e. Pavley I + Low Carbon Fuel Standard Postprocessor. Version 1.0. User's Guide. Website: http://www.arb.ca.gov/cc/sb375/tools/pavleylcfs-userguide.pdf. Accessed August 24, 2011.

California Air Resources Board. 2011a. Historical Air Quality, Top 4 Summary. Website: http://www.arb.ca.gov/adam/topfour/topfour1.php. Accessed September 30, 2011.

California Air Resources Board. 2011b. Status of Scoping Plan Recommended Measures. Website: www.arb.ca.gov/cc/scopingplan/sp_measures_implementation_timeline.pdf. Accessed August 28, 2011.

California Air Resources Board. 2011d. Landfill Methane Control Measure. Website: http://arb.ca.gov/cc/landfills/landfills.htm. Accessed October 3, 2011.

California Air Resources Board. 2011e. Advanced Clean Cars. Website: http://arb.ca.gov/msprog/clean_cars/clean_cars.htm. Accessed October 3, 2011.

California Air Resources Board. 2011f. Refrigerant Management Program Regulation for Non-Residential Refrigeration Systems. Website: http://www.arb.ca.gov/cc/reftrack/reftrack.htm. Accessed October 3, 2011.

California Air Resources Board. 2011c. Heavy-Duty Vehicle Greenhouse Gas (Tractor-Trailer GHG) Emission Reduction Regulation. March 21. Website: http://www.arb.ca.gov/cc/hdghg/hdghg_overview_web_pres.pdf. Accessed October 3, 2011.

California Climate Change Center. 2006. Our Changing Climate, Assessing the Risks to California: A Summary Report from the California Climate Change Center. July 2006. CEC-500-2006-077. Website: www.climatechange.ca.gov/publications/biennial_reports/index.html. Accessed April 22, 2011.

California Environmental Protection Agency. 1987. Office of Environmental Health Hazard Assessment. California Codes. Health and Safety Code.

California Environmental Protection Agency. 2002. Office of Environmental Health Hazard Assessment. Health Effects of Diesel Exhaust. Website: www.oehha.ca.gov/public_info/facts/pdf/diesel4-02.pdf. Accessed October 3, 2011.

California Environmental Protection Agency. 2003. Office of Environmental Health Hazard Assessment. Air Toxics Hotspots Program Risk Assessment Guidelines. The Hotspots Program Guidance Manual for Preparation of Health Risk Assessments. Website: www.oehha.ca.gov/air/hot_spots/HRAguidefinal.html. Accessed October 3, 2011.

California Environmental Protection Agency. 2009. Office of Environmental Health Hazard Assessment. Toxicity Criteria Database. Website: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp. Accessed October 3, 2011.

California Natural Resources Agency. 2009. 2009 California Climate Adaptation Strategy. Website: www.climatechange.ca.gov/adaptation/, Accessed April 22, 2011.

California Public Utilities Commission. 2011. Large IOU RPS Procurement Data 2003-2010. Website: http://www.cpuc.ca.gov/PUC/energy/Renewables/. Also: http://www.cpuc.ca.gov/NR/rdonlyres/B5AF672B-ABB6-4B0F-8F52-AF78D4701677/0/CaliforniaRPSProcurementSummary20032010.xls. Accessed August 28, 2011.

Centers for Disease Control and Prevention. 2005. Department of Health and Human Services, the National Institute for Occupational Safety and Health. September 2005. Carbon Dioxide. Website: www.cdc.gov/niosh/npg/npgd0103.html. Accessed April 22, 2011.

Governor's Office of Planning and Research. 2008. Technical Advisory. CEQA AND CLIMATE CHANGE: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review. Website: www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf. Accessed April 22, 2011.

Intergovernmental Panel on Climate Change. 2001. Climate Change 2001: The Scientific Basis. Website: http://www.grida.no/climate/ipcc_tar/wg1/pdf/WG1_TAR-FRONT.pdf. Accessed September 15, 2011.

Intergovernmental Panel on Climate Change. 2007a. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, Website: www.ipcc.ch/ipccreports/ar4-wg1.htm. Accessed April 22, 2011.

Intergovernmental Panel on Climate Change. 2007b. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland. Accessed December 1, 2010. Website: www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html

McIntyre, S. and R. McKitrick. 2003. Corrections to the Mann et al. (1998) Proxy Data Base and Northern Hemisphere Average Temperature Series. Energy and Environment, Vol. 14, No. 6 , Pgs. 751–772.

McKitrick. 2005. What is the 'Hockey Stick' Debate About? APEC Study Group, Australia. Website: http://www.uoguelph.ca/~rmckitri/research/McKitrick-hockeystick.pdf. Accessed September 12, 2011.

Moser et al. 2009. Moser, Susie, Guido Franco, Sarah Pittiglio, Wendy Chou, Dan Cayan. 2009. The Future Is Now: An Update on Climate Change Science Impacts and Response Options for California. California Energy Commission, PIER Energy-Related Environmental Research Program. CEC-500-2008-071. Website: www.energy.ca.gov/2008publications/CEC-500-2008-071/CEC-500-2008-071.PDF. Accessed April 22, 2011.

Natelson Dale Group. 2011. Urban Decay Analysis for Redlands Crossing Retail Center.

National Toxicology Program. 2005a. Report on Carcinogens, Eleventh Edition; U.S. Department of Health and Human Services, Public Health Service. January 31, 2005. Benzene. Accessed April 22, 2011. Website: http://ntp.niehs.nih.gov/ntp/roc/eleventh/profiles/s019benz.pdf.

National Toxicology Program. 2005b. Report on Carcinogens, Eleventh Edition; U.S. Department of Health and Human Services, Public Health Service. January 31, 2005. Diesel Exhaust Particles. Accessed April 22, 2011. Website: http://ntp.niehs.nih.gov/ntp/roc/eleventh/profiles/s069dies.pdf.

NOConsensus.org. 2010. IPCC Report Card. Website: www.noconsensus.org/ipcc-audit/IPCC-report-card.php. Accessed September 10, 2011.

Occupational Safety and Health Administration. 2003. United States Department of Labor. Safety and Health Topics: Methane. Accessed April 22, 2011. Website: www.osha.gov/dts/chemicalsampling/data/CH_250700.html

Redlands, City of. 1995. General Plan. Website: http://www.ci.redlands.ca.us/community/general_plan.htm. Accessed October 3, 2011.

Redlands, City of. 2011. Redlands Community Sustainability Plan. Website: http://ci.redlands.ca.us/clerk/2011staffreports/110215J1-att1.pdf, http://ci.redlands.ca.us/clerk/2011staffreports/110301M1-att2.pdf, http://ci.redlands.ca.us/clerk/2011staffreports/110301M1-att3.pdf. Accessed October 3, 2011.

Redlands, City of. 2011b. Water and Wastewater Service Rate Schedule. Rates Effective May 18, 2011. Website: http://www.ci.redlands.ca.us/utilities/PDFs/2011%20Rate%20Card.pdf. Accessed October 3, 2011.

South Coast Air Quality Management District. 1993. CEQA Handbook. Available at SCAQMD, 21865 Copley Dr, Diamond Bar, CA 91765.

South Coast Air Quality Management District. 2000. Multiple Air Toxics Exposure Study in the South Coast Air Basin MATES-II, March 2000. Website: http://www.aqmd.gov/matesiidf/matestoc.htm. Accessed October 3, 2011.

South Coast Air Quality Management District. 2003. Air Quality Management Plan. Website: www.aqmd.gov/aqmp/AQMD03AQMP.htm. Accessed April 22, 2011.

South Coast Air Quality Management District. 2005. Risk Assessment Procedures for Rules 1401 and 212. Website: www.aqmd.gov/prdas/pdf/riskassessmentprocedures-v7.pdf. Accessed October 3, 2011.

South Coast Air Quality Management District. 2007a. Odor Detection, Mitigation and Control Technology Forum and Roundtable Discussion. 2007. Website: www.aqmd.gov/tao/conferencesworkshops/OdorForum/OdorForumSummary.pdf. Accessed April 22, 2011.

South Coast Air Quality Management District. 2007b. Final 2007 Air Quality Management Plan. Website: www.aqmd.gov/aqmp/07aqmp/index.html. Accessed April 22, 2011.

South Coast Air Quality Management District. 2007c. Mitigation Measures for Fugitive Dust, Table XI-A, Construction & Demolition. Website: http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html. Accessed October 3, 2011.

South Coast Air Quality Management District. 2008a. June 2003, revised July 2008. Final Localized Significance Threshold Methodology. Accessed April 22, 2011. Website: www.aqmd.gov/CEQA/handbook/LST/Method_final.pdf.

South Coast Air Quality Management District. 2008b. Board Meeting Date: December 5, 2008, Agenda 31, Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans. Website: www.aqmd.gov/hb/2008/December/081231a.htm. Accessed May 25, 2011.

South Coast Air Quality Management District. 2008c. Draft Guidance Document – Interim CEQA Greenhouse (GHG) Significance Threshold Document. Website: http://www.aqmd.gov/hb/attachments/2008/December/081231.exe. (Attachment E) Accessed September 12, 2011.

South Coast Air Quality Management District. 2008d. MATES III Multiple Air Toxics Exposure Study; Website: http://www.aqmd.gov/prdas/matesIII/matesIII.html. Accessed October 3, 2011.

South Coast Air Quality Management District. 2009a. Final Localized Significance Threshold Methodology, Appendix C. Revised October 21, 2009. Website: www.aqmd.gov/CEQA/handbook/LST/LST.html, Accessed April 22, 2011.

South Coast Air Quality Management District. 2009b. AQMD Modeling Guidance for AERMOD. Page updated October 2, 2009. Accessed June 14, 2011. Website: www.aqmd.gov/smog/metdata/AERMOD_ModelingGuidance.html

South Coast Air Quality Management District. 2010. Greenhouse Gas CEQA Threshold Stakeholder Working Group Meeting #15. September 28. Website: www.aqmd.gov/ceqa/handbook/GHG/2010/sept28mtg/ghgmtg15-web.pdf. Accessed May 25, 2011.

South Coast Air Quality Management District. 2011a. Air Quality Significance Thresholds. Revised March 2011. Accessed April 22, 2011. Website: www.aqmd.gov/ceqa/handbook/signthres.pdf.

South Coast Air Quality Management District. 2011b. Historical Data by Year. Air Quality. Website: www.aqmd.gov/smog/historicaldata.htm. Accessed February 11, 2011.

South Coast Air Quality Management District. 2011c. Air Quality Analysis Guidance Handbook. Page updated March 10, 2011. Website: www.aqmd.gov/ceqa/hdbk.html. Accessed April 22, 2011.

South Coast Air Quality Management District. 2011e. Table 1, Meteorological Sites. Page updated June 8, 2011. Accessed June 14, 2011. Website: www.aqmd.gov/smog/metdata/AERMOD_Table1.html

South Coast Air Quality Management District. 2011f. Comment letter on the Draft EIR for the Proposed Palm/Industrial Distribution Center Project. Website: http://www.aqmd.gov/ceqa/igr/2011/July/DEIRpalm.pdf. Accessed October 3, 2011.

U.S. Environmental Protection Agency. 1999. Ozone and your Health. 1999. EPA-452/F-99-003. Website: www.epa.gov/air/ozonepollution/pdfs/health.pdf. Accessed April 22, 2011.

U.S. Environmental Protection Agency. 2000. Technology Transfer Network, Air Toxics Website. Benzene. Revised in 2000. Website: www.epa.gov/ttn/atw/hlthef/benzene.html. Accessed April 22, 2011.

U.S. Environmental Protection Agency. 2003. Particle Pollution and your Health. EPA-452/F-03-001. Website: http://epa.gov/pm/pdfs/pm-color.pdf. Accessed April 22, 2011.

U.S. Environmental Protection Agency. 2009a. Fact Sheet, Proposed Revisions to the National Ambient Air Quality Standards for Nitrogen Dioxide. July 22, 2009. Accessed April 22, 2011. Website: www.epa.gov/air/nitrogenoxides/pdfs/20090722fs.pdf

U.S. Environmental Protection Agency. 2010. Technology Transfer Network, Air Toxics Website. Page updated April 5, 2010. Health Effects Notebook for Hazardous Air Pollutants. Website: www.epa.gov/ttn/atw/hlthef/hapindex.html. Accessed April 22, 2011.

U.S. Environmental Protection Agency. 2011a. Green Book Nonattainment Areas for Criteria Pollutants. Website: www.epa.gov/air/oaqps/greenbk/. Accessed April 22, 2011.

U.S. Environmental Protection Agency. 2011b. Indoor Air Quality. Sources of Indoor Air Pollution - Organic Gases (Volatile Organic Compounds - VOCs) Website: www.epa.gov/iaq/voc.html. Page updated March 22, 2011. Accessed April 22, 2011.

U.S. Environmental Protection Agency. 2011c. 2011 U.S. Greenhouse Gas Inventory Report. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2009. Website: www.epa.gov/climatechange/emissions/usinventoryreport.html. Accessed April 22, 2011. (Note: data is used in Figure 2)

U.S. Environmental Protection Agency. 2005. Federal Register 40 CFR Part 5, November 9, 2005, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions; Final Rule. http://www.epa.gov/scram001/guidance/guide/appw_05.pdf. Accessed October 3, 2011.

U.S. Geological Survey. 2011. Van Gosen, B.S., and Clinkenbeard, J.P. California Geological Survey Map Sheet 59. Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California. Open-File Report 2011-1188 Website: http://pubs.usgs.gov/of/2011/1188/. Accessed September 30, 2011.

United Nations Framework Convention on Climate Change. 2010. National Greenhouse Gas Inventory Data for the Period 1990-2008. Website: http://unfccc.int/resource/docs/2010/sbi/eng/18.pdf. Accessed April 22, 2011. (Note: data is used in Figure 2)

University of California, Davis. 1997. Prepared for California Department of Transportation. 1997. Transportation Project-Level Carbon Monoxide Protocol. Website: www.dot.ca.gov/hq/env/air/pages/coprot.htm. Accessed April 22, 2011.

Urban Crossroads. 2011. Redlands Crossing Traffic Impact Analysis, City of Redlands.

Von Storch et al. 2004. Reconstructing Past Climate from Noisy Data. Science, Vol. 306, Pgs. 679–682.

Western Regional Climate Center. 2007. Redlands, California Climate Summary. www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7306

Appendix A:
CalEEMod Output
and Miscellaneous Spreadsheets

Redlands Crossing Center Construction Unmitigated

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft
Parking Lot	26.45	Acre

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			

1.3 User Entered Comments

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Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Off-road Equipment - -

Off-road Equipment - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

3.0 Construction Detail

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading of Main Project - 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					0.19	0.00	0.19	0.08	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.38	3.15	1.70	0.00		0.15	0.15		0.15	0.15	0.00	288.64	288.64	0.03	0.00	289.29
Total	**0.38**	**3.15**	**1.70**	**0.00**	**0.19**	**0.15**	**0.34**	**0.08**	**0.15**	**0.23**	**0.00**	**288.64**	**288.64**	**0.03**	**0.00**	**289.29**

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	0.19	0.19	0.00	0.00	0.19
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	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	5.61	5.61	0.00	0.00	5.62
Total	**0.00**	**0.00**	**0.04**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**5.80**	**5.80**	**0.00**	**0.00**	**5.81**

3.3 Grading of Outparcels - 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					0.02	0.00	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.04	0.36	0.20	0.00		0.02	0.02		0.02	0.02	0.00	33.53	33.53	0.00	0.00	33.60
Total	**0.04**	**0.36**	**0.20**	**0.00**	**0.02**	**0.02**	**0.04**	**0.01**	**0.02**	**0.03**	**0.00**	**33.53**	**33.53**	**0.00**	**0.00**	**33.60**

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	0.70	0.70	0.00	0.00	0.70
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.70**	**0.70**	**0.00**	**0.00**	**0.70**

3.4 Paving - 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	0.06	0.36	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	0.03					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.09**	**0.36**	**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	0.04	0.04	0.00	0.00	0.04
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	1.40	1.40	0.00	0.00	1.41
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.44**	**1.44**	**0.00**	**0.00**	**1.45**

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	1.04	6.52	4.03	0.01		0.45	0.45		0.45	0.45	0.00	615.49	615.49	0.09	0.00	617.28
Total	**1.04**	**6.52**	**4.03**	**0.01**		**0.45**	**0.45**		**0.45**	**0.45**	**0.00**	**615.49**	**615.49**	**0.09**	**0.00**	**617.28**

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	0.00	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	0.07	0.77	0.51	0.00	0.04	0.03	0.06	0.00	0.03	0.03	0.00	105.32	105.32	0.00	0.00	105.39
Worker	0.05	0.06	0.59	0.00	0.10	0.00	0.11	0.00	0.00	0.00	0.00	81.30	81.30	0.01	0.00	81.41
Total	**0.12**	**0.83**	**1.10**	**0.00**	**0.14**	**0.03**	**0.17**	**0.00**	**0.03**	**0.03**	**0.00**	**186.62**	**186.62**	**0.01**	**0.00**	**186.80**

3.6 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	3.17					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.01	0.08	0.05	0.00		0.01	0.01		0.01	0.01	0.00	7.01	7.01	0.00	0.00	7.04
Total	**3.18**	**0.08**	**0.05**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**7.01**	**7.01**	**0.00**	**0.00**	**7.04**

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	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	4.54	4.54	0.00	0.00	4.54
Total	**0.00**	**0.00**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**4.54**	**4.54**	**0.00**	**0.00**	**4.54**

Redlands Crossing Center Grading Mitigated Tier 1 and reduced hours

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Off-road Equipment - -

Off-road Equipment - -

Off-road Equipment - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading of Main Project - 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					13.45	0.00	13.45	3.31	0.00	3.31						0.00
Off-Road	11.44	95.34	49.31	0.09		4.61	4.61		4.61	4.61		9,813.49		1.03		9,835.05
Total	**11.44**	**95.34**	**49.31**	**0.09**	**13.45**	**4.61**	**18.06**	**3.31**	**4.61**	**7.92**		**9,813.49**		**1.03**		**9,835.05**

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	0.01	0.07	0.04	0.00	0.12	0.00	0.12	0.00	0.00	0.00		10.36		0.00		10.37
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	0.12	0.12	1.40	0.00	0.26	0.01	0.27	0.00	0.01	0.01		218.98		0.01		219.26
Total	**0.13**	**0.19**	**1.44**	**0.00**	**0.38**	**0.01**	**0.39**	**0.00**	**0.01**	**0.01**		**229.34**		**0.01**		**229.63**

Redlands Crossing Center Grading Mitigated Tier 1 and reduced hours

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Off-road Equipment - -

Off-road Equipment - -

Off-road Equipment - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading of Main Project - 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					13.45	0.00	13.45	3.31	0.00	3.31						0.00
Off-Road	11.44	95.34	49.31	0.09		4.61	4.61		4.61	4.61		9,813.49		1.03		9,835.05
Total	**11.44**	**95.34**	**49.31**	**0.09**	**13.45**	**4.61**	**18.06**	**3.31**	**4.61**	**7.92**		**9,813.49**		**1.03**		**9,835.05**

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	0.01	0.08	0.04	0.00	0.12	0.00	0.12	0.00	0.00	0.00		10.31		0.00		10.32
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	0.14	1.32	0.00	0.26	0.01	0.27	0.00	0.01	0.01		200.69		0.01		200.96
Total	**0.14**	**0.22**	**1.36**	**0.00**	**0.38**	**0.01**	**0.39**	**0.00**	**0.01**	**0.01**		**211.00**		**0.01**		**211.28**

Redlands Crossing Center Grading Mitigated Tier 2 and reduced hours

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Off-road Equipment - -

Off-road Equipment - -

Off-road Equipment - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading of Main Project - 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					7.21	0.00	7.21	2.45	0.00	2.45						0.00
Off-Road	46.55	94.16	63.19	0.12		3.86	3.86		3.86	3.86	0.00	12,488.72		1.32		12,516.47
Total	**46.55**	**94.16**	**63.19**	**0.12**	**7.21**	**3.86**	**11.07**	**2.45**	**3.86**	**6.31**	**0.00**	**12,488.72**		**1.32**		**12,516.47**

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	0.01	0.07	0.04	0.00	0.12	0.00	0.12	0.00	0.00	0.00		10.36		0.00		10.37
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	0.15	0.15	1.76	0.00	0.33	0.01	0.34	0.00	0.01	0.01		273.73		0.02		274.08
Total	**0.16**	**0.22**	**1.80**	**0.00**	**0.45**	**0.01**	**0.46**	**0.00**	**0.01**	**0.01**		**284.09**		**0.02**		**284.45**

Redlands Crossing Center Grading Mitigated Tier 2 and reduced hours

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Off-road Equipment - -

Off-road Equipment - -

Off-road Equipment - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading of Main Project - 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					7.21	0.00	7.21	2.45	0.00	2.45						0.00
Off-Road	46.55	94.16	63.19	0.12		3.86	3.86		3.86	3.86	0.00	12,488.72		1.32		12,516.47
Total	**46.55**	**94.16**	**63.19**	**0.12**	**7.21**	**3.86**	**11.07**	**2.45**	**3.86**	**6.31**	**0.00**	**12,488.72**		**1.32**		**12,516.47**

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	0.01	0.08	0.04	0.00	0.12	0.00	0.12	0.00	0.00	0.00		10.31		0.00		10.32
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	0.16	0.17	1.65	0.00	0.33	0.01	0.34	0.00	0.01	0.01		250.87		0.02		251.20
Total	**0.17**	**0.25**	**1.69**	**0.00**	**0.45**	**0.01**	**0.46**	**0.00**	**0.01**	**0.01**		**261.18**		**0.02**		**261.52**

Redlands Crossing Center Construction Unmitigated

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft
Parking Lot	26.45	Acre

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			

1.3 User Entered Comments

31

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Off-road Equipment - -

Off-road Equipment - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

3.0 Construction Detail

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading of Main Project - 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					9.44	0.00	9.44	3.68	0.00	3.68						0.00
Off-Road	19.05	157.76	85.12	0.15		7.62	7.62		7.62	7.62	0.00	15,913.06		1.71		15,948.89
Total	**19.05**	**157.76**	**85.12**	**0.15**	**9.44**	**7.62**	**17.06**	**3.68**	**7.62**	**11.30**	**0.00**	**15,913.06**		**1.71**		**15,948.89**

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	0.01	0.07	0.04	0.00	0.12	0.00	0.12	0.00	0.00	0.00		10.36		0.00		10.37
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	0.18	0.18	2.11	0.00	0.39	0.01	0.40	0.01	0.01	0.02		328.47		0.02		328.90
Total	**0.19**	**0.25**	**2.15**	**0.00**	**0.51**	**0.01**	**0.52**	**0.01**	**0.01**	**0.02**		**338.83**		**0.02**		**339.27**

3.3 Grading of Outparcels - 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					3.61	0.00	3.61	1.23	0.00	1.23						0.00
Off-Road	8.81	72.14	39.42	0.07		3.60	3.60		3.60	3.60	0.00	7,393.75		0.79		7,410.33
Total	**8.81**	**72.14**	**39.42**	**0.07**	**3.61**	**3.60**	**7.21**	**1.23**	**3.60**	**4.83**	**0.00**	**7,393.75**		**0.79**		**7,410.33**

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	1.05	0.00	0.20	0.01	0.20	0.00	0.01	0.01		164.24		0.01		164.45
Total	**0.09**	**0.09**	**1.05**	**0.00**	**0.20**	**0.01**	**0.20**	**0.00**	**0.01**	**0.01**		**164.24**		**0.01**		**164.45**

3.4 Paving - 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	5.86	35.62	21.08	0.03		3.13	3.13		3.13	3.13		2,917.64		0.53		2,928.70
Paving	3.46					0.00	0.00		0.00	0.00						0.00
Total	**9.32**	**35.62**	**21.08**	**0.03**		**3.13**	**3.13**		**3.13**	**3.13**		**2,917.64**		**0.53**		**2,928.70**

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	0.03	0.02	0.00	0.02	0.00	0.02	0.00	0.00	0.00		4.14		0.00		4.15
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	1.05	0.00	0.20	0.01	0.20	0.00	0.01	0.01		164.24		0.01		164.45
Total	**0.09**	**0.12**	**1.07**	**0.00**	**0.22**	**0.01**	**0.22**	**0.00**	**0.01**	**0.01**		**168.38**		**0.01**		**168.60**

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	10.92	68.26	42.25	0.08		4.73	4.73		4.73	4.73		7,106.27		0.98		7,126.88
Total	**10.92**	**68.26**	**42.25**	**0.08**		**4.73**	**4.73**		**4.73**	**4.73**		**7,106.27**		**0.98**		**7,126.88**

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	0.74	8.06	4.98	0.01	0.41	0.28	0.70	0.01	0.26	0.27		1,219.26		0.04		1,220.03
Worker	0.55	0.55	6.39	0.01	1.19	0.04	1.23	0.02	0.04	0.05		996.37		0.06		997.65
Total	**1.29**	**8.61**	**11.37**	**0.02**	**1.60**	**0.32**	**1.93**	**0.03**	**0.30**	**0.32**		**2,215.63**		**0.10**		**2,217.68**

3.6 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	115.44					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	**115.93**	**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	0.10	0.10	1.16	0.00	0.23	0.01	0.24	0.00	0.01	0.01		193.08		0.01		193.31
Total	**0.10**	**0.10**	**1.16**	**0.00**	**0.23**	**0.01**	**0.24**	**0.00**	**0.01**	**0.01**		**193.08**		**0.01**		**193.31**

Redlands Crossing Center Construction Unmitigated

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft
Parking Lot	26.45	Acre

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			

1.3 User Entered Comments

31

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Off-road Equipment - -

Off-road Equipment - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

3.0 Construction Detail

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Grading of Main Project - 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					9.44	0.00	9.44	3.68	0.00	3.68						0.00
Off-Road	19.05	157.76	85.12	0.15		7.62	7.62		7.62	7.62	0.00	15,913.06		1.71		15,948.89
Total	**19.05**	**157.76**	**85.12**	**0.15**	**9.44**	**7.62**	**17.06**	**3.68**	**7.62**	**11.30**	**0.00**	**15,913.06**		**1.71**		**15,948.89**

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	0.01	0.08	0.04	0.00	0.12	0.00	0.12	0.00	0.00	0.00		10.31		0.00		10.32
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	0.19	0.21	1.98	0.00	0.39	0.01	0.40	0.01	0.01	0.02		301.04		0.02		301.45
Total	**0.20**	**0.29**	**2.02**	**0.00**	**0.51**	**0.01**	**0.52**	**0.01**	**0.01**	**0.02**		**311.35**		**0.02**		**311.77**

3.3 Grading of Outparcels - 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					3.61	0.00	3.61	1.23	0.00	1.23						0.00
Off-Road	8.81	72.14	39.42	0.07		3.60	3.60		3.60	3.60	0.00	7,393.75		0.79		7,410.33
Total	**8.81**	**72.14**	**39.42**	**0.07**	**3.61**	**3.60**	**7.21**	**1.23**	**3.60**	**4.83**	**0.00**	**7,393.75**		**0.79**		**7,410.33**

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	0.10	0.10	0.99	0.00	0.20	0.01	0.20	0.00	0.01	0.01		150.52		0.01		150.72
Total	**0.10**	**0.10**	**0.99**	**0.00**	**0.20**	**0.01**	**0.20**	**0.00**	**0.01**	**0.01**		**150.52**		**0.01**		**150.72**

3.4 Paving - 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	5.86	35.62	21.08	0.03		3.13	3.13		3.13	3.13		2,917.64		0.53		2,928.70
Paving	3.46					0.00	0.00		0.00	0.00						0.00
Total	**9.32**	**35.62**	**21.08**	**0.03**		**3.13**	**3.13**		**3.13**	**3.13**		**2,917.64**		**0.53**		**2,928.70**

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	0.03	0.02	0.00	0.02	0.00	0.02	0.00	0.00	0.00		4.13		0.00		4.13
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	0.10	0.10	0.99	0.00	0.20	0.01	0.20	0.00	0.01	0.01		150.52		0.01		150.72
Total	**0.10**	**0.13**	**1.01**	**0.00**	**0.22**	**0.01**	**0.22**	**0.00**	**0.01**	**0.01**		**154.65**		**0.01**		**154.85**

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	10.92	68.26	42.25	0.08		4.73	4.73		4.73	4.73		7,106.27		0.98		7,126.88
Total	**10.92**	**68.26**	**42.25**	**0.08**		**4.73**	**4.73**		**4.73**	**4.73**		**7,106.27**		**0.98**		**7,126.88**

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	0.77	8.46	5.53	0.01	0.41	0.29	0.70	0.01	0.27	0.28		1,210.51		0.04		1,211.32
Worker	0.58	0.63	5.99	0.01	1.19	0.04	1.23	0.02	0.04	0.05		913.15		0.06		914.38
Total	**1.35**	**9.09**	**11.52**	**0.02**	**1.60**	**0.33**	**1.93**	**0.03**	**0.31**	**0.33**		**2,123.66**		**0.10**		**2,125.70**

3.6 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	115.44					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	**115.93**	**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	0.11	0.11	1.08	0.00	0.23	0.01	0.24	0.00	0.01	0.01		176.92		0.01		177.14
Total	**0.11**	**0.11**	**1.08**	**0.00**	**0.23**	**0.01**	**0.24**	**0.00**	**0.01**	**0.01**		**176.92**		**0.01**		**177.14**

Redlands Crossing Center - Operation Trucks 2010 (Mobile Only)

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Free-Standing Discount Superstore	1	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

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	0.50	4.23	2.95	0.00	0.21	0.18	0.38	0.01	0.16	0.17	0.00	499.51	499.51	0.02	0.00	499.94
Unmitigated	0.50	4.23	2.95	0.00	0.21	0.18	0.38	0.01	0.16	0.17	0.00	499.51	499.51	0.02	0.00	499.94
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
Free-Standing Discount Superstore	50.00	50.00	50.00	364,000	364,000
Total	50.00	50.00	50.00	364,000	364,000

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
Free-Standing Discount Superstore	20.00	20.00	20.00	0.00	100.00	0.00

Redlands Crossing Center - Operation Trucks 2010 (Mobile Only)

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Free-Standing Discount Superstore	1	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

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	2.70	23.23	15.78	0.02	1.25	0.97	2.21	0.03	0.88	0.92		3,030.73		0.12		3,033.28
Unmitigated	2.70	23.23	15.78	0.02	1.25	0.97	2.21	0.03	0.88	0.92		3,030.73		0.12		3,033.28
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
Free-Standing Discount Superstore	50.00	50.00	50.00	364,000	364,000
Total	50.00	50.00	50.00	364,000	364,000

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
Free-Standing Discount Superstore	20.00	20.00	20.00	0.00	100.00	0.00

Redlands Crossing Center - Operation Trucks 2010 (Mobile Only)

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Free-Standing Discount Superstore	1	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

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	2.79	24.68	16.45	0.02	1.25	0.97	2.22	0.03	0.89	0.92		3,019.80		0.12		3,022.41
Unmitigated	2.79	24.68	16.45	0.02	1.25	0.97	2.22	0.03	0.89	0.92		3,019.80		0.12		3,022.41
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
Free-Standing Discount Superstore	50.00	50.00	50.00	364,000	364,000
Total	50.00	50.00	50.00	364,000	364,000

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
Free-Standing Discount Superstore	20.00	20.00	20.00	0.00	100.00	0.00

Redlands Crossing Center - Operation Trucks 2013 (Mobile Only)

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Free-Standing Discount Superstore	1	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

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	0.39	3.14	2.18	0.00	0.21	0.13	0.33	0.01	0.12	0.12	0.00	499.87	499.87	0.01	0.00	500.16
Unmitigated	0.39	3.14	2.18	0.00	0.21	0.13	0.33	0.01	0.12	0.12	0.00	499.87	499.87	0.01	0.00	500.16
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
Free-Standing Discount Superstore	50.00	50.00	50.00	364,000	364,000
Total	50.00	50.00	50.00	364,000	364,000

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
Free-Standing Discount Superstore	20.00	20.00	20.00	0.00	100.00	0.00

Redlands Crossing Center - Operation Trucks 2013 (Mobile Only)

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Free-Standing Discount Superstore	1	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

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	2.10	17.24	11.54	0.02	1.25	0.70	1.94	0.03	0.64	0.68		3,033.32		0.08		3,035.07
Unmitigated	2.10	17.24	11.54	0.02	1.25	0.70	1.94	0.03	0.64	0.68		3,033.32		0.08		3,035.07
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
Free-Standing Discount Superstore	50.00	50.00	50.00	364,000	364,000
Total	50.00	50.00	50.00	364,000	364,000

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
Free-Standing Discount Superstore	20.00	20.00	20.00	0.00	100.00	0.00

Redlands Crossing Center - Operation Trucks 2013 (Mobile Only)

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Free-Standing Discount Superstore	1	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

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	2.16	18.23	12.20	0.02	1.25	0.70	1.95	0.03	0.65	0.68		3,021.37		0.09		3,023.16
Unmitigated	2.16	18.23	12.20	0.02	1.25	0.70	1.95	0.03	0.65	0.68		3,021.37		0.09		3,023.16
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
Free-Standing Discount Superstore	50.00	50.00	50.00	364,000	364,000
Total	50.00	50.00	50.00	364,000	364,000

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
Free-Standing Discount Superstore	20.00	20.00	20.00	0.00	100.00	0.00

Redlands Crossing Center - Operation Trucks 2030 (Mobile Only)

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Free-Standing Discount Superstore	1	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

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	0.22	1.63	1.18	0.00	0.21	0.06	0.26	0.01	0.05	0.06	0.00	461.16	461.16	0.01	0.00	461.32
Unmitigated	0.22	1.63	1.18	0.00	0.21	0.06	0.26	0.01	0.05	0.06	0.00	461.16	461.16	0.01	0.00	461.32
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
Free-Standing Discount Superstore	50.00	50.00	50.00	364,000	364,000
Total	50.00	50.00	50.00	364,000	364,000

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
Free-Standing Discount Superstore	20.00	20.00	20.00	0.00	100.00	0.00

Redlands Crossing Center - Operation Trucks 2030 (Mobile Only)

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Free-Standing Discount Superstore	1	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

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	0.14	1.13	0.73	0.00	0.21	0.03	0.24	0.01	0.03	0.03	0.00	465.04	465.04	0.00	0.00	465.14
Unmitigated	0.14	1.13	0.73	0.00	0.21	0.03	0.24	0.01	0.03	0.03	0.00	465.04	465.04	0.00	0.00	465.14
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
Free-Standing Discount Superstore	50.00	50.00	50.00	364,000	364,000
Total	50.00	50.00	50.00	364,000	364,000

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
Free-Standing Discount Superstore	20.00	20.00	20.00	0.00	100.00	0.00

Redlands Crossing Center - Operation Trucks 2030 (Mobile Only)

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Free-Standing Discount Superstore	1	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

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	0.74	6.25	3.72	0.02	1.25	0.17	1.42	0.03	0.16	0.19		2,823.45		0.03		2,824.00
Unmitigated	0.74	6.25	3.72	0.02	1.25	0.17	1.42	0.03	0.16	0.19		2,823.45		0.03		2,824.00
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
Free-Standing Discount Superstore	50.00	50.00	50.00	364,000	364,000
Total	50.00	50.00	50.00	364,000	364,000

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
Free-Standing Discount Superstore	20.00	20.00	20.00	0.00	100.00	0.00

Redlands Crossing Center - Operation Trucks 2030 (Mobile Only)

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Free-Standing Discount Superstore	1	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

Construction Phase - -

Off-road Equipment -

Grading - -

Construction Off-road Equipment Mitigation -

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	0.79	6.36	4.32	0.02	1.25	0.17	1.42	0.03	0.16	0.19		2,808.86		0.03		2,809.43
Unmitigated	0.79	6.36	4.32	0.02	1.25	0.17	1.42	0.03	0.16	0.19		2,808.86		0.03		2,809.43
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
Free-Standing Discount Superstore	50.00	50.00	50.00	364,000	364,000
Total	50.00	50.00	50.00	364,000	364,000

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
Free-Standing Discount Superstore	20.00	20.00	20.00	0.00	100.00	0.00

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Southern California Edison
Climate Zone	10	**Precipitation Freq (Days)**	31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

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	1.31	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
Energy	0.05	0.46	0.39	0.00		0.00	0.04		0.00	0.04	0.00	2,090.27	2,090.27	0.08	0.04	2,103.28
Mobile	30.88	27.25	315.59	0.28	30.14	0.97	31.11	0.45	0.95	1.39	0.00	25,876.71	25,876.71	2.06	0.00	25,919.89
Waste						0.00	0.00		0.00	0.00	269.54	0.00	269.54	15.93	0.00	604.05
Water						0.00	0.00		0.00	0.00	0.00	19.32	19.32	0.10	0.00	22.28
Total	**32.24**	**27.71**	**315.98**	**0.28**	**30.14**	**0.97**	**31.15**	**0.45**	**0.95**	**1.43**	**269.54**	**27,986.30**	**28,255.84**	**18.17**	**0.04**	**28,649.50**

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	30.88	27.25	315.59	0.28	30.14	0.97	31.11	0.45	0.95	1.39	0.00	25,876.71	25,876.71	2.06	0.00	25,919.89
Unmitigated	30.88	27.25	315.59	0.28	30.14	0.97	31.11	0.45	0.95	1.39	0.00	25,876.71	25,876.71	2.06	0.00	25,919.89
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
Fast Food Restaurant w/o Drive Thru	8,806.80	8,560.80	6848.64	11,532,694	11,532,694
Fast Food Restaurant with Drive Thru	5,209.26	7,581.32	5698.56	6,533,569	6,533,569
Free-Standing Discount Superstore	11,422.95	13,775.05	12065.80	31,196,442	31,196,442
Gasoline/Service Station	1,834.08	2,531.88	2025.48	1,948,479	1,948,479
High Turnover (Sit Down Restaurant)	1,144.35	1,425.33	1186.56	1,641,057	1,641,057
Regional Shopping Center	1,139.02	1,080.43	525.05	2,763,483	2,763,483
Total	29,556.46	34,954.80	28,350.09	55,615,724	55,615,724

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
Fast Food Restaurant w/o Drive Thru	9.50	7.80	7.80	1.50	79.50	19.00
Fast Food Restaurant with Drive Thru	9.50	7.80	7.80	2.20	78.80	19.00
Free-Standing Discount Superstore	9.50	7.80	7.80	13.20	67.80	19.00
Gasoline/Service Station	9.50	7.80	7.80	2.00	79.00	19.00
High Turnover (Sit Down Restaurant)	9.50	7.80	7.80	8.50	72.50	19.00
Regional Shopping Center	9.50	7.80	7.80	16.30	64.70	19.00

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	1,586.54	1,586.54	0.07	0.03	1,596.48
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	1,586.54	1,586.54	0.07	0.03	1,596.48
NaturalGas Mitigated	0.05	0.46	0.39	0.00		0.00	0.04		0.00	0.04	0.00	503.74	503.74	0.01	0.01	506.80
NaturalGas Unmitigated	0.05	0.46	0.39	0.00		0.00	0.04		0.00	0.04	0.00	503.74	503.74	0.01	0.01	506.80
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	tons/yr										MT/yr					
Fast Food Restaurant w/o Drive	3.41337e+006	0.02	0.17	0.14	0.00		0.00	0.01		0.00	0.01	0.00	182.15	182.15	0.00	0.00	183.26
Fast Food Restaurant with	2.91386e+006	0.02	0.14	0.12	0.00		0.00	0.01		0.00	0.01	0.00	155.49	155.49	0.00	0.00	156.44
Free-Standing Discount Superstore	498800	0.00	0.02	0.02	0.00		0.00	0.00		0.00	0.00	0.00	26.62	26.62	0.00	0.00	26.78
Gasoline/Service Station	56396.6	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	3.01	3.01	0.00	0.00	3.03
High Turnover (Sit Down Restaurant)	2.49759e+006	0.01	0.12	0.10	0.00		0.00	0.01		0.00	0.01	0.00	133.28	133.28	0.00	0.00	134.09
Regional Shopping Center	59624	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	3.18	3.18	0.00	0.00	3.20
Total		**0.05**	**0.45**	**0.38**	**0.00**		**0.00**	**0.03**		**0.00**	**0.03**	**0.00**	**503.73**	**503.73**	**0.00**	**0.00**	**506.80**

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			
Fast Food Restaurant w/o Drive	644520					187.47	0.01	0.00	188.65
Fast Food Restaurant with Drive	550200					160.04	0.01	0.00	161.04
Free-Standing Discount Superstore	3.3669e+006					979.33	0.04	0.02	985.47
Gasoline/Service Station	18753.7					5.45	0.00	0.00	5.49
High Turnover (Sit Down Restaurant)	471600					137.17	0.01	0.00	138.03
Regional Shopping Center	402462					117.06	0.01	0.00	117.80
Total						**1,586.52**	**0.08**	**0.02**	**1,596.48**

6.0 Area Detail

	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	1.31	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
Unmitigated	1.31	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
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	0.32					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.99					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	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
Total	**1.31**	**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**

7.0 Water Detail

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			
Fast Food Restaurant w/o Drive	0.146468 / 0.0976454					0.87	0.00	0.00	1.01
Fast Food Restaurant with	0.125034 / 0.0833558					0.74	0.00	0.00	0.86
Free-Standing Discount Superstore	2.56021 / 1.70681					15.24	0.08	0.00	17.58
High Turnover (Sit Down Restaurant)	0.107172 / 0.0714478					0.64	0.00	0.00	0.74
Regional Shopping Center	0.306035 / 0.204023					1.82	0.01	0.00	2.10
Total						**19.31**	**0.09**	**0.00**	**22.29**

8.0 Waste Detail

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			
Fast Food Restaurant w/o Drive	141.68					28.76	1.70	0.00	64.45
Fast Food Restaurant with	120.95					24.55	1.45	0.00	55.02
Free-Standing Discount Superstore	924.65					187.70	11.09	0.00	420.64
Gasoline/Service Station	6.47					1.31	0.08	0.00	2.94
High Turnover (Sit Down Restaurant)	107.1					21.74	1.28	0.00	48.72
Regional Shopping Center	26.98					5.48	0.32	0.00	12.27
Total						**269.54**	**15.92**	**0.00**	**604.04**

Redlands Crossing Center - Operation Customer and Workers 2010

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

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	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
Mobile	202.38	164.89	1,978.84	1.90	213.22	6.18	219.40	2.85	6.04	8.89		192,707.13		14.31		193,007.71
Total	**209.83**	**167.43**	**1,980.97**	**1.92**	**213.22**	**6.18**	**219.59**	**2.85**	**6.04**	**9.08**		**195,749.72**		**14.37**	**0.06**	**196,068.82**

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	202.38	164.89	1,978.84	1.90	213.22	6.18	219.40	2.85	6.04	8.89		192,707.13		14.31		193,007.71
Unmitigated	202.38	164.89	1,978.84	1.90	213.22	6.18	219.40	2.85	6.04	8.89		192,707.13		14.31		193,007.71
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
Fast Food Restaurant w/o Drive Thru	8,806.80	8,560.80	6848.64	11,532,694	11,532,694
Fast Food Restaurant with Drive Thru	5,209.26	7,581.32	5698.56	6,533,569	6,533,569
Free-Standing Discount Superstore	11,422.95	13,775.05	12065.80	31,196,442	31,196,442
Gasoline/Service Station	1,834.08	2,531.88	2025.48	1,948,479	1,948,479
High Turnover (Sit Down Restaurant)	1,144.35	1,425.33	1186.56	1,641,057	1,641,057
Regional Shopping Center	1,139.02	1,080.43	525.05	2,763,483	2,763,483
Total	29,556.46	34,954.80	28,350.09	55,615,724	55,615,724

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
Fast Food Restaurant w/o Drive Thru	9.50	7.80	7.80	1.50	79.50	19.00
Fast Food Restaurant with Drive Thru	9.50	7.80	7.80	2.20	78.80	19.00
Free-Standing Discount Superstore	9.50	7.80	7.80	13.20	67.80	19.00
Gasoline/Service Station	9.50	7.80	7.80	2.00	79.00	19.00
High Turnover (Sit Down Restaurant)	9.50	7.80	7.80	8.50	72.50	19.00
Regional Shopping Center	9.50	7.80	7.80	16.30	64.70	19.00

5.0 Energy Detail

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					
Fast Food Restaurant w/o Drive	9351.71	0.10	0.92	0.77	0.01		0.00	0.07		0.00	0.07		1,100.20		0.02	0.02	1,106.90
Fast Food Restaurant with	7983.16	0.09	0.78	0.66	0.00		0.00	0.06		0.00	0.06		939.20		0.02	0.02	944.91
Free-Standing Discount Superstore	1366.58	0.01	0.13	0.11	0.00		0.00	0.01		0.00	0.01		160.77		0.00	0.00	161.75
Gasoline/Service Station	154.511	0.00	0.02	0.01	0.00		0.00	0.00		0.00	0.00		18.18		0.00	0.00	18.29
High Turnover (Sit Down Restaurant)	6842.71	0.07	0.67	0.56	0.00		0.00	0.05		0.00	0.05		805.02		0.02	0.01	809.92
Regional Shopping Center	163.353	0.00	0.02	0.01	0.00		0.00	0.00		0.00	0.00		19.22		0.00	0.00	19.34
Total		**0.27**	**2.54**	**2.12**	**0.01**		**0.00**	**0.19**		**0.00**	**0.19**		**3,042.59**		**0.06**	**0.05**	**3,061.11**

6.0 Area Detail

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	1.74					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.43					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**7.17**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Redlands Crossing Center - Operation Customer and Workers 2010

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Southern California Edison
Climate Zone	10	**Precipitation Freq (Days)**	31		

1.3 User Entered Comments

Project Characteristics -

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	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
Mobile	209.00	189.01	1,992.45	1.74	213.22	6.18	219.40	2.85	6.04	8.89		177,280.73		14.47		177,584.64
Total	**216.45**	**191.55**	**1,994.58**	**1.76**	**213.22**	**6.18**	**219.59**	**2.85**	**6.04**	**9.08**		**180,323.32**		**14.53**	**0.06**	**180,645.75**

4.0 Mobile Detail

	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	209.00	189.01	1,992.45	1.74	213.22	6.18	219.40	2.85	6.04	8.89		177,280.73		14.47		177,584.64
Unmitigated	209.00	189.01	1,992.45	1.74	213.22	6.18	219.40	2.85	6.04	8.89		177,280.73		14.47		177,584.64
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
Fast Food Restaurant w/o Drive Thru	8,806.80	8,560.80	6848.64	11,532,694	11,532,694
Fast Food Restaurant with Drive Thru	5,209.26	7,581.32	5698.56	6,533,569	6,533,569
Free-Standing Discount Superstore	11,422.95	13,775.05	12065.80	31,196,442	31,196,442
Gasoline/Service Station	1,834.08	2,531.88	2025.48	1,948,479	1,948,479
High Turnover (Sit Down Restaurant)	1,144.35	1,425.33	1186.56	1,641,057	1,641,057
Regional Shopping Center	1,139.02	1,080.43	525.05	2,763,483	2,763,483
Total	29,556.46	34,954.80	28,350.09	55,615,724	55,615,724

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
Fast Food Restaurant w/o Drive Thru	9.50	7.80	7.80	1.50	79.50	19.00
Fast Food Restaurant with Drive Thru	9.50	7.80	7.80	2.20	78.80	19.00
Free-Standing Discount Superstore	9.50	7.80	7.80	13.20	67.80	19.00
Gasoline/Service Station	9.50	7.80	7.80	2.00	79.00	19.00
High Turnover (Sit Down Restaurant)	9.50	7.80	7.80	8.50	72.50	19.00
Regional Shopping Center	9.50	7.80	7.80	16.30	64.70	19.00

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	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
NaturalGas Unmitigated	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
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					
Fast Food Restaurant w/o Drive	9351.71	0.10	0.92	0.77	0.01		0.00	0.07		0.00	0.07		1,100.20		0.02	0.02	1,106.90
Fast Food Restaurant with	7983.16	0.09	0.78	0.66	0.00		0.00	0.06		0.00	0.06		939.20		0.02	0.02	944.91
Free-Standing Discount Superstore	1366.58	0.01	0.13	0.11	0.00		0.00	0.01		0.00	0.01		160.77		0.00	0.00	161.75
Gasoline/Service Station	154.511	0.00	0.02	0.01	0.00		0.00	0.00		0.00	0.00		18.18		0.00	0.00	18.29
High Turnover (Sit Down Restaurant)	6842.71	0.07	0.67	0.56	0.00		0.00	0.05		0.00	0.05		805.02		0.02	0.01	809.92
Regional Shopping Center	163.353	0.00	0.02	0.01	0.00		0.00	0.00		0.00	0.00		19.22		0.00	0.00	19.34
Total		**0.27**	**2.54**	**2.12**	**0.01**		**0.00**	**0.19**		**0.00**	**0.19**		**3,042.59**		**0.06**	**0.05**	**3,061.11**

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	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
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	1.74					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.43					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**7.17**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Redlands Crossing Center - Operation Customer and Workers 2013

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Southern California Edison
Climate Zone	10	**Precipitation Freq (Days)**	31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

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	1.31	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
Energy	0.05	0.46	0.39	0.00		0.00	0.04		0.00	0.04	0.00	2,090.27	2,090.27	0.08	0.04	2,103.28
Mobile	25.44	21.42	249.24	0.28	30.14	0.95	31.10	0.45	0.95	1.39	0.00	24,535.78	24,535.78	1.72	0.00	24,571.82
Waste						0.00	0.00		0.00	0.00	269.54	0.00	269.54	15.93	0.00	604.05
Water						0.00	0.00		0.00	0.00	0.00	19.32	19.32	0.10	0.00	22.28
Total	**26.80**	**21.88**	**249.63**	**0.28**	**30.14**	**0.95**	**31.14**	**0.45**	**0.95**	**1.43**	**269.54**	**26,645.37**	**26,914.91**	**17.83**	**0.04**	**27,301.43**

4.0 Mobile Detail

	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	25.44	21.42	249.24	0.28	30.14	0.95	31.10	0.45	0.95	1.39	0.00	24,535.78	24,535.78	1.72	0.00	24,571.82
Unmitigated	25.44	21.42	249.24	0.28	30.14	0.95	31.10	0.45	0.95	1.39	0.00	24,535.78	24,535.78	1.72	0.00	24,571.82
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
Fast Food Restaurant w/o Drive Thru	8,806.80	8,560.80	6848.64	11,532,694	11,532,694
Fast Food Restaurant with Drive Thru	5,209.26	7,581.32	5698.56	6,533,569	6,533,569
Free-Standing Discount Superstore	11,422.95	13,775.05	12065.80	31,196,442	31,196,442
Gasoline/Service Station	1,834.08	2,531.88	2025.48	1,948,479	1,948,479
High Turnover (Sit Down Restaurant)	1,144.35	1,425.33	1186.56	1,641,057	1,641,057
Regional Shopping Center	1,139.02	1,080.43	525.05	2,763,483	2,763,483
Total	29,556.46	34,954.80	28,350.09	55,615,724	55,615,724

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
Fast Food Restaurant w/o Drive Thru	9.50	7.80	7.80	1.50	79.50	19.00
Fast Food Restaurant with Drive Thru	9.50	7.80	7.80	2.20	78.80	19.00
Free-Standing Discount Superstore	9.50	7.80	7.80	13.20	67.80	19.00
Gasoline/Service Station	9.50	7.80	7.80	2.00	79.00	19.00
High Turnover (Sit Down Restaurant)	9.50	7.80	7.80	8.50	72.50	19.00
Regional Shopping Center	9.50	7.80	7.80	16.30	64.70	19.00

5.0 Energy Detail

	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	1,586.54	1,586.54	0.07	0.03	1,596.48
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	1,586.54	1,586.54	0.07	0.03	1,596.48
NaturalGas Mitigated	0.05	0.46	0.39	0.00		0.00	0.04		0.00	0.04	0.00	503.74	503.74	0.01	0.01	506.80
NaturalGas Unmitigated	0.05	0.46	0.39	0.00		0.00	0.04		0.00	0.04	0.00	503.74	503.74	0.01	0.01	506.80
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	tons/yr										MT/yr					
Fast Food Restaurant w/o Drive	3.41337e+006	0.02	0.17	0.14	0.00		0.00	0.01		0.00	0.01	0.00	182.15	182.15	0.00	0.00	183.26
Fast Food Restaurant with	2.91386e+006	0.02	0.14	0.12	0.00		0.00	0.01		0.00	0.01	0.00	155.49	155.49	0.00	0.00	156.44
Free-Standing Discount Superstore	498800	0.00	0.02	0.02	0.00		0.00	0.00		0.00	0.00	0.00	26.62	26.62	0.00	0.00	26.78
Gasoline/Service Station	56396.6	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	3.01	3.01	0.00	0.00	3.03
High Turnover (Sit Down Restaurant)	2.49759e+006	0.01	0.12	0.10	0.00		0.00	0.01		0.00	0.01	0.00	133.28	133.28	0.00	0.00	134.09
Regional Shopping Center	59624	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	3.18	3.18	0.00	0.00	3.20
Total		**0.05**	**0.45**	**0.38**	**0.00**		**0.00**	**0.03**		**0.00**	**0.03**	**0.00**	**503.73**	**503.73**	**0.00**	**0.00**	**506.80**

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			
Fast Food Restaurant w/o Drive	644520					187.47	0.01	0.00	188.65
Fast Food Restaurant with	550200					160.04	0.01	0.00	161.04
Free-Standing Discount Superstore	3.3669e+006					979.33	0.04	0.02	985.47
Gasoline/Service Station	18753.7					5.45	0.00	0.00	5.49
High Turnover (Sit Down Restaurant)	471600					137.17	0.01	0.00	138.03
Regional Shopping Center	402462					117.06	0.01	0.00	117.80
Total						**1,586.52**	**0.08**	**0.02**	**1,596.48**

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	1.31	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
Unmitigated	1.31	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
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	0.32					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.99					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	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
Total	**1.31**	**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**

7.0 Water Detail

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					19.32	0.10	0.00	22.28
Unmitigated					19.32	0.10	0.00	22.28
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			
Fast Food Restaurant w/o Drive	0.146468 / 0.0976454					0.87	0.00	0.00	1.01
Fast Food Restaurant with	0.125034 / 0.0833558					0.74	0.00	0.00	0.86
Free-Standing Discount Superstore	2.56021 / 1.70681					15.24	0.08	0.00	17.58
High Turnover (Sit Down Restaurant)	0.107172 / 0.0714478					0.64	0.00	0.00	0.74
Regional Shopping Center	0.306035 / 0.204023					1.82	0.01	0.00	2.10
Total						**19.31**	**0.09**	**0.00**	**22.29**

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					269.54	15.93	0.00	604.05
Unmitigated					269.54	15.93	0.00	604.05
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			
Fast Food Restaurant w/o Drive	141.68					28.76	1.70	0.00	64.45
Fast Food Restaurant with	120.95					24.55	1.45	0.00	55.02
Free-Standing Discount Superstore	924.65					187.70	11.09	0.00	420.64
Gasoline/Service Station	6.47					1.31	0.08	0.00	2.94
High Turnover (Sit Down Restaurant)	107.1					21.74	1.28	0.00	48.72
Regional Shopping Center	26.98					5.48	0.32	0.00	12.27
Total						**269.54**	**15.92**	**0.00**	**604.04**

Redlands Crossing Center - Operation Customer and Workers 2013

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

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	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
Mobile	167.24	130.78	1,567.10	1.90	213.22	6.08	219.29	2.85	6.05	8.90		182,736.06		11.69		182,981.54
Total	**174.69**	**133.32**	**1,569.23**	**1.92**	**213.22**	**6.08**	**219.48**	**2.85**	**6.05**	**9.09**		**185,778.65**		**11.75**	**0.06**	**186,042.65**

4.0 Mobile Detail

	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	167.24	130.78	1,567.10	1.90	213.22	6.08	219.29	2.85	6.05	8.90		182,736.06		11.69		182,981.54
Unmitigated	167.24	130.78	1,567.10	1.90	213.22	6.08	219.29	2.85	6.05	8.90		182,736.06		11.69		182,981.54
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
Fast Food Restaurant w/o Drive Thru	8,806.80	8,560.80	6848.64	11,532,694	11,532,694
Fast Food Restaurant with Drive Thru	5,209.26	7,581.32	5698.56	6,533,569	6,533,569
Free-Standing Discount Superstore	11,422.95	13,775.05	12065.80	31,196,442	31,196,442
Gasoline/Service Station	1,834.08	2,531.88	2025.48	1,948,479	1,948,479
High Turnover (Sit Down Restaurant)	1,144.35	1,425.33	1186.56	1,641,057	1,641,057
Regional Shopping Center	1,139.02	1,080.43	525.05	2,763,483	2,763,483
Total	29,556.46	34,954.80	28,350.09	55,615,724	55,615,724

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
Fast Food Restaurant w/o Drive Thru	9.50	7.80	7.80	1.50	79.50	19.00
Fast Food Restaurant with Drive Thru	9.50	7.80	7.80	2.20	78.80	19.00
Free-Standing Discount Superstore	9.50	7.80	7.80	13.20	67.80	19.00
Gasoline/Service Station	9.50	7.80	7.80	2.00	79.00	19.00
High Turnover (Sit Down Restaurant)	9.50	7.80	7.80	8.50	72.50	19.00
Regional Shopping Center	9.50	7.80	7.80	16.30	64.70	19.00

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	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
NaturalGas Unmitigated	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
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					
Fast Food Restaurant w/o Drive	9351.71	0.10	0.92	0.77	0.01		0.00	0.07		0.00	0.07		1,100.20		0.02	0.02	1,106.90
Fast Food Restaurant with	7983.16	0.09	0.78	0.66	0.00		0.00	0.06		0.00	0.06		939.20		0.02	0.02	944.91
Free-Standing Discount Superstore	1366.58	0.01	0.13	0.11	0.00		0.00	0.01		0.00	0.01		160.77		0.00	0.00	161.75
Gasoline/Service Station	154.511	0.00	0.02	0.01	0.00		0.00	0.00		0.00	0.00		18.18		0.00	0.00	18.29
High Turnover (Sit Down Restaurant)	6842.71	0.07	0.67	0.56	0.00		0.00	0.05		0.00	0.05		805.02		0.02	0.01	809.92
Regional Shopping Center	163.353	0.00	0.02	0.01	0.00		0.00	0.00		0.00	0.00		19.22		0.00	0.00	19.34
Total		**0.27**	**2.54**	**2.12**	**0.01**		**0.00**	**0.19**		**0.00**	**0.19**		**3,042.59**		**0.06**	**0.05**	**3,061.11**

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	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
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	1.74					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.43					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**7.17**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Redlands Crossing Center - Operation Customer and Workers 2013

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	10		2.2		
		Precipitation Freq (Days)			
			31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

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	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
Mobile	171.89	149.39	1,572.26	1.74	213.22	6.08	219.29	2.85	6.05	8.90		168,094.17		9.99		168,304.04
Total	**179.34**	**151.93**	**1,574.39**	**1.76**	**213.22**	**6.08**	**219.48**	**2.85**	**6.05**	**9.09**		**171,136.76**		**10.05**	**0.06**	**171,365.15**

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	171.89	149.39	1,572.26	1.74	213.22	6.08	219.29	2.85	6.05	8.90		168,094.17		9.99		168,304.04
Unmitigated	171.89	149.39	1,572.26	1.74	213.22	6.08	219.29	2.85	6.05	8.90		168,094.17		9.99		168,304.04
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
Fast Food Restaurant w/o Drive Thru	8,806.80	8,560.80	6848.64	11,532,694	11,532,694
Fast Food Restaurant with Drive Thru	5,209.26	7,581.32	5698.56	6,533,569	6,533,569
Free-Standing Discount Superstore	11,422.95	13,775.05	12065.80	31,196,442	31,196,442
Gasoline/Service Station	1,834.08	2,531.88	2025.48	1,948,479	1,948,479
High Turnover (Sit Down Restaurant)	1,144.35	1,425.33	1186.56	1,641,057	1,641,057
Regional Shopping Center	1,139.02	1,080.43	525.05	2,763,483	2,763,483
Total	29,556.46	34,954.80	28,350.09	55,615,724	55,615,724

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
Fast Food Restaurant w/o Drive Thru	9.50	7.80	7.80	1.50	79.50	19.00
Fast Food Restaurant with Drive Thru	9.50	7.80	7.80	2.20	78.80	19.00
Free-Standing Discount Superstore	9.50	7.80	7.80	13.20	67.80	19.00
Gasoline/Service Station	9.50	7.80	7.80	2.00	79.00	19.00
High Turnover (Sit Down Restaurant)	9.50	7.80	7.80	8.50	72.50	19.00
Regional Shopping Center	9.50	7.80	7.80	16.30	64.70	19.00

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	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
NaturalGas Unmitigated	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
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					
Fast Food Restaurant w/o Drive	9351.71	0.10	0.92	0.77	0.01		0.00	0.07		0.00	0.07		1,100.20		0.02	0.02	1,106.90
Fast Food Restaurant with	7983.16	0.09	0.78	0.66	0.00		0.00	0.06		0.00	0.06		939.20		0.02	0.02	944.91
Free-Standing Discount Superstore	1366.58	0.01	0.13	0.11	0.00		0.00	0.01		0.00	0.01		160.77		0.00	0.00	161.75
Gasoline/Service Station	154.511	0.00	0.02	0.01	0.00		0.00	0.00		0.00	0.00		18.18		0.00	0.00	18.29
High Turnover (Sit Down Restaurant)	6842.71	0.07	0.67	0.56	0.00		0.00	0.05		0.00	0.05		805.02		0.02	0.01	809.92
Regional Shopping Center	163.353	0.00	0.02	0.01	0.00		0.00	0.00		0.00	0.00		19.22		0.00	0.00	19.34
Total		**0.27**	**2.54**	**2.12**	**0.01**		**0.00**	**0.19**		**0.00**	**0.19**		**3,042.59**		**0.06**	**0.05**	**3,061.11**

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	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
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	1.74					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.43					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**7.17**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Redlands Crossing Center - Operation Customer and Workers 2020

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Southern California Edison
Climate Zone	10	**Precipitation Freq (Days)**	31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

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	1.31	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
Energy	0.05	0.46	0.39	0.00		0.00	0.04		0.00	0.04	0.00	2,090.27	2,090.27	0.08	0.04	2,103.28
Mobile	18.64	12.75	159.69	0.28	30.14	1.17	31.31	0.45	1.14	1.59	0.00	19,695.89	19,695.89	1.22	0.00	19,721.58
Waste						0.00	0.00		0.00	0.00	269.54	0.00	269.54	15.93	0.00	604.05
Water						0.00	0.00		0.00	0.00	0.00	19.32	19.32	0.10	0.00	22.28
Total	**20.00**	**13.21**	**160.08**	**0.28**	**30.14**	**1.17**	**31.35**	**0.45**	**1.14**	**1.63**	**269.54**	**21,805.48**	**22,075.02**	**17.33**	**0.04**	**22,451.19**

4.0 Mobile Detail

	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	18.64	12.75	159.69	0.28	30.14	1.17	31.31	0.45	1.14	1.59	0.00	19,695.89	19,695.89	1.22	0.00	19,721.58
Unmitigated	18.64	12.75	159.69	0.28	30.14	1.17	31.31	0.45	1.14	1.59	0.00	19,695.89	19,695.89	1.22	0.00	19,721.58
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
Fast Food Restaurant w/o Drive Thru	8,806.80	8,560.80	6848.64	11,532,694	11,532,694
Fast Food Restaurant with Drive Thru	5,209.26	7,581.32	5698.56	6,533,569	6,533,569
Free-Standing Discount Superstore	11,422.95	13,775.05	12065.80	31,196,442	31,196,442
Gasoline/Service Station	1,834.08	2,531.88	2025.48	1,948,479	1,948,479
High Turnover (Sit Down Restaurant)	1,144.35	1,425.33	1186.56	1,641,057	1,641,057
Regional Shopping Center	1,139.02	1,080.43	525.05	2,763,483	2,763,483
Total	29,556.46	34,954.80	28,350.09	55,615,724	55,615,724

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
Fast Food Restaurant w/o Drive Thru	9.50	7.80	7.80	1.50	79.50	19.00
Fast Food Restaurant with Drive Thru	9.50	7.80	7.80	2.20	78.80	19.00
Free-Standing Discount Superstore	9.50	7.80	7.80	13.20	67.80	19.00
Gasoline/Service Station	9.50	7.80	7.80	2.00	79.00	19.00
High Turnover (Sit Down Restaurant)	9.50	7.80	7.80	8.50	72.50	19.00
Regional Shopping Center	9.50	7.80	7.80	16.30	64.70	19.00

5.0 Energy Detail

	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	1,586.54	1,586.54	0.07	0.03	1,596.48
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	1,586.54	1,586.54	0.07	0.03	1,596.48
NaturalGas Mitigated	0.05	0.46	0.39	0.00		0.00	0.04		0.00	0.04	0.00	503.74	503.74	0.01	0.01	506.80
NaturalGas Unmitigated	0.05	0.46	0.39	0.00		0.00	0.04		0.00	0.04	0.00	503.74	503.74	0.01	0.01	506.80
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	tons/yr										MT/yr					
Fast Food Restaurant w/o Drive	3.41337e+006	0.02	0.17	0.14	0.00		0.00	0.01		0.00	0.01	0.00	182.15	182.15	0.00	0.00	183.26
Fast Food Restaurant with	2.91386e+006	0.02	0.14	0.12	0.00		0.00	0.01		0.00	0.01	0.00	155.49	155.49	0.00	0.00	156.44
Free-Standing Discount Superstore	498800	0.00	0.02	0.02	0.00		0.00	0.00		0.00	0.00	0.00	26.62	26.62	0.00	0.00	26.78
Gasoline/Service Station	56396.6	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	3.01	3.01	0.00	0.00	3.03
High Turnover (Sit Down Restaurant)	2.49759e+006	0.01	0.12	0.10	0.00		0.00	0.01		0.00	0.01	0.00	133.28	133.28	0.00	0.00	134.09
Regional Shopping Center	59624	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	3.18	3.18	0.00	0.00	3.20
Total		**0.05**	**0.45**	**0.38**	**0.00**		**0.00**	**0.03**		**0.00**	**0.03**	**0.00**	**503.73**	**503.73**	**0.00**	**0.00**	**506.80**

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			
Fast Food Restaurant w/o Drive	644520					187.47	0.01	0.00	188.65
Fast Food Restaurant with	550200					160.04	0.01	0.00	161.04
Free-Standing Discount Superstore	3.3669e+006					979.33	0.04	0.02	985.47
Gasoline/Service Station	18753.7					5.45	0.00	0.00	5.49
High Turnover (Sit Down Restaurant)	471600					137.17	0.01	0.00	138.03
Regional Shopping Center	402462					117.06	0.01	0.00	117.80
Total						**1,586.52**	**0.08**	**0.02**	**1,596.48**

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	1.31	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
Unmitigated	1.31	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
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	0.32					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.99					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	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
Total	**1.31**	**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**

7.0 Water Detail

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					19.32	0.10	0.00	22.28
Unmitigated					19.32	0.10	0.00	22.28
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			
Fast Food Restaurant w/o Drive	0.146468 / 0.0976454					0.87	0.00	0.00	1.01
Fast Food Restaurant with	0.125034 / 0.0833558					0.74	0.00	0.00	0.86
Free-Standing Discount Superstore	2.56021 / 1.70681					15.24	0.08	0.00	17.58
High Turnover (Sit Down Restaurant)	0.107172 / 0.0714478					0.64	0.00	0.00	0.74
Regional Shopping Center	0.306035 / 0.204023					1.82	0.01	0.00	2.10
Total						**19.31**	**0.09**	**0.00**	**22.29**

8.0 Waste Detail

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			
Fast Food Restaurant w/o Drive	141.68					28.76	1.70	0.00	64.45
Fast Food Restaurant with	120.95					24.55	1.45	0.00	55.02
Free-Standing Discount Superstore	924.65					187.70	11.09	0.00	420.64
Gasoline/Service Station	6.47					1.31	0.08	0.00	2.94
High Turnover (Sit Down Restaurant)	107.1					21.74	1.28	0.00	48.72
Regional Shopping Center	26.98					5.48	0.32	0.00	12.27
Total						**269.54**	**15.92**	**0.00**	**604.04**

Redlands Crossing Center - Operation Customer and Workers 2030

South Coast Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Southern California Edison
Climate Zone	10	**Precipitation Freq (Days)**	31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

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	1.31	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
Energy	0.05	0.46	0.39	0.00		0.00	0.04		0.00	0.04	0.00	2,090.27	2,090.27	0.08	0.04	2,103.28
Mobile	14.49	7.44	112.43	0.28	30.14	1.16	31.30	0.45	1.14	1.58	0.00	17,579.31	17,579.31	0.90	0.00	17,598.23
Waste						0.00	0.00		0.00	0.00	269.54	0.00	269.54	15.93	0.00	604.05
Water						0.00	0.00		0.00	0.00	0.00	19.32	19.32	0.10	0.00	22.28
Total	**15.85**	**7.90**	**112.82**	**0.28**	**30.14**	**1.16**	**31.34**	**0.45**	**1.14**	**1.62**	**269.54**	**19,688.90**	**19,958.44**	**17.01**	**0.04**	**20,327.84**

4.0 Mobile Detail

	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	14.49	7.44	112.43	0.28	30.14	1.16	31.30	0.45	1.14	1.58	0.00	17,579.31	17,579.31	0.90	0.00	17,598.23
Unmitigated	14.49	7.44	112.43	0.28	30.14	1.16	31.30	0.45	1.14	1.58	0.00	17,579.31	17,579.31	0.90	0.00	17,598.23
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
Fast Food Restaurant w/o Drive Thru	8,806.80	8,560.80	6848.64	11,532,694	11,532,694
Fast Food Restaurant with Drive Thru	5,209.26	7,581.32	5698.56	6,533,569	6,533,569
Free-Standing Discount Superstore	11,422.95	13,775.05	12065.80	31,196,442	31,196,442
Gasoline/Service Station	1,834.08	2,531.88	2025.48	1,948,479	1,948,479
High Turnover (Sit Down Restaurant)	1,144.35	1,425.33	1186.56	1,641,057	1,641,057
Regional Shopping Center	1,139.02	1,080.43	525.05	2,763,483	2,763,483
Total	29,556.46	34,954.80	28,350.09	55,615,724	55,615,724

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
Fast Food Restaurant w/o Drive Thru	9.50	7.80	7.80	1.50	79.50	19.00
Fast Food Restaurant with Drive Thru	9.50	7.80	7.80	2.20	78.80	19.00
Free-Standing Discount Superstore	9.50	7.80	7.80	13.20	67.80	19.00
Gasoline/Service Station	9.50	7.80	7.80	2.00	79.00	19.00
High Turnover (Sit Down Restaurant)	9.50	7.80	7.80	8.50	72.50	19.00
Regional Shopping Center	9.50	7.80	7.80	16.30	64.70	19.00

5.0 Energy Detail

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	tons/yr										MT/yr					
Fast Food Restaurant w/o	3.41337e+006	0.02	0.17	0.14	0.00		0.00	0.01		0.00	0.01	0.00	182.15	182.15	0.00	0.00	183.26
Fast Food Restaurant with	2.91386e+006	0.02	0.14	0.12	0.00		0.00	0.01		0.00	0.01	0.00	155.49	155.49	0.00	0.00	156.44
Free-Standing Discount Superstore	498800	0.00	0.02	0.02	0.00		0.00	0.00		0.00	0.00	0.00	26.62	26.62	0.00	0.00	26.78
Gasoline/Service Station	56396.6	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	3.01	3.01	0.00	0.00	3.03
High Turnover (Sit Down Restaurant)	2.49759e+006	0.01	0.12	0.10	0.00		0.00	0.01		0.00	0.01	0.00	133.28	133.28	0.00	0.00	134.09
Regional Shopping Center	59624	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	3.18	3.18	0.00	0.00	3.20
Total		**0.05**	**0.45**	**0.38**	**0.00**		**0.00**	**0.03**		**0.00**	**0.03**	**0.00**	**503.73**	**503.73**	**0.00**	**0.00**	**506.80**

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			
Fast Food Restaurant w/o	644520					187.47	0.01	0.00	188.65
Fast Food Restaurant with	550200					160.04	0.01	0.00	161.04
Free-Standing Discount Superstore	3.3669e+006					979.33	0.04	0.02	985.47
Gasoline/Service Station	18753.7					5.45	0.00	0.00	5.49
High Turnover (Sit Down Restaurant)	471600					137.17	0.01	0.00	138.03
Regional Shopping Center	402462					117.06	0.01	0.00	117.80
Total						**1,586.52**	**0.08**	**0.02**	**1,596.48**

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	1.31	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
Unmitigated	1.31	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
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	0.32					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.99					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	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
Total	**1.31**	**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**

7.0 Water Detail

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			
Fast Food Restaurant w/o	0.146468 / 0.0976454					0.87	0.00	0.00	1.01
Fast Food Restaurant with	0.125034 / 0.0833558					0.74	0.00	0.00	0.86
Free-Standing Discount Superstore	2.56021 / 1.70681					15.24	0.08	0.00	17.58
High Turnover (Sit Down Restaurant)	0.107172 / 0.0714478					0.64	0.00	0.00	0.74
Regional Shopping Center	0.306035 / 0.204023					1.82	0.01	0.00	2.10
Total						**19.31**	**0.09**	**0.00**	**22.29**

8.0 Waste Detail

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			
Fast Food Restaurant w/o	141.68					28.76	1.70	0.00	64.45
Fast Food Restaurant with	120.95					24.55	1.45	0.00	55.02
Free-Standing Discount Superstore	924.65					187.70	11.09	0.00	420.64
Gasoline/Service Station	6.47					1.31	0.08	0.00	2.94
High Turnover (Sit Down Restaurant)	107.1					21.74	1.28	0.00	48.72
Regional Shopping Center	26.98					5.48	0.32	0.00	12.27
Total						**269.54**	**15.92**	**0.00**	**604.04**

Redlands Crossing Center - Operation Customer and Workers 2030

South Coast Air Basin, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Southern California Edison
Climate Zone	10	**Precipitation Freq (Days)**	31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

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	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
Mobile	97.61	46.16	713.49	1.88	213.22	7.41	220.63	2.85	7.26	10.11		131,168.62		6.81		131,311.61
Total	**105.06**	**48.70**	**715.62**	**1.90**	**213.22**	**7.41**	**220.82**	**2.85**	**7.26**	**10.30**		**134,211.21**		**6.87**	**0.06**	**134,372.72**

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	97.61	46.16	713.49	1.88	213.22	7.41	220.63	2.85	7.26	10.11		131,168.62		6.81		131,311.61
Unmitigated	97.61	46.16	713.49	1.88	213.22	7.41	220.63	2.85	7.26	10.11		131,168.62		6.81		131,311.61
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
Fast Food Restaurant w/o Drive Thru	8,806.80	8,560.80	6848.64	11,532,694	11,532,694
Fast Food Restaurant with Drive Thru	5,209.26	7,581.32	5698.56	6,533,569	6,533,569
Free-Standing Discount Superstore	11,422.95	13,775.05	12065.80	31,196,442	31,196,442
Gasoline/Service Station	1,834.08	2,531.88	2025.48	1,948,479	1,948,479
High Turnover (Sit Down Restaurant)	1,144.35	1,425.33	1186.56	1,641,057	1,641,057
Regional Shopping Center	1,139.02	1,080.43	525.05	2,763,483	2,763,483
Total	29,556.46	34,954.80	28,350.09	55,615,724	55,615,724

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
Fast Food Restaurant w/o Drive Thru	9.50	7.80	7.80	1.50	79.50	19.00
Fast Food Restaurant with Drive Thru	9.50	7.80	7.80	2.20	78.80	19.00
Free-Standing Discount Superstore	9.50	7.80	7.80	13.20	67.80	19.00
Gasoline/Service Station	9.50	7.80	7.80	2.00	79.00	19.00
High Turnover (Sit Down Restaurant)	9.50	7.80	7.80	8.50	72.50	19.00
Regional Shopping Center	9.50	7.80	7.80	16.30	64.70	19.00

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	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
NaturalGas Unmitigated	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
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					
Fast Food Restaurant w/o Drive	9351.71	0.10	0.92	0.77	0.01		0.00	0.07		0.00	0.07		1,100.20		0.02	0.02	1,106.90
Fast Food Restaurant with	7983.16	0.09	0.78	0.66	0.00		0.00	0.06		0.00	0.06		939.20		0.02	0.02	944.91
Free-Standing Discount Superstore	1366.58	0.01	0.13	0.11	0.00		0.00	0.01		0.00	0.01		160.77		0.00	0.00	161.75
Gasoline/Service Station	154.511	0.00	0.02	0.01	0.00		0.00	0.00		0.00	0.00		18.18		0.00	0.00	18.29
High Turnover (Sit Down Restaurant)	6842.71	0.07	0.67	0.56	0.00		0.00	0.05		0.00	0.05		805.02		0.02	0.01	809.92
Regional Shopping Center	163.353	0.00	0.02	0.01	0.00		0.00	0.00		0.00	0.00		19.22		0.00	0.00	19.34
Total		**0.27**	**2.54**	**2.12**	**0.01**		**0.00**	**0.19**		**0.00**	**0.19**		**3,042.59**		**0.06**	**0.05**	**3,061.11**

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	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
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	1.74					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.43					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**7.17**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Redlands Crossing Center - Operation Customer and Workers 2030

South Coast Air Basin, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Fast Food Restaurant w/o Drive Thru	12.3	1000sqft
Fast Food Restaurant with Drive Thru	10.5	1000sqft
High Turnover (Sit Down Restaurant)	9	1000sqft
Free-Standing Discount Superstore	215	1000sqft
Gasoline/Service Station	12	Pump
Regional Shopping Center	25.7	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Utility Company**	Southern California Edison
Climate Zone	10	**Precipitation Freq (Days)**	31		

1.3 User Entered Comments

Project Characteristics -

Land Use - -

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	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Energy	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
Mobile	98.00	52.63	707.66	1.72	213.22	7.41	220.63	2.85	7.26	10.11		120,338.81		6.30		120,471.05
Total	**105.45**	**55.17**	**709.79**	**1.74**	**213.22**	**7.41**	**220.82**	**2.85**	**7.26**	**10.30**		**123,381.40**		**6.36**	**0.06**	**123,532.16**

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	98.00	52.63	707.66	1.72	213.22	7.41	220.63	2.85	7.26	10.11		120,338.81		6.30		120,471.05
Unmitigated	98.00	52.63	707.66	1.72	213.22	7.41	220.63	2.85	7.26	10.11		120,338.81		6.30		120,471.05
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
Fast Food Restaurant w/o Drive Thru	8,806.80	8,560.80	6848.64	11,532,694	11,532,694
Fast Food Restaurant with Drive Thru	5,209.26	7,581.32	5698.56	6,533,569	6,533,569
Free-Standing Discount Superstore	11,422.95	13,775.05	12065.80	31,196,442	31,196,442
Gasoline/Service Station	1,834.08	2,531.88	2025.48	1,948,479	1,948,479
High Turnover (Sit Down Restaurant)	1,144.35	1,425.33	1186.56	1,641,057	1,641,057
Regional Shopping Center	1,139.02	1,080.43	525.05	2,763,483	2,763,483
Total	29,556.46	34,954.80	28,350.09	55,615,724	55,615,724

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
Fast Food Restaurant w/o Drive Thru	9.50	7.80	7.80	1.50	79.50	19.00
Fast Food Restaurant with Drive Thru	9.50	7.80	7.80	2.20	78.80	19.00
Free-Standing Discount Superstore	9.50	7.80	7.80	13.20	67.80	19.00
Gasoline/Service Station	9.50	7.80	7.80	2.00	79.00	19.00
High Turnover (Sit Down Restaurant)	9.50	7.80	7.80	8.50	72.50	19.00
Regional Shopping Center	9.50	7.80	7.80	16.30	64.70	19.00

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	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
NaturalGas Unmitigated	0.28	2.54	2.13	0.02		0.00	0.19		0.00	0.19		3,042.59		0.06	0.06	3,061.11
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					
Fast Food Restaurant w/o Drive	9351.71	0.10	0.92	0.77	0.01		0.00	0.07		0.00	0.07		1,100.20		0.02	0.02	1,106.90
Fast Food Restaurant with	7983.16	0.09	0.78	0.66	0.00		0.00	0.06		0.00	0.06		939.20		0.02	0.02	944.91
Free-Standing Discount Superstore	1366.58	0.01	0.13	0.11	0.00		0.00	0.01		0.00	0.01		160.77		0.00	0.00	161.75
Gasoline/Service Station	154.511	0.00	0.02	0.01	0.00		0.00	0.00		0.00	0.00		18.18		0.00	0.00	18.29
High Turnover (Sit Down Restaurant)	6842.71	0.07	0.67	0.56	0.00		0.00	0.05		0.00	0.05		805.02		0.02	0.01	809.92
Regional Shopping Center	163.353	0.00	0.02	0.01	0.00		0.00	0.00		0.00	0.00		19.22		0.00	0.00	19.34
Total		**0.27**	**2.54**	**2.12**	**0.01**		**0.00**	**0.19**		**0.00**	**0.19**		**3,042.59**		**0.06**	**0.05**	**3,061.11**

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	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Unmitigated	7.17	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
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	1.74					0.00	0.00		0.00	0.00						0.00
Consumer Products	5.43					0.00	0.00		0.00	0.00						0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00		0.00		0.00		0.00
Total	**7.17**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**		**0.00**		**0.00**		**0.00**

Air Conditioning Fugitive Emissions

Project: Redlands Crossing
Prepared by: Michael Brandman Associates
Prepared on: 28-Sep-11

Type of Unit	Units	Capacity of Unit (pounds)	Capacity of Unit (kg)	Annual Leak Rate in percent of capacity	Emissions (kg/year)	Emissions (tons/year)	Global Warming Potential (R410a)	MTCO2e per year
Without Regulations								
Packaged chiller air conditioning (medium)	55.0	526	239	7%	919	1.01	1725	1,581
Total						**1.01**		**1,581**
With Regulation and Mitigation								
Packaged chiller air conditioning (medium)	55.0	526	239	4%	459	0.51	1725	791
Total						**0.51**		**791**
							Reduction from Regulations	50.0%

Sources:
- U.S. Environmental Protection Agency, Climate Leaders. May 2008. Direct HFC and PFC Emissions from Use of Refrigeration and Air Conditioning Equipment. EPA430-K-03-004. http://www.epa.gov/stateply/documents/resources/mfgrfg.pdf
- California Air Resources Board. Appendix B, California Facilities and Greenhouse Gas Emissions Inventory - High-Global Warming Potential Stationary Source Refrigerant Management Program. www.arb.ca.gov/cc/reftrack/APPENDIX_B_10_22_.pdf
- With regulation refers to a change in the annual leak rate pursuant to California Air Resources Board Stationary Equipment Refrigerant Management Program. http://www.arb.ca.gov/cc/reftrack/reftrack.htm
- Source of number of units: It was assumed that there would be one HVAC unit per 5,000 square feet.
- Source of global warming potential: http://www.engineeringtoolbox.com/Refrigerants-Environment-Properties-d_1220.html and http://www.engineeringtoolbox.com/refrigerants-properties-d_145.html

tors and Freezers: Installation (Construction Related Emissions)

Redlands Crossing
Michael Brandman Associates
28-Sep-11

Number	Doors	R = Refrigerator F = Freezer	Manufacturer	Model	Refrigerant Charge/unit (lbs)	Total Charge (kg)	Installation Emission Factor (% of capacity)	Emissions (kg/year)	Emissions (tons/year)	Global Warming Potential (R404a)	Metric Tons CO2 Equiv./year
6	3	R	HUSSMANN	RM3	3.2	8.6	3%	1.6	0.002	3785	6
10	4	R	HUSSMANN	RM4	4.1	18.5	3%	5.5	0.006	3785	21
20	5	R	HUSSMANN	RM5	5.1	45.9	3%	27.5	0.030	3785	104
16		F (open top)	HUSSMANN	?	5.1	36.7	3%	17.6	0.019	3785	67
18		R (open door)	HUSSMANN	?	5.1	41.3	3%	22.3	0.025	3785	84
7		F (for meat)	HILL PHOENIX	OHMH12	5.1	16.1	3%	3.4	0.004	3785	13
14		R (lunch meat, etc)	HILL PHOENIX	O5DM12	5.1	32.1	3%	13.5	0.015	3785	51
4		R (behind deli)	?	?	5.1	9.2	3%	1.1	0.001	3785	4
6		R (in deli)	TYLER	?	5.1	13.8	3%	2.5	0.003	3785	9
2		R (cakes)	KYSOR	?	5.1	4.6	3%	0.3	0.000	3785	1
4		R (beer)	KYSOR-WARREN	?	5.1	9.2	3%	1.1	0.001	3785	4
10		R (produce)	TYLER	N6DL12	5.1	23.0	3%	6.9	0.008	3785	26
1	Pipes and Compressors, estimation				3000	1350.0	3%	40.5	0.045	3785	153
Subtotal					**3058.3**	**1608.9**	**0.4**	**143.8**	**0.158**		**543**

Refrigerators and Freezers: Operating Emissions (Business as Usual)

Project: Redlands Crossing
Prepared by: Michael Brandman Associates
Prepared on: 28-Sep-11

Store	Number	Doors	R = Refrigerator F = Freezer	Manufacturer	Model	Refrigerant Charge/unit (lbs)	Total Charge (kg)	Annual Leak Rate in percent of capacity	Emissions (kg/year)	Emissions (tons/year)	Global Warming Potential (R404a)	Metric Tons CO2 Equiv./year
Walmart	6	3	R	HUSSMANN	RM3	3.2	8.6	21%	10.9	0.012	3785	41
	10	4	R	HUSSMANN	RM4	4.1	18.5	21%	38.7	0.043	3785	146
	20	5	R	HUSSMANN	RM5	5.1	45.9	21%	192.8	0.212	3785	728
	16		F (open top)	HUSSMANN	?	5.1	36.7	21%	123.4	0.136	3785	466
	18		R (open door)	HUSSMANN	?	5.1	41.3	21%	156.2	0.172	3785	590
	7		F (for meat)	HILL PHOENIX	OHMH12	5.1	16.1	21%	23.6	0.026	3785	89
	14		R (lunch meat, etc)	HILL PHOENIX	O5DM12	5.1	32.1	21%	94.5	0.104	3785	357
	4		R (behind deli)	?	?	5.1	9.2	21%	7.7	0.008	3785	29
	6		R (in deli)	TYLER	?	5.1	13.8	21%	17.4	0.019	3785	66
	2		R (cakes)	KYSOR	?	5.1	4.6	21%	1.9	0.002	3785	7
	4		R (beer)	KYSOR-WARREN	?	5.1	9.2	21%	7.7	0.008	3785	29
	10		R (produce)	TYLER	N6DL12	5.1	23.0	21%	48.2	0.053	3785	182
	1	Pipes and Compressors, estimation				3000	1350.0	21%	283.5	0.312	3785	1,071
	Subtotal					**3058.3**	**1608.9**		**1006.4**	**1.107**		**3,801**
Parcel 2: Fast food restaurant							35	21%	7.4	0.008	3785	28
Parcel 5: Food court							70	21%	14.7	0.016	3785	56
Parcel 7: Restaurant							35	21%	7.4	0.008	3785	28
Parcel 8: Fast food restaurant							35	21%	7.4	0.008	3785	28
Parcel 9: Fast food restaurant							35	21%	7.4	0.008	3785	28
	Subtotal											**167**

Estimation methodology:
- U.S. Environmental Protection Agency, Climate Leaders. May 2008. Direct HFC and PFC Emissions from Use of Refrigeration and Air Conditioning Equipment. EPA430-K-03-004. http://www.epa.gov/stateply/documents/resources/mfgrfg.pdf, Accessed in July 2008.
- HUSSMANN refrigerant charge for RM models:
HUSSMANN RM with INNOVATOR Doors Technical Data Sheet P/N 0425645_H, July 2007. www.hussmann.com/docs/data_shts/impact/0425645_H_RMi.pdf
- HUSSMANN refrigerant charge for RL models:
HUSSMANN, RL with INNOVATOR II No Heat Doors, Technical Data Sheet P/N 0440999_G, May 2008.
http://www.hussmann.com/docs/data_shts/impact/0440999_G_RLii.pdf
- The highlighted items are assumed to have a refrigerant charge is assumed to be 5.1 per unit, which is the maximum observed in the HUSSMANN units. It is unknown how many produce units there would be; therefore, this number is estimated.
- It is assumed that there are emissions associated with the pipes that run from the racks (the refrigeration units) to a separate room that contains the compressors. It is also assumed that there are emissions associated with the compressors. The exact charge in the copper wires and pipes is unknown at this time; however, an industry specialist indicated that the charge can range from 1500 to 3000 pounds per store (personal communication, July 9, 2009)
- Inventory from a Wal-Mart store located in Beaumont, California.
- Global warming potential for the refrigerant is from: Forane 404a technical data sheet, April 2006, www.arkema-inc.com/tds/451.pdf
- The charge for the fast food restaurants, restaurant, and food court is from The Worlds First HFC-free McDonald's restaurant. 2004. Website:
http://www.unep.fr/ozonaction/information/mmcfiles/4256-e-mcdonalds.pdf

Refrigerators and Freezers: Operating Emissions (with Regulation)

Project: Redlands Crossing
Prepared by: Michael Brandman Associates
Prepared on: 28-Sep-11

Store	Number	Doors	R = Refrigerator F = Freezer	Manufacturer	Model	Refrigerant Charge/unit (lbs)	Total Charge (kg)	Annual Leak Rate in percent of capacity	Emissions (kg/year)	Emissions (tons/year)	Global Warming Potential (R404a)	Metric Tons CO2 Equiv./year
Walmart	6	3	R	HUSSMANN	RM3	3.2	8.6	10%	5.2	0.006	3785	20
	10	4	R	HUSSMANN	RM4	4.1	18.5	10%	18.5	0.020	3785	70
	20	5	R	HUSSMANN	RM5	5.1	45.9	10%	91.8	0.101	3785	347
	16		F (open top)	HUSSMANN	?	5.1	36.7	10%	58.8	0.065	3785	222
	18		R (open door)	HUSSMANN	?	5.1	41.3	10%	74.4	0.082	3785	281
	7		F (for meat)	HILL PHOENIX	OHMH12	5.1	16.1	10%	11.2	0.012	3785	42
	14		R (lunch meat, etc)	HILL PHOENIX	O5DM12	5.1	32.1	10%	45.0	0.049	3785	170
	4		R (behind deli)	?	?	5.1	9.2	10%	3.7	0.004	3785	14
	6		R (in deli)	TYLER	?	5.1	13.8	10%	8.3	0.009	3785	31
	2		R (cakes)	KYSOR	?	5.1	4.6	10%	0.9	0.001	3785	3
	4		R (beer)	KYSOR-WARREN	?	5.1	9.2	10%	3.7	0.004	3785	14
	10		R (produce)	TYLER	N6DL12	5.1	23.0	10%	23.0	0.025	3785	87
	1	Pipes and Compressors, estimation				3000	1350.0	10%	135.0	0.149	3785	510
	Subtotal					**3058.3**	**1608.9**		**479.2**	**0.527**		**1,810**
											Business as usual	**3,801**
											Reduction from business as usual	**52.4%**
Parcel 2: Fast food restaurant							35	10%	3.5	0.004	3785	13
Parcel 5: Food court							70	10%	7.0	0.008	3785	26
Parcel 7: Restaurant							35	10%	3.5	0.004	3785	13
Parcel 8: Fast food restaurant							35	10%	3.5	0.004	3785	13
Parcel 9: Fast food restaurant							35	10%	3.5	0.004	3785	13
	Subtotal											**79**
											Business as usual	**167**
											Reduction from business as usual	**52.4%**

Note that the annual leak rate is 10 percent, while in the business as usual scenario the leak rate is 21 percent. This is due to regulations from Table 8 (for centralized refrigeration systems) from the following source: California Air Resources Board. 2009. Appendix B - California Facilities and Greenhouse Gas Emissions Inventory – High-Global Warming Potential Stationary Source Refrigerant Management Program. October 23. Available at: http://www.arb.ca.gov/regact/2009/gwprmp09/refappb.pdf

Appendix B: Localized Analysis Spreadsheets and Output

Appendix C:
Health Risk Assessment Spreadsheets and Output

Emission Assumptions **CO** Emissions
Redlands Crossing

Facility Operations

Basecase 2010

Emission Factors

1) Onsite Vehicle Emissions

a) Truck
(1) EMFAC2007
(a) Annual Meteorology
Temperature: 65 degF
Relative Humidity: 50%
(b) Calculations for SCAQMD
(c) Truck Mix
4+ axle heavy-heavy duty diesel trucks (HHDT)
2 axle diesel trucks (LHDT2)
(d) Onsite Truck and Customer Travel Spee 10 mph
(e) Idle speed: 0 mph
(e) Truck Idle time: 15 minutes per truck per day

(f) Idle time for customer vehicles: 1 min per day per vehicle
b) Truck TRU
(1) Emission factors derived from CARB 2003 ISOR ATCM for TRUs, Appendix D, Attachment A
(2) TRU size: 35 hp
(3) Cooling time: 0.5 hr/day
(4) Load Factor: 60 %
(5) On/off Cycle Factor 50 %
(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet
(b) Truck Operational Schedule of "Big Box" 24 hours/day
(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day
(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission: CO**

Processes Modeled **Basecase 2010**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips		
Wal-Mart (Parcel 14)	4+ axle	5	10	2	4	7	14		
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14		
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4		
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2		
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2		
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2		
Parcel 5 (Food Court A and B)	4+ axle	0	0	2	4	2	4		
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2		
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2		
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2		
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2		
Total		**16**	**32**	**9**	**18**	**25**	**50**	**4**	**16**
								2	14
Facility Operations:							22		
Wal-Mart	24 **hrs/day, 52weeks/year**								
All others	12 **hrs/day, 52weeks/year**								

Emission Factors

Vehicle Class	Exhaust @ 10 mph (g/mi)	Idle (g/hr)
4+ axle	13.794	48.278
2 axle	2.393	26.3

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	4.55	4.55	<-----Fleet Average for SCAQMD in 2010 from OFFROAD2007

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Max Hourly Emissions Over Link (g/sec)	Max Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (lb/yr)	Annual Ave Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	13.794	14	375	0.23	4.50E+01	8.93E-04	9.91E-02	3.62E+01	1.81E-02
Wal-Mart (Parcel 14)	2 axle	2.393	14	375	0.23	7.80E+00	1.55E-04	1.72E-02	6.27E+00	3.14E-03
Parcel 1 (Retail1)	4+ axle	13.794	4	89	0.06	3.05E+00	2.12E-04	6.72E-03	2.45E+00	1.23E-03
Parcel 2 (Fast Food1)	4+ axle	13.794	2	143	0.09	2.45E+00	3.40E-04	5.40E-03	1.97E+00	9.85E-04
Parcel 3 (Retail2)	2 axle	2.393	2	157	0.10	4.67E-01	6.48E-05	1.03E-03	3.75E-01	1.88E-04
Parcel 4 (Retail3)	2 axle	2.393	2	183	0.11	5.44E-01	7.56E-05	1.20E-03	4.37E-01	2.19E-04
Parcel 5 (Fast Food/Retail)	4+ axle	13.794	4	172	0.11	5.90E+00	4.09E-04	1.30E-02	4.74E+00	2.37E-03
Parcel 6 (Retail4)	2 axle	2.393	2	95	0.06	2.82E-01	3.92E-05	6.22E-04	2.27E-01	1.14E-04
Parcel 7 (Restaurant1)	4+ axle	13.794	2	91	0.06	1.56E+00	2.17E-04	3.44E-03	1.25E+00	6.27E-04
Parcel 8 (Fast Food2)	4+ axle	13.794	2	90	0.06	1.54E+00	2.14E-04	3.40E-03	1.24E+00	6.20E-04
Parcel 9 (Fast Food 3)	4+ axle	13.794	2	60	0.04	1.03E+00	1.43E-04	2.26E-03	8.27E-01	4.13E-04
			50							
Total						**6.96E+01**	**2.76E-03**	**1.53E-01**	**5.60E+01**	**2.80E-02**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Release Height Above Ground (m)	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Total Daily Emissions (lbs/day)	Total Emissions (lbs/yr)	Total Emissions (tons/yr)	Annual Average Emssions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	48.278	15	7	4.15	84.49	3.35E-03	1.86E-01	6.79E+01	3.40E-02	9.78E-04
Wal-Mart (Parcel 14)	2 axle	26.3	15	7	4.15	46.03	1.83E-03	1.01E-01	3.70E+01	1.85E-02	5.33E-04
Parcel 1 (Retail1)	4+ axle	48.278	15	2	4.15	24.14	3.35E-03	5.32E-02	1.94E+01	9.70E-03	5.59E-04
Parcel 2 (Fast Food1)	4+ axle	48.278	15	1	4.15	12.07	3.35E-03	2.66E-02	9.70E+00	4.85E-03	2.79E-04
Parcel 3 (Retail2)	2 axle	26.3	15	1	4.15	6.58	1.83E-03	1.45E-02	5.29E+00	2.64E-03	1.52E-04
Parcel 4 (Retail3)	2 axle	26.3	15	1	4.15	6.58	1.83E-03	1.45E-02	5.29E+00	2.64E-03	1.52E-04
Parcel 5 (Fast Food/Retail)	4+ axle	48.278	15	2	4.15	24.14	3.35E-03	5.32E-02	1.94E+01	9.70E-03	5.59E-04
Parcel 6 (Retail4)	2 axle	26.3	15	1	4.15	6.58	1.83E-03	1.45E-02	5.29E+00	2.64E-03	1.52E-04
Parcel 7 (Restaurant1)	4+ axle	48.278	15	1	4.15	12.07	3.35E-03	2.66E-02	9.70E+00	4.85E-03	2.79E-04
Parcel 8 (Fast Food2)	4+ axle	48.278	15	1	4.15	12.07	3.35E-03	2.66E-02	9.70E+00	4.85E-03	2.79E-04
Parcel 9 (Fast Food)	4+ axle	48.278	15	1	4.15	12.07	3.35E-03	2.66E-02	9.70E+00	4.85E-03	2.79E-04
Total				**25**		**2.47E+02**	**3.08E-02**	**5.44E-01**	**1.98E+02**	**9.92E-02**	**4.20E-03**

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	4	4.55	60	50	10	375	0.23	0.023	4.45E+00	3.09E-04	9.81E-03	1.79E-03
Wal-Mart (Parcel 14)	2 axle	35	0	4.55	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	4.55	60	50	10	89	0.06	0.006	5.28E-01	7.34E-05	1.16E-03	2.12E-04
Parcel 2 (Fast Food1)	4+ axle	35	2	4.55	60	50	10	143	0.09	0.009	8.49E-01	1.18E-04	1.87E-03	3.41E-04
Parcel 3 (Retail2)	2 axle	35	0	4.55	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	4.55	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A and B)	4+ axle	35	4	4.55	60	50	10	172	0.11	0.011	2.04E+00	1.42E-04	4.50E-03	8.21E-04
Parcel 6 (Retail4)	2 axle	35	0	4.55	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	4.55	60	50	10	91	0.06	0.006	5.40E-01	7.50E-05	1.19E-03	2.17E-04
Parcel 8 (Fast Food2)	4+ axle	35	2	4.55	60	50	10	90	0.06	0.006	5.34E-01	7.42E-05	1.18E-03	2.15E-04
Parcel 9 (Fast Food)	4+ axle	35	2	4.55	60	50	10	60	0.04	0.004	3.56E-01	4.95E-05	7.84E-04	1.43E-04
TOTAL			**18**								**9.30E+00**	**8.41E-04**	**2.05E-02**	**3.74E-03**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Average Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	2	4.55	60	50	0.5	4.78E+01	6.64E-03	1.05E-01	1.92E-02
Wal-Mart (Parcel 14)	2 axle	35	0	4.55	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	4.55	60	50	0.5	2.39E+01	6.64E-03	5.26E-02	9.60E-03
Parcel 2 (Fast Food1)	4+ axle	35	1	4.55	60	50	0.5	2.39E+01	6.64E-03	5.26E-02	9.60E-03
Parcel 3 (Retail2)	2 axle	35	0	4.55	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	4.55	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A and B)	4+ axle	35	2	4.55	60	50	0.5	4.78E+01	6.64E-03	1.05E-01	1.92E-02
Parcel 6 (Retail4)	2 axle	35	0	4.55	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	4.55	60	50	0.5	2.39E+01	6.64E-03	5.26E-02	9.60E-03
Parcel 8 (Fast Food2)	4+ axle	35	1	4.55	60	50	0.5	2.39E+01	6.64E-03	5.26E-02	9.60E-03
Parcel 9 (Fast Food)	4+ axle	35	1	4.55	60	50	0.5	2.39E+01	6.64E-03	5.26E-02	9.60E-03
TOTAL			**9**					**2.15E+02**	**4.64E-02**	**4.74E-01**	**8.64E-02**

Emission Summary

Facility Emission Summary	Max Hrly Onsite Travel Emissions (g/sec)	Max Hrly Onsite TRU Travel Emissions (g/sec)	Total Max Hrly Onsite Travel Emissions (g/sec)	Max Hrly Onsite Idle Emissions (g/sec)	Max Hrly Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	8.93E-04	3.09E-04	1.20E-03	3.35E-03	6.64E-03	9.99E-03	1	9.99E-03	1.12E-02
Wal-Mart (Parcel 14)	1.55E-04	0.00E+00	1.55E-04	1.83E-03	0.00E+00	1.83E-03	1	1.83E-03	1.98E-03
Parcel 1 (Retail1)	2.12E-04	7.34E-05	2.85E-04	3.35E-03	6.64E-03	9.99E-03	1	9.99E-03	1.03E-02
Parcel 2 (Fast Food1)	3.40E-04	1.18E-04	4.58E-04	3.35E-03	6.64E-03	9.99E-03	1	9.99E-03	1.04E-02
Parcel 3 (Retail2)	6.48E-05	0.00E+00	6.48E-05	1.83E-03	0.00E+00	1.83E-03	1	1.83E-03	1.89E-03
Parcel 4 (Retail3)	7.56E-05	0.00E+00	7.56E-05	1.83E-03	0.00E+00	1.83E-03	1	1.83E-03	1.90E-03
Parcel 5 (Fast Food/Retail)	4.09E-04	1.42E-04	5.51E-04	3.35E-03	6.64E-03	9.99E-03	2	4.99E-03	1.05E-02
Parcel 6 (Retail4)	3.92E-05	0.00E+00	3.92E-05	1.83E-03	0.00E+00	1.83E-03	1	1.83E-03	1.87E-03
Parcel 7 (Restaurant1)	2.17E-04	7.50E-05	2.92E-04	3.35E-03	6.64E-03	9.99E-03	1	9.99E-03	1.03E-02
Parcel 8 (Fast Food2)	2.14E-04	7.42E-05	2.88E-04	3.35E-03	6.64E-03	9.99E-03	1	9.99E-03	1.03E-02
Parcel 9 (Fast Food 3)	1.43E-04	4.95E-05	1.92E-04	3.35E-03	6.64E-03	9.99E-03	1	9.99E-03	1.02E-02
TOTAL	**2.76E-03**	**8.41E-04**	**3.60E-03**	**3.08E-02**	**4.64E-02**	**7.72E-02**			**8.08E-02**

Emission Assumptions Emissions: CO

Redlands Crossing Parking Lot

Total Daily Vehicle Trips - Saturday 22907
Total Daily Vehicle Trip - Saturday 22907 trips/day for all facilities - Saturday

Total Peak Hour Vehicle Trips - Saturday 1941
Total Vehicle Trips: 1941 trips/hour for all facilities - Saturday

Trip Generation derived from project traffic report: Urban Crossroads 2011

Default SCAQMD Vehicle Fleet Mix for 2010 (from URBEMIS Model):

LDA	51.70%
LDT1	7.30%
LDT2	22.90%
MDT	10.60%
LHDT1	1.60%
LHDT2	0.50%
MHDT	0.90%
HHDT	0.50%
UB	0.10%
MC	2.80%
SB	0.10%
MH	0.90%
OB	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 96.3%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Vehicle Class	**Composite Vehicle Mix**	**Vehicle Trips (trips/day)**	**Vehicle Trips (trips/peak PM Hr)**
LDA	53.7%	12298	1042
LDT1	7.6%	1736	147
LDT2	23.8%	5447	462
MDT	11.0%	2521	214
UB	0.1%	24	2
MC	2.9%	666	56
MH	0.9%	214	18
	100.0%	22907	1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200 m

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Vehicle Trips (trips/peak-PM_Hr)	Total Exhaust Emissions (grams/sec)
LDA	3.463	12298	5291.2	1042	1.245E-01
LDT1	5.601	1736	1208.4	147	2.844E-02
LDT2	4.608	5447	3118.6	462	7.340E-02
MDT	5.656	2521	1771.9	214	4.170E-02
UB	20.743	24	61.3	2	1.443E-03
MC	27.480	666	2274.0	56	5.352E-02
MH	33.482	214	890.6	18	2.096E-02
Total		22907	14615.9	1941	3.440E-01

Composite Emission Factor 5.14 g/mi

Onsite Idling Emissions

Assume that each vehicle idles for 1 minute
Idling emission factor is derived by multiplying the emission factor at 2 mph by 2

Vehicle Class	Emission Factor at 2 mph (g/mi)	Idle Emission Factor (g/hr)	Number of Vehicles (vehicles/day)	Emissions (Grams/day)	Number of Vehicles (vehicles/peak-PM_Hr)	Total Idling Emissions (Grams/sec)
LDA	4.384	8.768	6149	898.6	521	2.115E-02
LDT1	7.626	15.252	868	220.7	74	5.195E-03
LDT2	5.756	11.512	2724	522.6	231	1.230E-02
MDT	7.425	14.85	1261	312.0	107	7.344E-03
UB	31.847	63.694	12	12.6	1	2.972E-04
MC	33.131	66.262	333	367.8	28	8.656E-03
MH	50.312	100.624	107	179.5	9	4.225E-03
Total			11454	2513.8	970.5	5.917E-02

Composite Emission Factor 13.169 g/hr

Max Hourly Emissions (all facilities) 4.032E-01 grams/sec

Area of the parking lot 53347 m2

Max hourly emission rate 7.56E-06 grams/m2-sec

Modeled Truck Emission Sources

Redlands Crossing

CO Emissions

Basecase **2010**

Onsite Travel Emission Sources	Hourly Emissions (g/sec)	Idling Emission Sources	Hourly Emissions (g/sec)
LP1	2.85E-04	IP1	9.99E-03
LP2	4.58E-04	IP2	9.99E-03
LP3	6.48E-05	IP3	1.83E-03
LP4	7.56E-05	IP4	1.83E-03
LP5A+LP5B	5.51E-04	IP5A	4.99E-03
LP6	3.92E-05	IP5B	4.99E-03
LP7	2.92E-04	WMN	9.99E-03
LP8	2.88E-04	WMS	1.83E-03
WM	1.36E-03	IP6	1.83E-03
LP9	1.92E-04	IP7	9.99E-03
		IP8	9.99E-03
		IP9	9.99E-03
Total	**3.60E-03**	**Total**	**7.72E-02**

Title : SCAQMD 2010 PM10
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/19 15:12:07
Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
Season : Annual
Area : South Coast AQMD
****
Year: 2010 -- Model Years 1966 to 2010 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: Carbon Monoxide Temperature: 65F Relative Humidity: 50%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	137.652	141.842	26.3	119.691	137.652	141.133	26.3	91.202	137.652	141.077	26.3	45.292	0	0	48.278	46.581
2	190.786	3.555	3.011	4.384	195.008	5.056	2.184	7.626	189.839	5.161	2.616	5.756	337.678	5.785	2.166	7.425	350.965	15.925	2.942	14.777	350.965	11.378	3.47	8.982	526.447	29.82	7.21	12.38	2305.078	175.168	18.802	25.828
5	159.751	3.336	3.011	4.028	163.285	4.681	2.184	6.824	158.958	4.821	2.616	5.318	282.747	5.357	2.166	6.728	350.965	15.925	2.942	14.777	350.965	11.378	3.47	8.982	526.447	29.82	7.21	12.38	2305.078	175.168	18.802	25.828
10	116.437	2.962	2.076	3.463	119.013	4.069	1.506	5.601	115.859	4.25	1.804	4.608	206.085	4.663	1.494	5.656	233.501	10.595	2.029	9.845	233.501	7.57	2.393	6.012	350.251	19.839	4.971	8.382	1533.594	116.542	13.794	18.423
15	89.374	2.656	1.498	3.038	91.352	3.594	1.087	4.748	88.931	3.789	1.302	4.062	158.186	4.125	1.078	4.883	164.134	7.448	1.464	6.927	164.134	5.321	1.727	4.246	246.202	13.946	3.587	5.97	1078.008	81.92	9.996	13.24
20	72.245	2.402	1.132	2.709	73.844	3.216	0.821	4.135	71.887	3.411	0.983	3.63	127.869	3.697	0.814	4.307	121.898	5.531	1.106	5.148	121.898	3.952	1.304	3.162	182.847	10.357	2.709	4.471	800.607	60.84	7.558	9.963
25	61.501	2.188	0.894	2.449	62.862	2.911	0.649	3.684	61.196	3.098	0.777	3.283	108.852	3.351	0.643	3.868	95.649	4.34	0.874	4.041	95.649	3.101	1.031	2.485	143.474	8.127	2.141	3.521	628.207	47.739	6.403	8.273
30	55.135	2.007	0.74	2.24	56.355	2.662	0.536	3.352	54.862	2.836	0.643	3.002	97.585	3.068	0.532	3.531	79.296	3.598	0.723	3.35	79.296	2.571	0.853	2.059	118.944	6.737	1.771	2.916	520.802	39.577	5.429	6.975
35	52.054	1.853	0.64	2.074	53.205	2.458	0.464	3.111	51.795	2.616	0.556	2.773	92.131	2.836	0.461	3.273	69.455	3.152	0.626	2.933	69.455	2.252	0.738	1.8	104.183	5.901	1.533	2.539	456.172	34.666	4.634	5.992
40	51.754	1.722	0.58	1.942	52.9	2.293	0.421	2.947	51.498	2.433	0.504	2.59	91.602	2.647	0.417	3.083	64.276	2.917	0.567	2.712	64.276	2.084	0.669	1.659	96.414	5.461	1.389	2.325	422.154	32.08	4.019	5.286
45	54.19	1.612	0.55	1.843	55.389	2.163	0.399	2.857	53.921	2.281	0.478	2.446	95.912	2.498	0.396	2.957	62.846	2.852	0.538	2.648	62.846	2.037	0.634	1.614	94.269	5.34	1.317	2.239	412.762	31.367	3.584	4.835
50	59.754	1.521	0.546	1.777	61.076	2.066	0.396	2.843	59.457	2.158	0.474	2.342	105.759	2.387	0.393	2.895	64.922	2.946	0.533	2.731	64.922	2.105	0.629	1.656	97.383	5.516	1.307	2.268	426.397	32.403	3.33	4.635
55	69.388	1.448	0.567	1.748	70.923	2.004	0.411	2.921	69.044	2.064	0.492	2.279	122.812	2.317	0.408	2.91	70.859	3.215	0.554	2.976	70.859	2.297	0.653	1.793	106.288	6.02	1.357	2.417	465.387	35.366	3.255	4.693

Emission Assumptions **Nox** Emissions
Redlands Crossing

Facility Operations

Basecase 2010

Emission Factors

1) Onsite Vehicle Emissions

a) Truck
(1) EMFAC2007
(a) Annual Meteorology
Temperature: 65 degF
Relative Humidity: 50%
(b) Calculations for SCAQMD
(c) Truck Mix
4+ axle heavy-heavy duty diesel trucks (HHDT)
2 axle diesel trucks (LHDT2)
(d) Onsite Truck and Customer Travel Spee 10 mph
(e) Idle speed: 0 mph
(e) Truck Idle time: 15 minutes per truck per day

(f) Idle time for customer vehicles: 1 min per day per vehicle
b) Truck TRU
(1) Emission factors derived from CARB 2003 ISOR ATCM for TRUs, Appendix D, Attachment A
(2) TRU size: 35 hp
(3) Cooling time: 0.5 hr/day
(4) Load Factor: 60 %
(5) On/off Cycle Factor 50 %
(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet
(b) Truck Operational Schedule of "Big Box" 24 hours/day
(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day
(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission:** **Nox**

Processes Modeled **Basecase** **2010**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips		
Wal-Mart (Parcel 14)	4+ axle	5	10	2	4	7	14		
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14		
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4		
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2		
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2		
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2		
Parcel 5 (Food Court A and B)	4+ axle	0	0	2	4	2	4		
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2		
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2		
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2		
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2		
Total		**16**	**32**	**9**	**18**	**25**	**50**	**4**	**16**
								2	14
Facility Operations:							22		
Wal-Mart	24 **hrs/day, 52weeks/year**								
All others	12 **hrs/day, 52weeks/year**								

Emission Factors

Vehicle Class	Exhaust @ 10 mph (g/mi)	Idle (g/hr)
4+ axle	26.981	110.283
2 axle	6.157	75.051

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	4.61	4.61	<-----Fleet Average for SCAQMD in 2010 from OFFROAD2007

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Max Hourly Emissions Over Link (g/sec)	Max Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (lb/yr)	Annual Ave Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	26.981	14	375	0.23	8.80E+01	1.75E-03	1.94E-01	7.07E+01	3.54E-02
Wal-Mart (Parcel 14)	2 axle	6.157	14	375	0.23	2.01E+01	3.98E-04	4.42E-02	1.61E+01	8.07E-03
Parcel 1 (Retail1)	4+ axle	26.981	4	89	0.06	5.97E+00	4.14E-04	1.31E-02	4.80E+00	2.40E-03
Parcel 2 (Fast Food1)	4+ axle	26.981	2	143	0.09	4.79E+00	6.66E-04	1.06E-02	3.85E+00	1.93E-03
Parcel 3 (Retail2)	2 axle	6.157	2	157	0.10	1.20E+00	1.67E-04	2.65E-03	9.66E-01	4.83E-04
Parcel 4 (Retail3)	2 axle	6.157	2	183	0.11	1.40E+00	1.94E-04	3.08E-03	1.13E+00	5.63E-04
Parcel 5 (Fast Food/Retail)	4+ axle	26.981	4	172	0.11	1.15E+01	8.01E-04	2.54E-02	9.27E+00	4.64E-03
Parcel 6 (Retail4)	2 axle	6.157	2	95	0.06	7.27E-01	1.01E-04	1.60E-03	5.84E-01	2.92E-04
Parcel 7 (Restaurant1)	4+ axle	26.981	2	91	0.06	3.05E+00	4.24E-04	6.72E-03	2.45E+00	1.23E-03
Parcel 8 (Fast Food2)	4+ axle	26.981	2	90	0.06	3.02E+00	4.19E-04	6.65E-03	2.43E+00	1.21E-03
Parcel 9 (Fast Food 3)	4+ axle	26.981	2	60	0.04	2.01E+00	2.79E-04	4.43E-03	1.62E+00	8.09E-04
			50							
Total						**1.42E+02**	**5.61E-03**	**3.12E-01**	**1.14E+02**	**5.70E-02**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Release Height Above Ground (m)	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Total Daily Emissions (lbs/day)	Total Emissions (lbs/yr)	Total Emissions (tons/yr)	Annual Average Emssions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	110.283	15	7	4.15	193.00	7.66E-03	4.25E-01	1.55E+02	7.76E-02	2.23E-03
Wal-Mart (Parcel 14)	2 axle	75.051	15	7	4.15	131.34	5.21E-03	2.89E-01	1.06E+02	5.28E-02	1.52E-03
Parcel 1 (Retail1)	4+ axle	110.283	15	2	4.15	55.14	7.66E-03	1.21E-01	4.43E+01	2.22E-02	1.28E-03
Parcel 2 (Fast Food1)	4+ axle	110.283	15	1	4.15	27.57	7.66E-03	6.07E-02	2.22E+01	1.11E-02	6.38E-04
Parcel 3 (Retail2)	2 axle	75.051	15	1	4.15	18.76	5.21E-03	4.13E-02	1.51E+01	7.54E-03	4.34E-04
Parcel 4 (Retail3)	2 axle	75.051	15	1	4.15	18.76	5.21E-03	4.13E-02	1.51E+01	7.54E-03	4.34E-04
Parcel 5 (Fast Food/Retail)	4+ axle	110.283	15	2	4.15	55.14	7.66E-03	1.21E-01	4.43E+01	2.22E-02	1.28E-03
Parcel 6 (Retail4)	2 axle	75.051	15	1	4.15	18.76	5.21E-03	4.13E-02	1.51E+01	7.54E-03	4.34E-04
Parcel 7 (Restaurant1)	4+ axle	110.283	15	1	4.15	27.57	7.66E-03	6.07E-02	2.22E+01	1.11E-02	6.38E-04
Parcel 8 (Fast Food2)	4+ axle	110.283	15	1	4.15	27.57	7.66E-03	6.07E-02	2.22E+01	1.11E-02	6.38E-04
Parcel 9 (Fast Food)	4+ axle	110.283	15	1	4.15	27.57	7.66E-03	6.07E-02	2.22E+01	1.11E-02	6.38E-04
Total				**25**		**6.01E+02**	**7.45E-02**	**1.32E+00**	**4.83E+02**	**2.42E-01**	**1.02E-02**

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	4	4.61	60	50	10	375	0.23	0.023	4.51E+00	3.13E-04	9.93E-03	1.81E-03
Wal-Mart (Parcel 14)	2 axle	35	0	4.61	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	4.61	60	50	10	89	0.06	0.006	5.35E-01	7.43E-05	1.18E-03	2.15E-04
Parcel 2 (Fast Food1)	4+ axle	35	2	4.61	60	50	10	143	0.09	0.009	8.60E-01	1.19E-04	1.89E-03	3.46E-04
Parcel 3 (Retail2)	2 axle	35	0	4.61	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	4.61	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A and B)	4+ axle	35	4	4.61	60	50	10	172	0.11	0.011	2.07E+00	1.44E-04	4.56E-03	8.32E-04
Parcel 6 (Retail4)	2 axle	35	0	4.61	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	4.61	60	50	10	91	0.06	0.006	5.47E-01	7.60E-05	1.21E-03	2.20E-04
Parcel 8 (Fast Food2)	4+ axle	35	2	4.61	60	50	10	90	0.06	0.006	5.41E-01	7.52E-05	1.19E-03	2.18E-04
Parcel 9 (Fast Food)	4+ axle	35	2	4.61	60	50	10	60	0.04	0.004	3.61E-01	5.01E-05	7.95E-04	1.45E-04
TOTAL			**18**								**9.42E+00**	**8.52E-04**	**2.08E-02**	**3.79E-03**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Average Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	2	4.61	60	50	0.5	4.84E+01	6.72E-03	1.07E-01	1.95E-02
Wal-Mart (Parcel 14)	2 axle	35	0	4.61	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	4.61	60	50	0.5	2.42E+01	6.72E-03	5.33E-02	9.73E-03
Parcel 2 (Fast Food1)	4+ axle	35	1	4.61	60	50	0.5	2.42E+01	6.72E-03	5.33E-02	9.73E-03
Parcel 3 (Retail2)	2 axle	35	0	4.61	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	4.61	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A and B)	4+ axle	35	2	4.61	60	50	0.5	4.84E+01	6.72E-03	1.07E-01	1.95E-02
Parcel 6 (Retail4)	2 axle	35	0	4.61	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	4.61	60	50	0.5	2.42E+01	6.72E-03	5.33E-02	9.73E-03
Parcel 8 (Fast Food2)	4+ axle	35	1	4.61	60	50	0.5	2.42E+01	6.72E-03	5.33E-02	9.73E-03
Parcel 9 (Fast Food)	4+ axle	35	1	4.61	60	50	0.5	2.42E+01	6.72E-03	5.33E-02	9.73E-03
TOTAL			**9**					**2.18E+02**	**4.71E-02**	**4.80E-01**	**8.76E-02**

Emission Summary

Facility Emission Summary	Max Hrly Onsite Travel Emissions (g/sec)	Max Hrly Onsite TRU Travel Emissions (g/sec)	Total Max Hrly Onsite Travel Emissions (g/sec)	Max Hrly Onsite Idle Emissions (g/sec)	Max Hrly Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	1.75E-03	3.13E-04	2.06E-03	7.66E-03	6.72E-03	1.44E-02	1	1.44E-02	1.64E-02
Wal-Mart (Parcel 14)	3.98E-04	0.00E+00	3.98E-04	5.21E-03	0.00E+00	5.21E-03	1	5.21E-03	5.61E-03
Parcel 1 (Retail1)	4.14E-04	7.43E-05	4.89E-04	7.66E-03	6.72E-03	1.44E-02	1	1.44E-02	1.49E-02
Parcel 2 (Fast Food1)	6.66E-04	1.19E-04	7.85E-04	7.66E-03	6.72E-03	1.44E-02	1	1.44E-02	1.52E-02
Parcel 3 (Retail2)	1.67E-04	0.00E+00	1.67E-04	5.21E-03	0.00E+00	5.21E-03	1	5.21E-03	5.38E-03
Parcel 4 (Retail3)	1.94E-04	0.00E+00	1.94E-04	5.21E-03	0.00E+00	5.21E-03	1	5.21E-03	5.41E-03
Parcel 5 (Fast Food/Retail)	8.01E-04	1.44E-04	9.44E-04	7.66E-03	6.72E-03	1.44E-02	2	7.19E-03	1.53E-02
Parcel 6 (Retail4)	1.01E-04	0.00E+00	1.01E-04	5.21E-03	0.00E+00	5.21E-03	1	5.21E-03	5.31E-03
Parcel 7 (Restaurant1)	4.24E-04	7.60E-05	5.00E-04	7.66E-03	6.72E-03	1.44E-02	1	1.44E-02	1.49E-02
Parcel 8 (Fast Food2)	4.19E-04	7.52E-05	4.94E-04	7.66E-03	6.72E-03	1.44E-02	1	1.44E-02	1.49E-02

Emission Assumptions Emissions: Nox

Redlands Crossing Parking Lot

Total Daily Vehicle Trips - Saturday 22907
Total Daily Vehicle Trip - Saturday 22907 trips/day for all facilities - Saturday

Total Peak Hour Vehicle Trips - Saturday 1941
Total Vehicle Trips: 1941 trips/hour for all facilities - Saturday

Trip Generation derived from project traffic report: Urban Crossroads 2011

Default SCAQMD Vehicle Fleet Mix for 2010 (from URBEMIS Model):

LDA	51.70%
LDT1	7.30%
LDT2	22.90%
MDT	10.60%
LHDT1	1.60%
LHDT2	0.50%
MHDT	0.90%
HHDT	0.50%
UB	0.10%
MC	2.80%
SB	0.10%
MH	0.90%
OB	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 96.3%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Vehicle Class	**Composite Vehicle Mix**	**Vehicle Trips (trips/day)**	**Vehicle Trips (trips/peak PM Hr)**
LDA	53.7%	12298	1042
LDT1	7.6%	1736	147
LDT2	23.8%	5447	462
MDT	11.0%	2521	214
UB	0.1%	24	2
MC	2.9%	666	56
MH	0.9%	214	18
	100.0%	22907	1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200 m

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Vehicle Trips (trips/peak-PM_Hr)	Total Exhaust Emissions (grams/sec)
LDA	0.280	12298	427.8	1042	1.007E-02
LDT1	0.426	1736	91.9	147	2.163E-03
LDT2	0.561	5447	379.7	462	8.936E-03
MDT	0.713	2521	223.4	214	5.257E-03
UB	23.775	24	70.3	2	1.654E-03
MC	1.093	666	90.4	56	2.129E-03
MH	2.131	214	56.7	18	1.334E-03
Total		22907	1340.2	1941	3.154E-02

Composite Emission Factor 0.47 g/mi

Onsite Idling Emissions

Assume that each vehicle idles for 1 minute
Idling emission factor is derived by multiplying the emission factor at 2 mph by 2

Vehicle Class	Emission Factor at 2 mph (g/mi)	Idle Emission Factor (g/hr)	Number of Vehicles (vehicles/day)	Emissions (Grams/day)	Number of Vehicles (vehicles/peak-PM_Hr)	Total Idling Emissions (Grams/sec)
LDA	0.346	0.692	6149	70.9	521	1.669E-03
LDT1	0.522	1.044	868	15.1	74	3.556E-04
LDT2	0.711	1.422	2724	64.5	231	1.519E-03
MDT	0.897	1.794	1261	37.7	107	8.872E-04
UB	30.743	61.486	12	12.2	1	2.869E-04
MC	1.087	2.174	333	12.1	28	2.840E-04
MH	2.3	4.6	107	8.2	9	1.932E-04
Total			11454	220.7	970.5	5.195E-03

Composite Emission Factor 1.156 g/hr

Max Hourly Emissions (all facilities) 3.674E-02 grams/sec

Area of the parking lot 53347 m2

Max hourly emission rate 6.89E-07 grams/m2-sec

Modeled Truck Emission Sources

Redlands Crossing

Nox Emissions

Buildout Year: **2010**

Onsite Travel Emission Sources	Hourly Emissions (g/sec)	Idling Emission Sources	Hourly Emissions (g/sec)
LP1	4.89E-04	IP1	1.44E-02
LP2	7.85E-04	IP2	1.44E-02
LP3	1.67E-04	IP3	5.21E-03
LP4	1.94E-04	IP4	5.21E-03
LP5A+LP5B	9.44E-04	IP5A	7.19E-03
LP6	1.01E-04	IP5B	7.19E-03
LP7	5.00E-04	WMN	1.44E-02
LP8	4.94E-04	WMS	5.21E-03
WM	2.46E-03	IP6	5.21E-03
LP9	3.29E-04	IP7	1.44E-02
		IP8	1.44E-02
		IP9	1.44E-02
Total	**6.46E-03**	**Total**	**1.22E-01**

Title : SCAQMD 2010 PM10
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/19 15:12:07
Scen Year: 2010 -- All model years in the range 1966 to 2010 selected
Season : Annual
Area : South Coast AQMD
****

Year: 2010 -- Model Years 1966 to 2010 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: Oxides of Nitrogen Temperature: 65F Relative Humidity: 50%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.458	1.537	75.051	15.62	1.458	1.524	75.051	33.487	1.458	1.523	75.051	62.878	0	0	110.283	106.406
2	3.212	0.331	2.046	0.346	3.222	0.437	2.109	0.522	3.145	0.701	2.051	0.711	5.098	0.873	2.107	0.897	1.713	0.663	5.958	1.682	1.713	0.581	7.422	3.558	2.57	1.758	11.695	10.052	17.054	8.763	39.182	38.118
5	3.295	0.305	2.046	0.321	3.306	0.401	2.109	0.489	3.227	0.643	2.051	0.653	5.23	0.801	2.107	0.827	1.713	0.663	5.958	1.682	1.713	0.581	7.422	3.558	2.57	1.758	11.695	10.052	17.054	8.763	39.182	38.118
10	3.465	0.264	1.698	0.28	3.476	0.344	1.75	0.426	3.393	0.55	1.702	0.561	5.5	0.686	1.748	0.713	1.8	0.697	4.943	1.515	1.8	0.611	6.157	3.026	2.701	1.847	9.702	8.404	17.919	9.207	26.981	26.363
15	3.638	0.233	1.459	0.249	3.65	0.302	1.504	0.382	3.563	0.482	1.463	0.493	5.775	0.602	1.503	0.63	1.887	0.731	4.249	1.409	1.887	0.64	5.293	2.667	2.831	1.936	8.341	7.283	18.783	9.651	19.484	19.145
20	3.815	0.209	1.3	0.227	3.828	0.271	1.34	0.35	3.736	0.431	1.303	0.443	6.056	0.54	1.339	0.57	1.974	0.764	3.785	1.348	1.974	0.67	4.714	2.432	2.961	2.025	7.429	6.537	19.648	10.095	16.647	16.423
25	3.995	0.192	1.2	0.21	4.009	0.248	1.237	0.328	3.912	0.394	1.203	0.406	6.342	0.495	1.235	0.526	2.061	0.798	3.493	1.319	2.061	0.699	4.351	2.291	3.091	2.115	6.856	6.074	20.512	10.54	15.916	15.734
30	4.178	0.18	1.147	0.199	4.192	0.233	1.182	0.314	4.092	0.367	1.15	0.38	6.633	0.462	1.181	0.495	2.148	0.831	3.34	1.317	2.148	0.729	4.161	2.225	3.222	2.204	6.556	5.838	21.377	10.984	15.337	15.191
35	4.364	0.171	1.137	0.191	4.378	0.222	1.172	0.307	4.273	0.35	1.139	0.363	6.927	0.441	1.17	0.476	2.235	0.865	3.309	1.339	2.235	0.758	4.122	2.225	3.352	2.293	6.496	5.803	22.242	11.428	14.909	14.794
40	4.552	0.166	1.167	0.187	4.567	0.217	1.203	0.305	4.457	0.34	1.17	0.354	7.225	0.43	1.202	0.466	2.322	0.899	3.397	1.383	2.322	0.788	4.232	2.29	3.482	2.382	6.668	5.962	23.106	11.872	14.632	14.543
45	4.741	0.164	1.241	0.186	4.757	0.216	1.279	0.309	4.643	0.337	1.244	0.352	7.526	0.427	1.278	0.465	2.408	0.932	3.614	1.452	2.408	0.817	4.501	2.424	3.613	2.471	7.093	6.331	23.971	12.316	14.508	14.439
50	4.931	0.166	1.368	0.188	4.948	0.219	1.41	0.318	4.829	0.341	1.371	0.356	7.828	0.433	1.409	0.472	2.495	0.966	3.983	1.55	2.495	0.847	4.961	2.64	3.743	2.56	7.818	6.951	24.835	12.761	14.534	14.481
55	5.123	0.17	1.562	0.194	5.14	0.227	1.61	0.334	5.017	0.352	1.566	0.368	8.132	0.448	1.609	0.49	2.582	1	4.548	1.686	2.582	0.876	5.665	2.963	3.873	2.649	8.927	7.892	25.7	13.205	14.713	14.669

Emission Assumptions **PM10** Emissions
Redlands Crossing

Facility Operations

Basecase 2010

Emission Factors

1) Onsite Vehicle Emissions

a) Truck
(1) EMFAC2007
(a) Annual Meteorology
Temperature: 65 degF
Relative Humidity: 50%
(b) Calculations for SoCAB
(c) Truck Mix
4+ axle heavy-heavy duty diesel trucks (HHDT)
2 axle diesel trucks (LHDT2)
(d) Onsite Truck and Customer Travel Spee 10 mph
(e) Idle speed: 0 mph
(e) Truck Idle time: 15 minutes per truck per day
(f) Idle time for customer vehicles: 1 min per day per vehicle

b) Truck TRU
(1) Emission factors derived from CARB 2003 ISOR ATCM for TRUs, Appendix D, Attachment A
(2) TRU size: 35 hp
(3) Cooling time: 0.5 hr/day
(4) Load Factor: 60 %
(5) On/off Cycle Factor 50 %
(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet
(b) Truck Operational Schedule of "Big Box" 24 hours/day
(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day
(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission: PM10**

Processes Modeled **Basecase 2010**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips
Wal-Mart (Parcel 14)	4+ axle	5	10	2	4	7	14
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2
Parcel 5 (Food Court A)	4+ axle	0	0	2	4	2	4
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2
Total		**16**	**32**	**9**	**18**	**25**	**50**

Facility Operations:
Wal-Mart 24 **hrs/day, 52weeks/year**
All others 12 **hrs/day, 52weeks/year**

Emission Factors

Vehicle Class	Exhaust (g/mi)	Idle (g/hr)
4+ axle	1.829	1.789
2 axle	0.133	0.948

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	0.33	0.33	<-------- Fleet Average for SCAQMD in 2010

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Emissions Over the Link (g/sec)	Max Hourly Emissions Over Link (lb/hr)	Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (tons/yr)	Annual Ave Emissions Over Link (tons/yr)	Annual Average Emissions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	1.829	14	375	0.23	5.97E+00	6.90E-05	4.73E+01	1.31E-02	2.40E-03	1.20E-06	6.90E-05
Wal-Mart (Parcel 14)	2 axle	0.133	14	375	0.23	4.34E-01	5.02E-06	3.44E+00	9.55E-04	1.74E-04	8.72E-08	5.02E-06
Parcel 1 (Retail1)	4+ axle	1.829	4	89	0.06	4.04E-01	9.36E-06	3.21E+00	8.91E-04	1.63E-04	8.13E-08	9.36E-06
Parcel 2 (Fast Food1)	4+ axle	1.829	2	143	0.09	3.25E-01	7.52E-06	2.58E+00	7.16E-04	1.31E-04	6.53E-08	7.52E-06
Parcel 3 (Retail2)	2 axle	0.133	2	157	0.10	2.59E-02	6.01E-07	2.06E-01	5.71E-05	1.04E-05	5.21E-09	6.01E-07
Parcel 4 (Retail3)	2 axle	0.133	2	183	0.11	3.02E-02	7.00E-07	2.40E-01	6.66E-05	1.22E-05	6.08E-09	7.00E-07
Parcel 5 (Fast Food/Retail)	4+ axle	1.829	4	172	0.11	7.82E-01	1.81E-05	6.20E+00	1.72E-03	3.14E-04	1.57E-07	1.81E-05
Parcel 6 (Retail4)	2 axle	0.133	2	95	0.06	1.57E-02	3.63E-07	1.24E-01	3.46E-05	6.31E-06	3.16E-09	3.63E-07
Parcel 7 (Restaurant1)	4+ axle	1.829	2	91	0.06	2.07E-01	4.79E-06	1.64E+00	4.55E-04	8.31E-05	4.16E-08	4.79E-06
Parcel 8 (Fast Food2)	4+ axle	1.829	2	90	0.06	2.05E-01	4.73E-06	1.62E+00	4.50E-04	8.22E-05	4.11E-08	4.73E-06
Parcel 9 (Fast Food 3)	4+ axle	1.829	2	60	0.04	1.36E-01	3.16E-06	1.08E+00	3.00E-04	5.48E-05	2.74E-08	3.16E-06
			50									
Total						**8.53E+00**	**1.23E-04**	**6.76E+01**	**1.88E-02**	**3.43E-03**	**1.71E-06**	**1.23E-04**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Max Hourly Emissions (lb/hr)	Total Daily Emissions (lbs/day)	Total Emissions (tons/yr)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	1.789	15	7	3.13	3.62E-05	2.87E-04	6.90E-03	1.26E-03	
Wal-Mart (Parcel 14)	2 axle	0.948	15	7	1.66	1.92E-05	1.52E-04	3.65E-03	6.67E-04	
Parcel 1 (Retail1)	4+ axle	1.789	15	2	0.89	2.07E-05	1.64E-04	1.97E-03	3.60E-04	
Parcel 2 (Fast Food1)	4+ axle	1.789	15	1	0.45	1.04E-05	8.21E-05	9.85E-04	1.80E-04	
Parcel 3 (Retail2)	2 axle	0.948	15	1	0.24	5.49E-06	4.35E-05	5.22E-04	9.53E-05	
Parcel 4 (Retail3)	2 axle	0.948	15	1	0.24	5.49E-06	4.35E-05	5.22E-04	9.53E-05	
Parcel 5 (Fast Food/Retail)	4+ axle	1.789	15	2	0.89	2.07E-05	1.64E-04	1.97E-03	3.60E-04	
Parcel 6 (Retail4)	2 axle	0.948	15	1	0.24	5.49E-06	4.35E-05	5.22E-04	9.53E-05	
Parcel 7 (Restaurant1)	4+ axle	1.789	15	1	0.45	1.04E-05	8.21E-05	9.85E-04	1.80E-04	
Parcel 8 (Fast Food2)	4+ axle	1.789	15	1	0.45	1.04E-05	8.21E-05	9.85E-04	1.80E-04	
Parcel 9 (Fast Food)	4+ axle	1.789	15	1	0.45	1.04E-05	8.21E-05	9.85E-04	1.80E-04	
Total				**25**	**9.08E+00**	**1.55E-04**	**1.23E-03**	**2.00E-02**	**3.65E-03**	

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	4	0.33	60	50	10	375	0.23	0.023	3.23E-01	3.74E-06	7.11E-04	1.30E-04
Wal-Mart (Parcel 14)	2 axle	35	0	0.33	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	0.33	60	50	10	89	0.06	0.006	3.83E-02	8.87E-07	8.44E-05	1.54E-05
Parcel 2 (Fast Food1)	4+ axle	35	2	0.33	60	50	10	143	0.09	0.009	6.16E-02	1.43E-06	1.36E-04	2.47E-05
Parcel 3 (Retail2)	2 axle	35	0	0.33	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.33	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	4	0.33	60	50	10	172	0.11	0.011	1.48E-01	3.43E-06	3.26E-04	5.95E-05
Parcel 6 (Retail4)	2 axle	35	0	0.33	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	0.33	60	50	10	91	0.06	0.006	3.92E-02	9.07E-07	8.63E-05	1.57E-05
Parcel 8 (Fast Food2)	4+ axle	35	2	0.33	60	50	10	90	0.06	0.006	3.87E-02	8.97E-07	8.53E-05	1.56E-05
Parcel 9 (Fast Food)	4+ axle	35	2	0.33	60	50	10	60	0.04	0.004	2.58E-02	5.98E-07	5.69E-05	1.04E-05
TOTAL			**18**								**6.75E-01**	**1.19E-05**	**1.49E-03**	**2.71E-04**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Total Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	2	0.33	60	50	0.5	3.47E+00	4.01E-05	7.63E-03	1.39E-03
Wal-Mart (Parcel 14)	2 axle	35	0	0.33	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	0.33	60	50	0.5	1.73E+00	4.01E-05	3.82E-03	6.96E-04
Parcel 2 (Fast Food1)	4+ axle	35	1	0.33	60	50	0.5	1.73E+00	4.01E-05	3.82E-03	6.96E-04
Parcel 3 (Retail2)	2 axle	35	0	0.33	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.33	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	2	0.33	60	50	0.5	3.47E+00	8.02E-05	7.63E-03	1.39E-03
Parcel 6 (Retail4)	2 axle	35	0	0.33	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	0.33	60	50	0.5	1.73E+00	4.01E-05	3.82E-03	6.96E-04
Parcel 8 (Fast Food2)	4+ axle	35	1	0.33	60	50	0.5	1.73E+00	4.01E-05	3.82E-03	6.96E-04
Parcel 9 (Fast Food)	4+ axle	35	1	0.33	60	50	0.5	1.73E+00	4.01E-05	3.82E-03	6.96E-04
TOTAL			**9**					**1.56E+01**	**3.21E-04**	**3.43E-02**	**6.27E-03**

Emission Summary

Facility Emission Summary	Ave Onsite Travel Emissions (g/sec)	Ave Onsite TRU Travel Emissions (g/sec)	Total Ave Onsite Travel Emissions (g/sec)	Ave Onsite Idle Emissions (g/sec)	Ave Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	6.90E-05	3.74E-06	7.28E-05	3.62E-05	4.01E-05	7.63E-05	1	7.63E-05	1.49E-04
Wal-Mart (Parcel 14)	5.02E-06	0.00E+00	5.02E-06	1.92E-05	0.00E+00	1.92E-05	1	1.92E-05	2.42E-05
Parcel 1 (Retail1)	9.36E-06	8.87E-07	1.03E-05	2.07E-05	4.01E-05	6.08E-05	1	6.08E-05	7.11E-05
Parcel 2 (Fast Food1)	7.52E-06	1.43E-06	8.95E-06	1.04E-05	4.01E-05	5.05E-05	1	5.05E-05	5.94E-05
Parcel 3 (Retail2)	6.01E-07	0.00E+00	6.01E-07	5.49E-06	0.00E+00	5.49E-06	1	5.49E-06	6.09E-06
Parcel 4 (Retail3)	7.00E-07	0.00E+00	7.00E-07	5.49E-06	0.00E+00	5.49E-06	1	5.49E-06	6.19E-06
Parcel 5 (Fast Food/Retail)	1.81E-05	3.43E-06	2.15E-05	2.07E-05	8.02E-05	1.01E-04	2	5.05E-05	1.22E-04
Parcel 6 (Retail4)	3.63E-07	0.00E+00	3.63E-07	5.49E-06	0.00E+00	5.49E-06	1	5.49E-06	5.85E-06
Parcel 7 (Restaurant1)	4.79E-06	9.07E-07	5.69E-06	1.04E-05	4.01E-05	5.05E-05	1	5.05E-05	5.62E-05
Parcel 8 (Fast Food2)	4.73E-06	8.97E-07	5.63E-06	1.04E-05	4.01E-05	5.05E-05	1	5.05E-05	5.61E-05
Parcel 9 (Fast Food 3)	3.16E-06	5.98E-07	3.75E-06	1.04E-05	4.01E-05	5.05E-05	1	5.05E-05	5.42E-05
TOTAL	**1.23E-04**	**1.19E-05**	**1.35E-04**	**1.55E-04**	**3.21E-04**	**4.76E-04**			**6.11E-04**

Emission Assumptions Emissions: PM10

Redlands Crossing Parking Lot

Total Daily Vehicle Trips: 22907
Total Daily Vehicle Trips: 22907 (includes all facilities)

Total Peak Hour Vehicle Trips - Saturday 1941
Total Peak Hour Vehicle Trips - Saturday 1941 (includes all facilities)

Trip Generation derived from project traffic report: Urban Crossroads 2011

Default SCAQMD Vehicle Fleet Mix for 2010 (from URBEMIS Model):

LDA	51.70%
LDT1	7.30%
LDT2	22.90%
MDT	10.60%
LHDT1	1.60%
LHDT2	0.50%
MHDT	0.90%
HHDT	0.50%
UB	0.10%
MC	2.80%
SB	0.10%
MH	0.90%
	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 96.3%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Operational Time of Customer Parking Lots 24 hours

Vehicle Class	**Composite Vehicle Mix**	**Vehicle Trips (trips/day)**	**Vehicle Trips (trips/peak PM Hr)**
LDA	53.7%	12298	1042
LDT1	7.6%	1736	147
LDT2	23.8%	5447	462
MDT	11.0%	2521	214
UB	0.1%	24	2
MC	2.9%	666	56
MH	0.9%	214	18
	100.0%	22907	1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Exhaust Emissions (g/sec)
LDA	0.054	12298	82.5	9.550E-04
LDT1	0.061	1736	13.2	1.523E-04
LDT2	0.096	5447	65.0	7.520E-04
MDT	0.098	2521	30.7	3.553E-04
UB	0.550	24	1.6	1.881E-05
MC	0.066	666	5.5	6.321E-05
MH	0.049	214	1.3	1.508E-05
Total		22907	199.7	2.312E-03

Composite Emission Factor 0.07 g/mi

Onsite Idling Emissions

Assume that each vehicle idles for 1 minute
Idling emission factor is derived by multiplying the emission factor at 2 mph by 2

Vehicle Class	Emission Factor at 2 mph (g/mi)	Idle Emission Factor (g/hr)	Number of Vehicles (vehicles/day)	Emissions (Grams/day)	Average Idling Emissions (g/sec)
LDA	0.063	0.126	6149	12.9	1.495E-04
LDT1	0.075	0.15	868	2.2	2.512E-05
LDT2	0.144	0.288	2724	13.1	1.513E-04
MDT	0.141	0.282	1261	5.9	6.858E-05
UB	0.747	1.494	12	0.3	3.428E-06
MC	0.052	0.104	333	0.6	6.681E-06
MH	0.066	0.132	107	0.2	2.726E-06
Total			11454	35.2	4.0730E-04

Composite Emission Factor 0.18 g/hr

Average Daily Emissions (all facilities) 2.719E-03 grams/sec

Area of the parking lot 53347 m2

Modeled Truck Emission Sources

Redlands Crossing

PM10 Emissions

Basecase **2010**

Onsite Travel Emission Sources	Hourly Emissions (g/sec)
LP1	1.03E-05
LP2	8.95E-06
LP3	6.01E-07
LP4	7.00E-07
LP5A+LP5B	2.15E-05
LP6	3.63E-07
LP7	5.69E-06
LP8	5.63E-06
WM	7.78E-05
LP9	3.75E-06
Total	**1.35E-04**

Idling Emission Sources	Hourly Emissions (g/sec)
IP1	6.08E-05
IP2	5.05E-05
IP3	5.49E-06
IP4	5.49E-06
IP5A	5.05E-05
IP5B	5.05E-05
WMN	7.63E-05
WMS	1.92E-05
IP6	5.49E-06
IP7	5.05E-05
IP8	5.05E-05
IP9	5.05E-05
Total	**4.76E-04**

Season : Annual
Area : South Coast AQMD
****
Year: 2010 -- Model Years 1966 to 2010 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD
Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: PM10 Temperature: 65F Relative Humidity: 50%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.776	0.149	0	0	0.948	0.412	0	0	0.947	0.79	0	0	1.789	1.726
2	0.125	0.063	0.381	0.063	0.124	0.072	0.139	0.075	0.126	0.144	0.236	0.144	0.129	0.141	0.13	0.141	0.101	0.045	0.104	0.057	0.101	0.046	0.137	0.086	0.101	0.051	0.694	0.588	0.101	0.103	2.601	2.514
5	0.104	0.05	0.381	0.05	0.103	0.057	0.139	0.06	0.105	0.114	0.236	0.115	0.107	0.112	0.13	0.112	0.101	0.045	0.104	0.057	0.101	0.046	0.137	0.086	0.101	0.051	0.694	0.588	0.101	0.103	2.601	2.514
10	0.074	0.032	0.299	0.033	0.073	0.038	0.109	0.04	0.075	0.075	0.185	0.075	0.076	0.073	0.102	0.073	0.066	0.03	0.081	0.04	0.066	0.03	0.108	0.064	0.066	0.034	0.545	0.46	0.066	0.068	1.765	1.706
15	0.055	0.022	0.24	0.023	0.054	0.026	0.087	0.028	0.056	0.052	0.148	0.052	0.057	0.051	0.082	0.051	0.045	0.02	0.065	0.029	0.045	0.021	0.087	0.049	0.045	0.023	0.437	0.369	0.045	0.046	1.155	1.116
20	0.043	0.016	0.197	0.016	0.042	0.019	0.072	0.021	0.043	0.037	0.122	0.038	0.044	0.037	0.067	0.037	0.032	0.014	0.054	0.022	0.032	0.015	0.071	0.039	0.032	0.016	0.359	0.302	0.032	0.033	0.805	0.778
25	0.035	0.012	0.165	0.013	0.035	0.014	0.06	0.016	0.035	0.029	0.102	0.029	0.036	0.028	0.057	0.028	0.024	0.011	0.045	0.017	0.024	0.011	0.06	0.032	0.024	0.012	0.301	0.253	0.024	0.024	0.675	0.653
30	0.03	0.01	0.141	0.01	0.03	0.012	0.051	0.013	0.03	0.023	0.088	0.023	0.031	0.023	0.048	0.023	0.019	0.008	0.039	0.014	0.019	0.008	0.051	0.027	0.019	0.009	0.258	0.217	0.019	0.019	0.579	0.559
35	0.027	0.008	0.124	0.009	0.026	0.01	0.045	0.011	0.027	0.02	0.077	0.02	0.027	0.019	0.042	0.019	0.015	0.007	0.034	0.012	0.015	0.007	0.045	0.023	0.015	0.008	0.226	0.19	0.015	0.015	0.516	0.499
40	0.025	0.007	0.111	0.008	0.025	0.009	0.04	0.01	0.025	0.017	0.069	0.017	0.026	0.017	0.038	0.017	0.013	0.006	0.03	0.01	0.013	0.006	0.04	0.021	0.013	0.006	0.202	0.17	0.013	0.013	0.487	0.47
45	0.024	0.007	0.102	0.007	0.024	0.008	0.037	0.009	0.025	0.016	0.063	0.016	0.025	0.016	0.035	0.016	0.011	0.005	0.028	0.009	0.011	0.005	0.037	0.019	0.011	0.006	0.185	0.156	0.011	0.011	0.49	0.473
50	0.025	0.007	0.095	0.007	0.025	0.008	0.035	0.009	0.025	0.016	0.059	0.016	0.026	0.016	0.033	0.016	0.01	0.004	0.026	0.009	0.01	0.005	0.034	0.018	0.01	0.005	0.173	0.146	0.01	0.01	0.527	0.509
55	0.027	0.007	0.091	0.007	0.027	0.008	0.033	0.009	0.027	0.017	0.056	0.017	0.028	0.016	0.031	0.017	0.01	0.004	0.025	0.008	0.01	0.004	0.033	0.017	0.01	0.005	0.166	0.139	0.01	0.01	0.597	0.576

	Brake	Tire	Total
LDA	0.013	0.008	0.021
LDT1	0.013	0.008	0.021
LDT2	0.013	0.008	0.021
MDT	0.013	0.008	0.021
LHDT1	0.013	0.012	0.025
LHDT2	0.013	0.012	0.025
MHDT	0.013	0.012	0.025
HHDT	0.028	0.036	0.064
UB	0.009	0.013	0.022
MC	0.004	0.006	0.01
MH	0.012	0.013	0.025

Emission Assumptions **PM2.5** Emissions
Redlands Crossing

Facility Operations

Basecase 2010

Emission Factors

1) Onsite Vehicle Emissions

a) Truck
(1) EMFAC2007
(a) Annual Meteorology
Temperature: 65 degF
Relative Humidity: 50%
(b) Calculations for SoCAB
(c) Truck Mix
4+ axle heavy-heavy duty diesel trucks (HHDT)
2 axle diesel trucks (LHDT2)
(d) Onsite Truck and Customer Travel Spee 10 mph
(e) Idle speed: 0 mph
(e) Truck Idle time: 15 minutes per truck per day
(f) Idle time for customer vehicles: 1 min per day per vehicle

b) Truck TRU
(1) Emission factors derived from CARB 2003 ISOR ATCM for TRUs, Appendix D, Attachment A
(2) TRU size: 35 hp
(3) Cooling time: 0.5 hr/day
(4) Load Factor: 60 %
(5) On/off Cycle Factor 50 %
(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet
(b) Truck Operational Schedule of "Big Box" 24 hours/day
(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day
(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission:** **PM2.5**

Processes Modeled **Basecase** **2010**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips
Wal-Mart (Parcel 14)	4+ axle	5	10	2	4	7	14
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2
Parcel 5 (Food Court A)	4+ axle	0	0	2	4	2	4
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2
Total		**16**	**32**	**9**	**18**	**25**	**50**

Facility Operations:
Wal-Mart 24 **hrs/day, 52weeks/year**
All others 12 **hrs/day, 52weeks/year**

Emission Factors

Vehicle Class	Exhaust (g/mi)	Idle (g/hr)
4+ axle	1.645	1.646
2 axle	0.107	0.872

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	0.33	0.33	<-------- Fleet Average for SCAQMD in 2010

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Emissions Over the Link (g/sec)	Max Hourly Emissions Over Link (lb/hr)	Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (tons/yr)	Annual Ave Emissions Over Link (tons/yr)	Annual Average Emissions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	1.645	14	375	0.23	5.36E+00	6.21E-05	4.25E+01	1.18E-02	2.16E-03	1.08E-06	6.21E-05
Wal-Mart (Parcel 14)	2 axle	0.107	14	375	0.23	3.49E-01	4.04E-06	2.77E+00	7.69E-04	1.40E-04	7.01E-08	4.04E-06
Parcel 1 (Retail1)	4+ axle	1.645	4	89	0.06	3.64E-01	8.42E-06	2.88E+00	8.01E-04	1.46E-04	7.31E-08	8.42E-06
Parcel 2 (Fast Food1)	4+ axle	1.645	2	143	0.09	2.92E-01	6.77E-06	2.32E+00	6.44E-04	1.17E-04	5.87E-08	6.77E-06
Parcel 3 (Retail2)	2 axle	0.107	2	157	0.10	2.09E-02	4.83E-07	1.66E-01	4.60E-05	8.39E-06	4.19E-09	4.83E-07
Parcel 4 (Retail3)	2 axle	0.107	2	183	0.11	2.43E-02	5.63E-07	1.93E-01	5.36E-05	9.78E-06	4.89E-09	5.63E-07
Parcel 5 (Fast Food/Retail)	4+ axle	1.645	4	172	0.11	7.03E-01	1.63E-05	5.57E+00	1.55E-03	2.83E-04	1.41E-07	1.63E-05
Parcel 6 (Retail4)	2 axle	0.107	2	95	0.06	1.26E-02	2.92E-07	1.00E-01	2.78E-05	5.08E-06	2.54E-09	2.92E-07
Parcel 7 (Restaurant1)	4+ axle	1.645	2	91	0.06	1.86E-01	4.31E-06	1.47E+00	4.10E-04	7.48E-05	3.74E-08	4.31E-06
Parcel 8 (Fast Food2)	4+ axle	1.645	2	90	0.06	1.84E-01	4.26E-06	1.46E+00	4.05E-04	7.39E-05	3.70E-08	4.26E-06
Parcel 9 (Fast Food 3)	4+ axle	1.645	2	60	0.04	1.23E-01	2.84E-06	9.72E-01	2.70E-04	4.93E-05	2.46E-08	2.84E-06
			50									
Total						**7.62E+00**	**1.10E-04**	**6.04E+01**	**1.68E-02**	**3.06E-03**	**1.53E-06**	**1.10E-04**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Max Hourly Emissions (lb/hr)	Total Daily Emissions (lbs/day)	Total Emissions (tons/yr)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	1.646	15	7	2.88	3.33E-05	2.64E-04	6.34E-03	1.16E-03	
Wal-Mart (Parcel 14)	2 axle	0.872	15	7	1.53	1.77E-05	1.40E-04	3.36E-03	6.13E-04	
Parcel 1 (Retail1)	4+ axle	1.646	15	2	0.82	1.91E-05	1.51E-04	1.81E-03	3.31E-04	
Parcel 2 (Fast Food1)	4+ axle	1.646	15	1	0.41	9.53E-06	7.55E-05	9.06E-04	1.65E-04	
Parcel 3 (Retail2)	2 axle	0.872	15	1	0.22	5.05E-06	4.00E-05	4.80E-04	8.76E-05	
Parcel 4 (Retail3)	2 axle	0.872	15	1	0.22	5.05E-06	4.00E-05	4.80E-04	8.76E-05	
Parcel 5 (Fast Food/Retail)	4+ axle	1.646	15	2	0.82	1.91E-05	1.51E-04	1.81E-03	3.31E-04	
Parcel 6 (Retail4)	2 axle	0.872	15	1	0.22	5.05E-06	4.00E-05	4.80E-04	8.76E-05	
Parcel 7 (Restaurant1)	4+ axle	1.646	15	1	0.41	9.53E-06	7.55E-05	9.06E-04	1.65E-04	
Parcel 8 (Fast Food2)	4+ axle	1.646	15	1	0.41	9.53E-06	7.55E-05	9.06E-04	1.65E-04	
Parcel 9 (Fast Food)	4+ axle	1.646	15	1	0.41	9.53E-06	7.55E-05	9.06E-04	1.65E-04	
Total				**25**	**8.35E+00**	**1.42E-04**	**1.13E-03**	**1.84E-02**	**3.36E-03**	

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	4	0.33	60	50	10	375	0.23	0.023	3.23E-01	3.74E-06	7.11E-04	1.30E-04
Wal-Mart (Parcel 14)	2 axle	35	0	0.33	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	0.33	60	50	10	89	0.06	0.006	3.83E-02	8.87E-07	8.44E-05	1.54E-05
Parcel 2 (Fast Food1)	4+ axle	35	2	0.33	60	50	10	143	0.09	0.009	6.16E-02	1.43E-06	1.36E-04	2.47E-05
Parcel 3 (Retail2)	2 axle	35	0	0.33	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.33	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	4	0.33	60	50	10	172	0.11	0.011	1.48E-01	3.43E-06	3.26E-04	5.95E-05
Parcel 6 (Retail4)	2 axle	35	0	0.33	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	0.33	60	50	10	91	0.06	0.006	3.92E-02	9.07E-07	8.63E-05	1.57E-05
Parcel 8 (Fast Food2)	4+ axle	35	2	0.33	60	50	10	90	0.06	0.006	3.87E-02	8.97E-07	8.53E-05	1.56E-05
Parcel 9 (Fast Food)	4+ axle	35	2	0.33	60	50	10	60	0.04	0.004	2.58E-02	5.98E-07	5.69E-05	1.04E-05
TOTAL			**18**								**6.75E-01**	**1.19E-05**	**1.49E-03**	**2.71E-04**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Total Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	2	0.33	60	50	0.5	3.47E+00	4.01E-05	7.63E-03	1.39E-03
Wal-Mart (Parcel 14)	2 axle	35	0	0.33	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	0.33	60	50	0.5	1.73E+00	4.01E-05	3.82E-03	6.96E-04
Parcel 2 (Fast Food1)	4+ axle	35	1	0.33	60	50	0.5	1.73E+00	4.01E-05	3.82E-03	6.96E-04
Parcel 3 (Retail2)	2 axle	35	0	0.33	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.33	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	2	0.33	60	50	0.5	3.47E+00	8.02E-05	7.63E-03	1.39E-03
Parcel 6 (Retail4)	2 axle	35	0	0.33	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	0.33	60	50	0.5	1.73E+00	4.01E-05	3.82E-03	6.96E-04
Parcel 8 (Fast Food2)	4+ axle	35	1	0.33	60	50	0.5	1.73E+00	4.01E-05	3.82E-03	6.96E-04
Parcel 9 (Fast Food)	4+ axle	35	1	0.33	60	50	0.5	1.73E+00	4.01E-05	3.82E-03	6.96E-04
TOTAL			**9**					**1.56E+01**	**3.21E-04**	**3.43E-02**	**6.27E-03**

Emission Summary

Facility Emission Summary	Ave Onsite Travel Emissions (g/sec)	Ave Onsite TRU Travel Emissions (g/sec)	Total Ave Onsite Travel Emissions (g/sec)	Ave Onsite Idle Emissions (g/sec)	Ave Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	6.21E-05	3.74E-06	6.58E-05	3.33E-05	4.01E-05	7.34E-05	1	7.34E-05	1.39E-04
Wal-Mart (Parcel 14)	4.04E-06	0.00E+00	4.04E-06	1.77E-05	0.00E+00	1.77E-05	1	1.77E-05	2.17E-05
Parcel 1 (Retail1)	8.42E-06	8.87E-07	9.31E-06	1.91E-05	4.01E-05	5.92E-05	1	5.92E-05	6.85E-05
Parcel 2 (Fast Food1)	6.77E-06	1.43E-06	8.19E-06	9.53E-06	4.01E-05	4.96E-05	1	4.96E-05	5.78E-05
Parcel 3 (Retail2)	4.83E-07	0.00E+00	4.83E-07	5.05E-06	0.00E+00	5.05E-06	1	5.05E-06	5.53E-06
Parcel 4 (Retail3)	5.63E-07	0.00E+00	5.63E-07	5.05E-06	0.00E+00	5.05E-06	1	5.05E-06	5.61E-06
Parcel 5 (Fast Food/Retail)	1.63E-05	3.43E-06	1.97E-05	1.91E-05	8.02E-05	9.93E-05	2	4.96E-05	1.19E-04
Parcel 6 (Retail4)	2.92E-07	0.00E+00	2.92E-07	5.05E-06	0.00E+00	5.05E-06	1	5.05E-06	5.34E-06
Parcel 7 (Restaurant1)	4.31E-06	9.07E-07	5.21E-06	9.53E-06	4.01E-05	4.96E-05	1	4.96E-05	5.48E-05
Parcel 8 (Fast Food2)	4.26E-06	8.97E-07	5.15E-06	9.53E-06	4.01E-05	4.96E-05	1	4.96E-05	5.48E-05
Parcel 9 (Fast Food 3)	2.84E-06	5.98E-07	3.44E-06	9.53E-06	4.01E-05	4.96E-05	1	4.96E-05	5.31E-05
TOTAL	**1.10E-04**	**1.19E-05**	**1.22E-04**	**1.42E-04**	**3.21E-04**	**4.63E-04**			**5.85E-04**

Emission Assumptions Emissions: PM2.5

Redlands Crossing Parking Lot

Total Daily Vehicle Trips: 22907
Total Daily Vehicle Trips: 22907 (includes all facilities)

Total Peak Hour Vehicle Trips - Saturday 1941
Total Peak Hour Vehicle Trips - Saturday 1941 (includes all facilities)

Trip Generation derived from project traffic report: Urban Crossroads 2011

Default SCAQMD Vehicle Fleet Mix for 2010 (from URBEMIS Model):

LDA	51.70%
LDT1	7.30%
LDT2	22.90%
MDT	10.60%
LHDT1	1.60%
LHDT2	0.50%
MHDT	0.90%
HHDT	0.50%
UB	0.10%
MC	2.80%
SB	0.10%
MH	0.90%
	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 96.3%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Operational Time of Customer Parking Lots 24 hours

Vehicle Class	**Composite Vehicle Mix**	**Vehicle Trips (trips/day)**	**Vehicle Trips (trips/peak PM Hr)**
LDA	53.7%	12298	1042
LDT1	7.6%	1736	147
LDT2	23.8%	5447	462
MDT	11.0%	2521	214
UB	0.1%	24	2
MC	2.9%	666	56
MH	0.9%	214	18
	100.0%	22907	1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200 m

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Exhaust Emissions (g/sec)
LDA	0.037	12298	56.5	6.543E-04
LDT1	0.044	1736	9.5	1.099E-04
LDT2	0.077	5447	52.1	6.031E-04
MDT	0.076	2521	23.8	2.756E-04
UB	0.501	24	1.5	1.714E-05
MC	0.039	666	3.2	3.735E-05
MH	0.070	214	1.9	2.155E-05
Total		22907	148.5	1.719E-03

Composite Emission Factor 0.05 g/mi

Onsite Idling Emissions

Assume that each vehicle idles for 1 minute
Idling emission factor is derived by multiplying the emission factor at 2 mph by 2

Vehicle Class	Emission Factor at 2 mph (g/mi)	Idle Emission Factor (g/hr)	Number of Vehicles (vehicles/day)	Emissions (Grams/day)	Average Idling Emissions (g/sec)
LDA	0.059	0.118	6149	12.1	1.400E-04
LDT1	0.069	0.138	868	2.0	2.311E-05
LDT2	0.134	0.268	2724	12.2	1.408E-04
MDT	0.131	0.262	1261	5.5	6.372E-05
UB	0.687	1.374	12	0.3	3.152E-06
MC	0.04	0.08	333	0.4	5.139E-06
MH	0.06	0.12	107	0.2	2.478E-06
Total			11454	32.7	3.7837E-04

Composite Emission Factor 0.17 g/hr

Average Daily Emissions (all facilities) 2.097E-03 grams/sec

Area of the parking lot 53347 m2

Ave hourly emission rate 3.93E-08 grams/m2-sec

Modeled Truck Emission Sources

Redlands Crossing

PM2.5 Emissions

Basecase **2010**

Onsite Travel Emission Sources	Hourly Emissions (g/sec)
LP1	9.31E-06
LP2	8.19E-06
LP3	4.83E-07
LP4	5.63E-07
LP5A+LP5B	1.97E-05
LP6	2.92E-07
LP7	5.21E-06
LP8	5.15E-06
WM	6.99E-05
LP9	3.44E-06
Total	**1.22E-04**

Idling Emission Sources	Hourly Emissions (g/sec)
IP1	5.92E-05
IP2	4.96E-05
IP3	5.05E-06
IP4	5.05E-06
IP5A	4.96E-05
IP5B	4.96E-05
WMN	7.34E-05
WMS	1.77E-05
IP6	5.05E-06
IP7	4.96E-05
IP8	4.96E-05
IP9	4.96E-05
Total	**4.63E-04**

Season : Annual
Area : South Coast AQMD
****
Year: 2010 -- Model Years 1966 to 2010 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD
Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: PM2.5 Temperature: 65F Relative Humidity: 50%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.714	0.137	0	0	0.872	0.379	0	0	0.871	0.727	0	0	1.646	1.588
2	0.094	0.058	0.35	0.059	0.093	0.067	0.127	0.069	0.095	0.134	0.217	0.134	0.097	0.131	0.12	0.131	0.076	0.042	0.095	0.052	0.076	0.043	0.126	0.079	0.076	0.047	0.638	0.541	0.076	0.096	2.393	2.312
5	0.078	0.046	0.35	0.047	0.078	0.053	0.127	0.056	0.079	0.106	0.217	0.106	0.081	0.104	0.12	0.104	0.076	0.042	0.095	0.052	0.076	0.043	0.126	0.079	0.076	0.047	0.638	0.541	0.076	0.096	2.393	2.312
10	0.056	0.03	0.275	0.03	0.055	0.035	0.1	0.037	0.056	0.069	0.17	0.07	0.057	0.068	0.094	0.068	0.05	0.028	0.075	0.037	0.05	0.028	0.099	0.059	0.05	0.031	0.501	0.423	0.05	0.063	1.624	1.569
15	0.042	0.021	0.221	0.021	0.041	0.024	0.08	0.026	0.042	0.048	0.137	0.048	0.043	0.047	0.076	0.047	0.034	0.019	0.06	0.027	0.034	0.019	0.08	0.045	0.034	0.021	0.402	0.339	0.034	0.043	1.062	1.026
20	0.032	0.015	0.181	0.015	0.032	0.017	0.066	0.019	0.033	0.035	0.112	0.035	0.033	0.034	0.062	0.034	0.024	0.013	0.049	0.02	0.024	0.014	0.065	0.036	0.024	0.015	0.33	0.278	0.024	0.031	0.74	0.716
25	0.026	0.011	0.152	0.012	0.026	0.013	0.055	0.015	0.027	0.027	0.094	0.027	0.027	0.026	0.052	0.026	0.018	0.01	0.041	0.016	0.018	0.01	0.055	0.03	0.018	0.011	0.277	0.233	0.018	0.023	0.621	0.6
30	0.023	0.009	0.13	0.009	0.022	0.011	0.047	0.012	0.023	0.021	0.081	0.021	0.023	0.021	0.045	0.021	0.014	0.008	0.035	0.013	0.014	0.008	0.047	0.025	0.014	0.009	0.237	0.199	0.014	0.018	0.533	0.515
35	0.02	0.008	0.114	0.008	0.02	0.009	0.041	0.01	0.02	0.018	0.071	0.018	0.021	0.018	0.039	0.018	0.011	0.006	0.031	0.011	0.011	0.006	0.041	0.021	0.011	0.007	0.208	0.175	0.011	0.014	0.475	0.459
40	0.019	0.007	0.102	0.007	0.019	0.008	0.037	0.009	0.019	0.016	0.063	0.016	0.019	0.016	0.035	0.016	0.009	0.005	0.028	0.01	0.009	0.005	0.037	0.019	0.009	0.006	0.186	0.156	0.009	0.012	0.448	0.432
45	0.018	0.006	0.094	0.007	0.018	0.008	0.034	0.009	0.019	0.015	0.058	0.015	0.019	0.015	0.032	0.015	0.008	0.005	0.025	0.009	0.008	0.005	0.034	0.017	0.008	0.005	0.171	0.143	0.008	0.01	0.451	0.435
50	0.019	0.006	0.088	0.007	0.019	0.008	0.032	0.008	0.019	0.015	0.054	0.015	0.019	0.015	0.03	0.015	0.008	0.004	0.024	0.008	0.008	0.004	0.032	0.016	0.008	0.005	0.16	0.134	0.008	0.01	0.485	0.468
55	0.02	0.007	0.084	0.007	0.02	0.008	0.03	0.009	0.02	0.015	0.052	0.016	0.021	0.015	0.029	0.015	0.007	0.004	0.023	0.008	0.007	0.004	0.03	0.015	0.007	0.004	0.153	0.128	0.007	0.009	0.549	0.53

	Brake	Tire	Total
LDA	0.005	0.002	0.007
LDT1	0.005	0.002	0.007
LDT2	0.005	0.002	0.007
MDT	0.005	0.002	0.007
LHDT1	0.005	0.003	0.008
LHDT2	0.005	0.003	0.008
MHDT	0.005	0.003	0.008
HHDT	0.012	0.009	0.021
UB	0.005	0.003	0.008
MC	0.003	0.001	0.004
MH	0.005	0.003	0.008
MH	0.012	0.013	0.025

Redlands Crossing

Estimation of TRU Diesel Emission Factors from OFFROAD2007

For SCAQMD in 2010

Pollutant	Emissions (tons/day)	Emissions (grams/hr)	Activity (hrs/day)	Emission Factor (g/hp-hr)
CO	25.642	970122	2.13E+05	4.55
Nox	26.01	984045	2.13E+05	4.61
PM10	2.065	78126	2.13E+05	0.37
PM2.5	1.8585	70313	2.13E+05	0.33
SOx	0.0357	1351	2.13E+05	0.01

Redlands Crossing

Natural Gas Emissions - Estimated by URBEMIS

Pollutant	Daily Emissions (lbs/day)	(g/sec)
CO	2.22	1.17E-02
Nox	2.64	1.39E-02
PM10	0.0048	2.52E-05
PM2.5	0.0048	2.52E-05

Natural Gas Emission Distribution

Building	Area (sq)	CO Emissions (g/sec)	Nox Emissions (g/sec)	PM10 Emissions (g/sec)	PM2.5 Emissions (g/sec)
Walmart	215000	9.12E-03	1.08E-02	1.97E-05	1.97E-05
Parcel 1	3000	1.27E-04	1.51E-04	2.75E-07	2.75E-07
Parcel 2	3500	1.48E-04	1.77E-04	3.21E-07	3.21E-07
Parcel 3	8000	3.39E-04	4.04E-04	7.34E-07	7.34E-07
Parcel 4	11000	4.67E-04	5.55E-04	1.01E-06	1.01E-06
Parcel 5A	7300	3.10E-04	3.68E-04	6.70E-07	6.70E-07
Parcel 5B	5000	2.12E-04	2.52E-04	4.59E-07	4.59E-07
Parcel 6	6700	2.84E-04	3.38E-04	6.15E-07	6.15E-07
Parcel 7	9000	3.82E-04	4.54E-04	8.25E-07	8.25E-07
Parcel 8	3000	1.27E-04	1.51E-04	2.75E-07	2.75E-07
Parcel 9	3500	1.48E-04	1.77E-04	3.21E-07	3.21E-07
Total	275000	1.17E-02	1.39E-02	2.52E-05	2.52E-05

Emission Assumptions **CO** Emissions
Redlands Crossing

Facility Operations

Buildout year: 2013

Emission Factors

1) Onsite Vehicle Emissions

a) Truck
(1) EMFAC2007
(a) Annual Meteorology
Temperature: 65 degF
Relative Humidity: 50%
(b) Calculations for SCAQMD
(c) Truck Mix
4+ axle heavy-heavy duty diesel trucks (HHDT)
2 axle diesel trucks (LHDT2)
(d) Onsite Truck and Customer Travel Spee 10 mph
(e) Idle speed: 0 mph
(e) Truck Idle time: 15 minutes per truck per day

(f) Idle time for customer vehicles: 1 min per day per vehicle
b) Truck TRU
(1) Emission factors derived from CARB OFFROAD Model Fleet Year for 2013
(2) TRU size: 35 hp
(3) Cooling time: 0.5 hr/day
(4) Load Factor: 60 %
(5) On/off Cycle Factor 50 %
(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet
(b) Truck Operational Schedule of "Big Box" 24 hours/day
(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day
(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission: CO**

Processes Modeled **Build-out: 2013**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips			
Wal-Mart (Parcel 14)	4+ axle	5	10	2	4	7	14			
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14			
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4			
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2			
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2			
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2			
Parcel 5 (Food Court A and B)	4+ axle	0	0	2	4	2	4			
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2			
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2			
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2			
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2			
Total		**16**	**32**	**9**	**18**	**25**	**50**		**4**	**16**
									2	14
Facility Operations:								22		
Wal-Mart	24 **hrs/day, 52weeks/year**									
All others	12 **hrs/day, 52weeks/year**									

Emission Factors

Vehicle Class	Exhaust @ 10 mph (g/mi)	Idle (g/hr)
4+ axle	10.144	45.962
2 axle	2.303	26.3

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	4.1	4.1	<----- USEPA Tier 4 Non-Road Engine Diesel Standard

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Max Hourly Emissions Over Link (g/sec)	Max Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (lb/yr)	Annual Ave Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	10.144	14	375	0.23	3.31E+01	6.56E-04	7.29E-02	2.66E+01	1.33E-02
Wal-Mart (Parcel 14)	2 axle	2.303	14	375	0.23	7.51E+00	1.49E-04	1.65E-02	6.04E+00	3.02E-03
Parcel 1 (Retail1)	4+ axle	10.144	4	89	0.06	2.24E+00	1.56E-04	4.94E-03	1.80E+00	9.02E-04
Parcel 2 (Fast Food1)	4+ axle	10.144	2	143	0.09	1.80E+00	2.50E-04	3.97E-03	1.45E+00	7.24E-04
Parcel 3 (Retail2)	2 axle	2.303	2	157	0.10	4.49E-01	6.24E-05	9.89E-04	3.61E-01	1.81E-04
Parcel 4 (Retail3)	2 axle	2.303	2	183	0.11	5.24E-01	7.27E-05	1.15E-03	4.21E-01	2.10E-04
Parcel 5 (Fast Food/Retail)	4+ axle	10.144	4	172	0.11	4.34E+00	3.01E-04	9.55E-03	3.49E+00	1.74E-03
Parcel 6 (Retail4)	2 axle	2.303	2	95	0.06	2.72E-01	3.78E-05	5.99E-04	2.19E-01	1.09E-04
Parcel 7 (Restaurant1)	4+ axle	10.144	2	91	0.06	1.15E+00	1.59E-04	2.53E-03	9.22E-01	4.61E-04
Parcel 8 (Fast Food2)	4+ axle	10.144	2	90	0.06	1.13E+00	1.58E-04	2.50E-03	9.12E-01	4.56E-04
Parcel 9 (Fast Food 3)	4+ axle	10.144	2	60	0.04	7.56E-01	1.05E-04	1.67E-03	6.08E-01	3.04E-04
			50							
Total						**5.33E+01**	**2.11E-03**	**1.17E-01**	**4.28E+01**	**2.14E-02**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Release Height Above Ground (m)	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Total Daily Emissions (lbs/day)	Total Emissions (lbs/yr)	Total Emissions (tons/yr)	Annual Average Emssions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	45.962	15	7	4.15	80.43	3.19E-03	1.77E-01	6.47E+01	3.23E-02	9.31E-04
Wal-Mart (Parcel 14)	2 axle	26.3	15	7	4.15	46.03	1.83E-03	1.01E-01	3.70E+01	1.85E-02	5.33E-04
Parcel 1 (Retail1)	4+ axle	45.962	15	2	4.15	22.98	3.19E-03	5.06E-02	1.85E+01	9.24E-03	5.32E-04
Parcel 2 (Fast Food1)	4+ axle	45.962	15	1	4.15	11.49	3.19E-03	2.53E-02	9.24E+00	4.62E-03	2.66E-04
Parcel 3 (Retail2)	2 axle	26.3	15	1	4.15	6.58	1.83E-03	1.45E-02	5.29E+00	2.64E-03	1.52E-04
Parcel 4 (Retail3)	2 axle	26.3	15	1	4.15	6.58	1.83E-03	1.45E-02	5.29E+00	2.64E-03	1.52E-04
Parcel 5 (Fast Food/Retail)	4+ axle	45.962	15	2	4.15	22.98	3.19E-03	5.06E-02	1.85E+01	9.24E-03	5.32E-04
Parcel 6 (Retail4)	2 axle	26.3	15	1	4.15	6.58	1.83E-03	1.45E-02	5.29E+00	2.64E-03	1.52E-04
Parcel 7 (Restaurant1)	4+ axle	45.962	15	1	4.15	11.49	3.19E-03	2.53E-02	9.24E+00	4.62E-03	2.66E-04
Parcel 8 (Fast Food2)	4+ axle	45.962	15	1	4.15	11.49	3.19E-03	2.53E-02	9.24E+00	4.62E-03	2.66E-04
Parcel 9 (Fast Food)	4+ axle	45.962	15	1	4.15	11.49	3.19E-03	2.53E-02	9.24E+00	4.62E-03	2.66E-04
Total				**25**		**2.38E+02**	**2.96E-02**	**5.24E-01**	**1.91E+02**	**9.57E-02**	**4.05E-03**

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	4	4.1	60	50	10	375	0.23	0.023	4.01E+00	2.79E-04	8.84E-03	1.61E-03
Wal-Mart (Parcel 14)	2 axle	35	0	4.1	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	4.1	60	50	10	89	0.06	0.006	4.76E-01	6.61E-05	1.05E-03	1.91E-04
Parcel 2 (Fast Food1)	4+ axle	35	2	4.1	60	50	10	143	0.09	0.009	7.65E-01	1.06E-04	1.68E-03	3.07E-04
Parcel 3 (Retail2)	2 axle	35	0	4.1	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	4.1	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A and B)	4+ axle	35	4	4.1	60	50	10	172	0.11	0.011	1.84E+00	1.28E-04	4.05E-03	7.40E-04
Parcel 6 (Retail4)	2 axle	35	0	4.1	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	4.1	60	50	10	91	0.06	0.006	4.87E-01	6.76E-05	1.07E-03	1.96E-04
Parcel 8 (Fast Food2)	4+ axle	35	2	4.1	60	50	10	90	0.06	0.006	4.81E-01	6.69E-05	1.06E-03	1.94E-04
Parcel 9 (Fast Food)	4+ axle	35	2	4.1	60	50	10	60	0.04	0.004	3.21E-01	4.46E-05	7.07E-04	1.29E-04
TOTAL			**18**								**8.38E+00**	**7.58E-04**	**1.85E-02**	**3.37E-03**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Average Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	2	4.1	60	50	0.5	4.31E+01	5.98E-03	9.48E-02	1.73E-02
Wal-Mart (Parcel 14)	2 axle	35	0	4.1	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	4.1	60	50	0.5	2.15E+01	5.98E-03	4.74E-02	8.65E-03
Parcel 2 (Fast Food1)	4+ axle	35	1	4.1	60	50	0.5	2.15E+01	5.98E-03	4.74E-02	8.65E-03
Parcel 3 (Retail2)	2 axle	35	0	4.1	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	4.1	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A and B)	4+ axle	35	2	4.1	60	50	0.5	4.31E+01	5.98E-03	9.48E-02	1.73E-02
Parcel 6 (Retail4)	2 axle	35	0	4.1	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	4.1	60	50	0.5	2.15E+01	5.98E-03	4.74E-02	8.65E-03
Parcel 8 (Fast Food2)	4+ axle	35	1	4.1	60	50	0.5	2.15E+01	5.98E-03	4.74E-02	8.65E-03
Parcel 9 (Fast Food)	4+ axle	35	1	4.1	60	50	0.5	2.15E+01	5.98E-03	4.74E-02	8.65E-03
TOTAL			**9**					**1.94E+02**	**4.19E-02**	**4.27E-01**	**7.79E-02**

Emission Summary

Facility Emission Summary	Max Hrly Onsite Travel Emissions (g/sec)	Max Hrly Onsite TRU Travel Emissions (g/sec)	Total Max Hrly Onsite Travel Emissions (g/sec)	Max Hrly Onsite Idle Emissions (g/sec)	Max Hrly Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	6.56E-04	2.79E-04	9.35E-04	3.19E-03	5.98E-03	9.17E-03	1	9.17E-03	1.01E-02
Wal-Mart (Parcel 14)	1.49E-04	0.00E+00	1.49E-04	1.83E-03	0.00E+00	1.83E-03	1	1.83E-03	1.98E-03
Parcel 1 (Retail1)	1.56E-04	6.61E-05	2.22E-04	3.19E-03	5.98E-03	9.17E-03	1	9.17E-03	9.39E-03
Parcel 2 (Fast Food1)	2.50E-04	1.06E-04	3.57E-04	3.19E-03	5.98E-03	9.17E-03	1	9.17E-03	9.53E-03
Parcel 3 (Retail2)	6.24E-05	0.00E+00	6.24E-05	1.83E-03	0.00E+00	1.83E-03	1	1.83E-03	1.89E-03
Parcel 4 (Retail3)	7.27E-05	0.00E+00	7.27E-05	1.83E-03	0.00E+00	1.83E-03	1	1.83E-03	1.90E-03
Parcel 5 (Fast Food/Retail)	3.01E-04	1.28E-04	4.29E-04	3.19E-03	5.98E-03	9.17E-03	2	4.59E-03	9.60E-03
Parcel 6 (Retail4)	3.78E-05	0.00E+00	3.78E-05	1.83E-03	0.00E+00	1.83E-03	1	1.83E-03	1.86E-03
Parcel 7 (Restaurant1)	1.59E-04	6.76E-05	2.27E-04	3.19E-03	5.98E-03	9.17E-03	1	9.17E-03	9.40E-03
Parcel 8 (Fast Food2)	1.58E-04	6.69E-05	2.24E-04	3.19E-03	5.98E-03	9.17E-03	1	9.17E-03	9.40E-03
Parcel 9 (Fast Food 3)	1.05E-04	4.46E-05	1.50E-04	3.19E-03	5.98E-03	9.17E-03	1	9.17E-03	9.32E-03
TOTAL	**2.11E-03**	**7.58E-04**	**2.87E-03**	**2.96E-02**	**4.19E-02**	**7.15E-02**			**7.44E-02**

Emission Assumptions Emissions: CO

Redlands Crossing Workers and Parking Lot

Total Daily Vehicle Trips - Saturday	22907	
Total Daily Vehicle Trip - Saturday	22907	trips/day for all facilities - Saturday

Total Peak Hour Vehicle Trips - Saturday	1941	
Total Vehicle Trips:	1941	trips/hour for all facilities - Saturday

Trip Generation derived from project traffic report: Urban Crossroads 2011

Default SCAQMD Vehicle Fleet Mix for 2013 (from URBEMIS Model):

LDA	51.30%
LDT1	7.30%
LDT2	23.10%
MDT	10.70%
LHDT1	1.60%
LHDT2	0.50%
MHDT	0.90%
HHDT	0.60%
UB	0.10%
MC	2.80%
SB	0.10%
MH	0.90%
OB	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 96.2%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Vehicle Class	**Composite Vehicle Mix**	**Vehicle Trips (trips/day)**	**Vehicle Trips (trips/peak PM Hr)**
LDA	53.3%	12215	1035
LDT1	7.6%	1738	147
LDT2	24.0%	5501	466
MDT	11.1%	2548	216
UB	0.1%	24	2
MC	2.9%	667	56
MH	0.9%	214	18
	100.0%	22907	1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200 m

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Vehicle Trips (trips/peak-PM_Hr)	Total Exhaust Emissions (grams/sec)
LDA	2.538	12215	3851.9	1035	9.066E-02
LDT1	4.089	1738	883.1	147	2.079E-02
LDT2	3.777	5501	2581.2	466	6.075E-02
MDT	4.713	2548	1491.9	216	3.512E-02
UB	19.531	24	57.8	2	1.360E-03
MC	23.904	667	1980.1	56	4.661E-02
MH	20.230	214	538.6	18	1.268E-02
Total		22907	11384.6	1941	2.680E-01

Composite Emission Factor 4.00 g/mi

Onsite Idling Emissions

Assume that each vehicle idles for 1 minute
Idling emission factor is derived by multiplying the emission factor at 2 mph by 2

Vehicle Class	Emission Factor at 2 mph (g/mi)	Idle Emission Factor (g/hr)	Number of Vehicles (vehicles/day)	Emissions (Grams/day)	Number of Vehicles (vehicles/peak-PM_Hr)	Total Idling Emissions (Grams/sec)
LDA	3.123	6.246	6108	635.8	518	1.497E-02
LDT1	5.393	10.786	869	156.2	74	3.677E-03
LDT2	4.643	9.286	2750	425.6	233	1.002E-02
MDT	6.06	12.12	1274	257.3	108	6.057E-03
UB	29.972	59.944	12	11.9	1	2.800E-04
MC	28.546	57.092	333	317.2	28	7.466E-03
MH	30.394	60.788	107	108.6	9	2.555E-03
Total			11454	1912.7	970.5	4.502E-02

Composite Emission Factor 10.020 g/hr

Max Hourly Emissions (all facilities) 3.130E-01 grams/sec

Area of the parking lot 53347 m2

Max hourly emission rate 5.87E-06 grams/m2-sec

Modeled Truck Emission Sources

Redlands Crossing

CO Emissions

Buildout Year: **2013**

Onsite Travel Emission Sources	Hourly Emissions (g/sec)	Idling Emission Sources	Hourly Emissions (g/sec)
LP1	2.22E-04	IP1	9.17E-03
LP2	3.57E-04	IP2	9.17E-03
LP3	6.24E-05	IP3	1.83E-03
LP4	7.27E-05	IP4	1.83E-03
LP5A+LP5B	4.29E-04	IP5A	4.59E-03
LP6	3.78E-05	IP5B	4.59E-03
LP7	2.27E-04	WMN	9.17E-03
LP8	2.24E-04	WMS	1.83E-03
WM	1.08E-03	IP6	1.83E-03
LP9	1.50E-04	IP7	9.17E-03
		IP8	9.17E-03
		IP9	9.17E-03
Total	**2.87E-03**	**Total**	**7.15E-02**

Title : Redlands WM 2013
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2010/12/14 10:26:48
Scen Year: 2013 -- All model years in the range 1969 to 2013 selected
Season : Annual
Area : South Coast AQMD
****
Year: 2013 -- Model Years 1969 to 2013 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: Carbon Monoxide Temperature: 65F Relative Humidity: 50%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	134.249	138.005	26.3	116.592	134.249	137.863	26.3	89.672	134.249	137.929	26.3	45.081	0	0	45.962	44.757
2	188.32	2.777	2.92	3.123	195.327	4.058	2.161	5.393	189.7	4.312	2.54	4.643	335.75	4.978	2.14	6.06	342.287	11.778	2.961	10.915	342.287	7.717	3.34	6.304	513.43	21.024	6.698	9.919	2249.905	174.144	14.415	19.097
5	157.686	2.612	2.92	2.901	163.553	3.768	2.161	4.883	158.841	4.04	2.54	4.316	281.133	4.629	2.14	5.534	342.287	11.778	2.961	10.915	342.287	7.717	3.34	6.304	513.43	21.024	6.698	9.919	2249.905	174.144	14.415	19.097
10	114.932	2.328	2.013	2.538	119.208	3.294	1.49	4.089	115.774	3.578	1.751	3.777	204.909	4.057	1.476	4.713	227.727	7.836	2.041	7.276	227.727	5.134	2.303	4.229	341.591	13.988	4.618	6.734	1496.887	115.86	10.144	13.245
15	88.219	2.094	1.453	2.254	91.502	2.921	1.075	3.519	88.865	3.202	1.264	3.353	157.283	3.607	1.065	4.107	160.076	5.508	1.473	5.122	160.076	3.609	1.662	2.991	240.114	9.832	3.333	4.806	1052.205	81.441	7.044	9.226
20	71.312	1.898	1.097	2.026	73.965	2.621	0.812	3.096	71.834	2.89	0.954	3.012	127.139	3.244	0.804	3.647	118.884	4.091	1.113	3.807	118.884	2.68	1.255	2.231	178.326	7.302	2.517	3.604	781.444	60.484	5.227	6.847
25	60.706	1.731	0.867	1.84	62.965	2.376	0.642	2.776	61.151	2.629	0.754	2.732	108.231	2.947	0.636	3.288	93.284	3.21	0.879	2.989	93.284	2.103	0.992	1.753	139.926	5.73	1.989	2.84	613.171	47.46	4.49	5.752
30	54.423	1.589	0.717	1.687	56.448	2.175	0.531	2.531	54.821	2.409	0.624	2.502	97.028	2.7	0.526	3.006	77.335	2.661	0.727	2.477	77.335	1.743	0.821	1.453	116.003	4.75	1.645	2.351	508.336	39.346	3.876	4.918
35	51.381	1.468	0.621	1.56	53.293	2.009	0.46	2.345	51.757	2.224	0.54	2.311	91.605	2.496	0.455	2.785	67.738	2.331	0.63	2.168	67.738	1.527	0.71	1.269	101.607	4.161	1.424	2.045	445.253	34.463	3.385	4.298
40	51.085	1.364	0.563	1.456	52.986	1.873	0.416	2.21	51.46	2.067	0.489	2.154	91.079	2.327	0.412	2.615	62.687	2.157	0.57	2.004	62.687	1.413	0.644	1.168	94.03	3.85	1.291	1.87	412.049	31.893	3.016	3.864
45	53.489	1.275	0.533	1.372	55.48	1.763	0.395	2.121	53.881	1.935	0.464	2.027	95.365	2.191	0.391	2.493	61.292	2.109	0.541	1.957	61.292	1.382	0.61	1.134	91.938	3.765	1.224	1.796	402.882	31.183	2.769	3.603
50	58.981	1.201	0.529	1.308	61.176	1.679	0.392	2.08	59.413	1.827	0.46	1.929	105.156	2.085	0.388	2.421	63.317	2.179	0.537	2.017	63.317	1.427	0.606	1.161	94.975	3.889	1.214	1.814	416.191	32.213	2.645	3.512
55	68.491	1.14	0.55	1.265	71.04	1.621	0.407	2.095	68.993	1.741	0.478	1.86	122.111	2.012	0.403	2.403	69.107	2.378	0.557	2.196	69.107	1.558	0.629	1.253	103.66	4.245	1.261	1.927	454.248	35.159	2.644	3.596

Emission Assumptions **Nox** Emissions
Redlands Crossing

Facility Operations

Buildout year: 2013

Emission Factors

1) Onsite Vehicle Emissions

a) Truck
(1) EMFAC2007
(a) Annual Meteorology
Temperature: 65 degF
Relative Humidity: 50%
(b) Calculations for SCAQMD
(c) Truck Mix
4+ axle heavy-heavy duty diesel trucks (HHDT)
2 axle diesel trucks (LHDT2)
(d) Onsite Truck and Customer Travel Spee 10 mph
(e) Idle speed: 0 mph
(e) Truck Idle time: 15 minutes per truck per day

(f) Idle time for customer vehicles: 1 min per day per vehicle
b) Truck TRU
(1) Emission factors derived from CARB 2003 ISOR ATCM for TRUs, Appendix D, Attachment A
(2) TRU size: 35 hp
(3) Cooling time: 0.5 hr/day
(4) Load Factor: 60 %
(5) On/off Cycle Factor 50 %
(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet
(b) Truck Operational Schedule of "Big Box" 24 hours/day
(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day
(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission:** **Nox**

Processes Modeled **Build-out:** **2013**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips		
Wal-Mart (Parcel 14)	4+ axle	5	10	3	6	8	16		
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14		
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4		
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2		
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2		
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2		
Parcel 5 (Food Court A and B)	4+ axle	0	0	2	4	2	4		
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2		
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2		
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2		
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2		
Total		**16**	**32**	**10**	**20**	**26**	**52**	**4**	**16**
								2	14
Facility Operations:							22		
Wal-Mart	24 **hrs/day, 52weeks/year**								
All others	12 **hrs/day, 52weeks/year**								

Emission Factors

Vehicle Class	Exhaust @ 10 mph (g/mi)	Idle (g/hr)
4+ axle	19.47	114.93
2 axle	4.96	75.051

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	4.2	4.2	<----- OFFROAD Fleet Average in SCAQMD in 2013

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Max Hourly Emissions Over Link (g/sec)	Max Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (lb/yr)	Annual Ave Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	19.47	16	375	0.23	7.26E+01	1.26E-03	1.60E-01	5.83E+01	2.92E-02
Wal-Mart (Parcel 14)	2 axle	4.96	14	375	0.23	1.62E+01	3.21E-04	3.56E-02	1.30E+01	6.50E-03
Parcel 1 (Retail1)	4+ axle	19.47	4	89	0.06	4.31E+00	2.99E-04	9.48E-03	3.46E+00	1.73E-03
Parcel 2 (Fast Food1)	4+ axle	19.47	2	143	0.09	3.46E+00	4.80E-04	7.62E-03	2.78E+00	1.39E-03
Parcel 3 (Retail2)	2 axle	4.96	2	157	0.10	9.68E-01	1.34E-04	2.13E-03	7.78E-01	3.89E-04
Parcel 4 (Retail3)	2 axle	4.96	2	183	0.11	1.13E+00	1.57E-04	2.48E-03	9.07E-01	4.53E-04
Parcel 5 (Fast Food/Retail)	4+ axle	19.47	4	172	0.11	8.32E+00	5.78E-04	1.83E-02	6.69E+00	3.35E-03
Parcel 6 (Retail4)	2 axle	4.96	2	95	0.06	5.85E-01	8.13E-05	1.29E-03	4.71E-01	2.35E-04
Parcel 7 (Restaurant1)	4+ axle	19.47	2	91	0.06	2.20E+00	3.06E-04	4.85E-03	1.77E+00	8.85E-04
Parcel 8 (Fast Food2)	4+ axle	19.47	2	90	0.06	2.18E+00	3.02E-04	4.80E-03	1.75E+00	8.75E-04
Parcel 9 (Fast Food 3)	4+ axle	19.47	2	60	0.04	1.45E+00	2.02E-04	3.20E-03	1.17E+00	5.83E-04
			52							
Total						**1.13E+02**	**4.12E-03**	**2.50E-01**	**9.11E+01**	**4.56E-02**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Release Height Above Ground (m)	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Total Daily Emissions (lbs/day)	Total Emissions (lbs/yr)	Total Emissions (tons/yr)	Annual Average Emssions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	114.93	15	8	4.15	229.86	7.98E-03	5.06E-01	1.85E+02	9.24E-02	2.66E-03
Wal-Mart (Parcel 14)	2 axle	75.051	15	7	4.15	131.34	5.21E-03	2.89E-01	1.06E+02	5.28E-02	1.52E-03
Parcel 1 (Retail1)	4+ axle	114.93	15	2	4.15	57.47	7.98E-03	1.27E-01	4.62E+01	2.31E-02	1.33E-03
Parcel 2 (Fast Food1)	4+ axle	114.93	15	1	4.15	28.73	7.98E-03	6.33E-02	2.31E+01	1.15E-02	6.65E-04
Parcel 3 (Retail2)	2 axle	75.051	15	1	4.15	18.76	5.21E-03	4.13E-02	1.51E+01	7.54E-03	4.34E-04
Parcel 4 (Retail3)	2 axle	75.051	15	1	4.15	18.76	5.21E-03	4.13E-02	1.51E+01	7.54E-03	4.34E-04
Parcel 5 (Fast Food/Retail)	4+ axle	114.93	15	2	4.15	57.47	7.98E-03	1.27E-01	4.62E+01	2.31E-02	1.33E-03
Parcel 6 (Retail4)	2 axle	75.051	15	1	4.15	18.76	5.21E-03	4.13E-02	1.51E+01	7.54E-03	4.34E-04
Parcel 7 (Restaurant1)	4+ axle	114.93	15	1	4.15	28.73	7.98E-03	6.33E-02	2.31E+01	1.15E-02	6.65E-04
Parcel 8 (Fast Food2)	4+ axle	114.93	15	1	4.15	28.73	7.98E-03	6.33E-02	2.31E+01	1.15E-02	6.65E-04
Parcel 9 (Fast Food)	4+ axle	114.93	15	1	4.15	28.73	7.98E-03	6.33E-02	2.31E+01	1.15E-02	6.65E-04
Total				**26**		**6.47E+02**	**7.67E-02**	**1.43E+00**	**5.20E+02**	**2.60E-01**	**1.08E-02**

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	6	4.2	60	50	10	375	0.23	0.023	6.16E+00	2.85E-04	1.36E-02	2.48E-03
Wal-Mart (Parcel 14)	2 axle	35	0	4.2	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	4.2	60	50	10	89	0.06	0.006	4.88E-01	6.77E-05	1.07E-03	1.96E-04
Parcel 2 (Fast Food1)	4+ axle	35	2	4.2	60	50	10	143	0.09	0.009	7.84E-01	1.09E-04	1.73E-03	3.15E-04
Parcel 3 (Retail2)	2 axle	35	0	4.2	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	4.2	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A and B)	4+ axle	35	4	4.2	60	50	10	172	0.11	0.011	1.88E+00	1.31E-04	4.15E-03	7.58E-04
Parcel 6 (Retail4)	2 axle	35	0	4.2	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	4.2	60	50	10	91	0.06	0.006	4.99E-01	6.92E-05	1.10E-03	2.00E-04
Parcel 8 (Fast Food2)	4+ axle	35	2	4.2	60	50	10	90	0.06	0.006	4.93E-01	6.85E-05	1.09E-03	1.98E-04
Parcel 9 (Fast Food)	4+ axle	35	2	4.2	60	50	10	60	0.04	0.004	3.29E-01	4.57E-05	7.24E-04	1.32E-04
TOTAL			**20**								**1.06E+01**	**7.76E-04**	**2.34E-02**	**4.28E-03**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Average Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	3	4.2	60	50	0.5	6.62E+01	6.13E-03	1.46E-01	2.66E-02
Wal-Mart (Parcel 14)	2 axle	35	0	4.2	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	4.2	60	50	0.5	2.21E+01	6.13E-03	4.86E-02	8.86E-03
Parcel 2 (Fast Food1)	4+ axle	35	1	4.2	60	50	0.5	2.21E+01	6.13E-03	4.86E-02	8.86E-03
Parcel 3 (Retail2)	2 axle	35	0	4.2	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	4.2	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A and B)	4+ axle	35	2	4.2	60	50	0.5	4.41E+01	6.13E-03	9.71E-02	1.77E-02
Parcel 6 (Retail4)	2 axle	35	0	4.2	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	4.2	60	50	0.5	2.21E+01	6.13E-03	4.86E-02	8.86E-03
Parcel 8 (Fast Food2)	4+ axle	35	1	4.2	60	50	0.5	2.21E+01	6.13E-03	4.86E-02	8.86E-03
Parcel 9 (Fast Food)	4+ axle	35	1	4.2	60	50	0.5	2.21E+01	6.13E-03	4.86E-02	8.86E-03
TOTAL			**10**					**2.21E+02**	**4.29E-02**	**4.86E-01**	**8.86E-02**

Emission Summary

Facility Emission Summary	Max Hrly Onsite Travel Emissions (g/sec)	Max Hrly Onsite TRU Travel Emissions (g/sec)	Total Max Hrly Onsite Travel Emissions (g/sec)	Max Hrly Onsite Idle Emissions (g/sec)	Max Hrly Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	1.26E-03	2.85E-04	1.55E-03	7.98E-03	6.13E-03	1.41E-02	1	1.41E-02	1.57E-02
Wal-Mart (Parcel 14)	3.21E-04	0.00E+00	3.21E-04	5.21E-03	0.00E+00	5.21E-03	1	5.21E-03	5.53E-03
Parcel 1 (Retail1)	2.99E-04	6.77E-05	3.67E-04	7.98E-03	6.13E-03	1.41E-02	1	1.41E-02	1.45E-02
Parcel 2 (Fast Food1)	4.80E-04	1.09E-04	5.89E-04	7.98E-03	6.13E-03	1.41E-02	1	1.41E-02	1.47E-02
Parcel 3 (Retail2)	1.34E-04	0.00E+00	1.34E-04	5.21E-03	0.00E+00	5.21E-03	1	5.21E-03	5.35E-03
Parcel 4 (Retail3)	1.57E-04	0.00E+00	1.57E-04	5.21E-03	0.00E+00	5.21E-03	1	5.21E-03	5.37E-03
Parcel 5 (Fast Food/Retail)	5.78E-04	1.31E-04	7.09E-04	7.98E-03	6.13E-03	1.41E-02	2	7.05E-03	1.48E-02
Parcel 6 (Retail4)	8.13E-05	0.00E+00	8.13E-05	5.21E-03	0.00E+00	5.21E-03	1	5.21E-03	5.29E-03
Parcel 7 (Restaurant1)	3.06E-04	6.92E-05	3.75E-04	7.98E-03	6.13E-03	1.41E-02	1	1.41E-02	1.45E-02
Parcel 8 (Fast Food2)	3.02E-04	6.85E-05	3.71E-04	7.98E-03	6.13E-03	1.41E-02	1	1.41E-02	1.45E-02
Parcel 9 (Fast Food 3)	2.02E-04	4.57E-05	2.47E-04	7.98E-03	6.13E-03	1.41E-02	1	1.41E-02	1.44E-02

Emission Assumptions Emissions: Nox

Redlands Crossing Parking Lot

Total Daily Vehicle Trips - Saturday	22907	(does not include outparcels 10-13)
Total Daily Vehicle Trip - Saturday	22907	trips/day for all facilities - Saturday

Total Peak Hour Vehicle Trips - Saturday	1941	(does not include outparcels 10-13)
Total Vehicle Trips:	1941	trips/hour for all facilities - Saturday

Trip Generation derived from project traffic report: Urban Crossroads 2010

Default SCAQMD Vehicle Fleet Mix for 2013 (from URBEMIS Model):

LDA	51.30%
LDT1	7.30%
LDT2	23.10%
MDT	10.70%
LHDT1	1.60%
LHDT2	0.50%
MHDT	0.90%
HHDT	0.60%
UB	0.10%
MC	2.80%
SB	0.10%
MH	0.90%
OB	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 96.2%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Vehicle Class	**Composite Vehicle Mix**	**Vehicle Trips (trips/day)**	**Vehicle Trips (trips/peak PM Hr)**
LDA	53.3%	12215	1035
LDT1	7.6%	1738	147
LDT2	24.0%	5501	466
MDT	11.1%	2548	216
UB	0.1%	24	2
MC	2.9%	667	56
MH	0.9%	214	18
	100.0%	22907	1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200 m

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Vehicle Trips (trips/peak-PM_Hr)	Total Exhaust Emissions (grams/sec)
LDA	0.205	12215	311.1	1035	7.323E-03
LDT1	0.323	1738	69.8	147	1.642E-03
LDT2	0.442	5501	302.1	466	7.110E-03
MDT	0.572	2548	181.1	216	4.262E-03
UB	21.898	24	64.8	2	1.525E-03
MC	1.110	667	91.9	56	2.164E-03
MH	1.652	214	44.0	18	1.035E-03
Total		22907	1064.7	1941	2.506E-02

Composite Emission Factor 0.37 g/mi

Onsite Idling Emissions

Assume that each vehicle idles for 1 minute
Idling emission factor is derived by multiplying the emission factor at 2 mph by 2

Vehicle Class	Emission Factor at 2 mph (g/mi)	Idle Emission Factor (g/hr)	Number of Vehicles (vehicles/day)	Emissions (Grams/day)	Number of Vehicles (vehicles/peak-PM_Hr)	Total Idling Emissions (Grams/sec)
LDA	0.254	0.508	6108	51.7	518	1.217E-03
LDT1	0.399	0.798	869	11.6	74	2.721E-04
LDT2	0.559	1.118	2750	51.2	233	1.206E-03
MDT	0.719	1.438	1274	30.5	108	7.186E-04
UB	28.287	56.574	12	11.2	1	2.642E-04
MC	1.13	2.26	333	12.6	28	2.956E-04
MH	1.799	3.598	107	6.4	9	1.512E-04
Total			11454	175.3	970.5	4.125E-03

Composite Emission Factor 0.918 g/hr

Max Hourly Emissions (all facilities) 2.919E-02 grams/sec

Area of the parking lot 53347 m2

Max hourly emission rate 5.47E-07 grams/m2-sec

Modeled Truck Emission Sources

Redlands Crossing

Nox Emissions

Buildout Year: **2013**

Onsite Travel Emission Sources	Hourly Emissions (g/sec)	Idling Emission Sources	Hourly Emissions (g/sec)
LP1	3.67E-04	IP1	1.41E-02
LP2	5.89E-04	IP2	1.41E-02
LP3	1.34E-04	IP3	5.21E-03
LP4	1.57E-04	IP4	5.21E-03
LP5A+LP5B	7.09E-04	IP5A	7.05E-03
LP6	8.13E-05	IP5B	7.05E-03
LP7	3.75E-04	WMN	1.41E-02
LP8	3.71E-04	WMS	5.21E-03
WM	1.87E-03	IP6	5.21E-03
LP9	2.47E-04	IP7	1.41E-02
		IP8	1.41E-02
		IP9	1.41E-02
Total	**4.90E-03**	**Total**	**1.20E-01**

Title : Redlands WM 2013
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2010/12/14 10:26:48
Scen Year: 2013 -- All model years in the range 1969 to 2013 selected
Season : Annual
Area : South Coast AQMD
****
Year: 2013 -- Model Years 1969 to 2013 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: Oxides of Nitrogen Temperature: 65F Relative Humidity: 50%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.391	1.462	75.051	15.562	1.391	1.46	75.051	33.245	1.391	1.461	75.051	62.666	0	0	114.93	111.916
2	3.184	0.247	2.043	0.254	3.211	0.341	2.113	0.399	3.137	0.553	2.052	0.559	5.115	0.701	2.112	0.719	1.635	0.515	4.835	1.345	1.635	0.448	5.978	2.838	2.452	1.278	8.766	7.508	16.281	8.108	27.93	27.413
5	3.267	0.228	2.043	0.235	3.294	0.313	2.113	0.373	3.218	0.508	2.052	0.514	5.248	0.644	2.112	0.663	1.635	0.515	4.835	1.345	1.635	0.448	5.978	2.838	2.452	1.278	8.766	7.508	16.281	8.108	27.93	27.413
10	3.435	0.197	1.695	0.205	3.464	0.269	1.753	0.323	3.384	0.435	1.702	0.442	5.518	0.553	1.752	0.572	1.718	0.541	4.011	1.209	1.718	0.471	4.96	2.411	2.576	1.343	7.273	6.277	17.106	8.519	19.47	19.185
15	3.607	0.174	1.457	0.182	3.637	0.236	1.507	0.287	3.553	0.382	1.463	0.388	5.794	0.485	1.506	0.505	1.8	0.567	3.448	1.122	1.8	0.493	4.264	2.124	2.701	1.407	6.252	5.439	17.931	8.93	14.164	14.029
20	3.782	0.157	1.298	0.165	3.814	0.212	1.342	0.262	3.726	0.342	1.303	0.349	6.076	0.436	1.342	0.456	1.883	0.593	3.071	1.071	1.883	0.516	3.798	1.935	2.825	1.472	5.569	4.881	18.757	9.341	11.999	11.932
25	3.961	0.144	1.198	0.152	3.995	0.195	1.239	0.244	3.902	0.312	1.203	0.32	6.363	0.399	1.238	0.421	1.966	0.619	2.834	1.047	1.966	0.539	3.505	1.822	2.949	1.537	5.139	4.535	19.582	9.752	11.36	11.32
30	4.143	0.135	1.145	0.143	4.178	0.182	1.185	0.232	4.081	0.291	1.15	0.299	6.655	0.373	1.184	0.396	2.049	0.645	2.71	1.044	2.049	0.562	3.351	1.769	3.073	1.602	4.914	4.359	20.407	10.163	10.843	10.828
35	4.327	0.128	1.135	0.137	4.363	0.174	1.174	0.225	4.262	0.277	1.14	0.285	6.95	0.356	1.173	0.379	2.132	0.671	2.685	1.061	2.132	0.584	3.321	1.768	3.198	1.667	4.869	4.333	21.232	10.574	10.449	10.455
40	4.513	0.124	1.165	0.134	4.551	0.17	1.205	0.223	4.445	0.269	1.17	0.277	7.249	0.346	1.204	0.371	2.215	0.697	2.757	1.096	2.215	0.607	3.409	1.819	3.322	1.731	4.999	4.451	22.058	10.985	10.178	10.202
45	4.7	0.123	1.239	0.133	4.74	0.169	1.282	0.225	4.63	0.266	1.245	0.275	7.551	0.344	1.281	0.37	2.298	0.723	2.932	1.151	2.298	0.63	3.626	1.926	3.446	1.796	5.317	4.727	22.883	11.396	10.03	10.069
50	4.889	0.124	1.366	0.134	4.931	0.171	1.412	0.231	4.816	0.269	1.372	0.278	7.854	0.348	1.412	0.375	2.38	0.75	3.232	1.229	2.38	0.652	3.996	2.099	3.571	1.861	5.86	5.19	23.708	11.807	10.005	10.055
55	5.079	0.127	1.56	0.137	5.122	0.177	1.613	0.242	5.003	0.278	1.566	0.287	8.159	0.36	1.612	0.388	2.463	0.776	3.691	1.338	2.463	0.675	4.564	2.357	3.695	1.926	6.692	5.893	24.534	12.218	10.102	10.16

Emission Assumptions **PM10** Emissions
Redlands Crossing

Facility Operations

Buildout year: 2013

Emission Factors

1) Onsite Vehicle Emissions

a) Truck
(1) EMFAC2007
(a) Annual Meteorology
Temperature: 65 degF
Relative Humidity: 50%
(b) Calculations for SoCAB
(c) Truck Mix
4+ axle heavy-heavy duty diesel trucks (HHDT)
2 axle diesel trucks (LHDT1)
(d) Onsite Truck and Customer Travel Spee 10 mph
(e) Idle speed: 0 mph
(e) Truck Idle time: 15 minutes per truck per day
(f) Idle time for customer vehicles: 1 min per day per vehicl

b) Truck TRU
(1) Emission factors derived from CARB 2003 ISOR ATCM for TRUs, Appendix D, Attach
(2) TRU size: 35 hp
(3) Cooling time: 0.5 hr/day
(4) Load Factor: 60 %
(5) On/off Cycle Factor 50 %
(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet
(b) Truck Operational Schedule of "Big Box" 24 hours/day
(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day
(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission:** **PM10**

Processes Modeled **Build-out:** **2013**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips
Wal-Mart (Parcel 14)	4+ axle	5	10	2	4	7	14
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2
Parcel 5 (Food Court A)	4+ axle	0	0	2	4	2	4
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2
Total		**16**	**32**	**9**	**18**	**25**	**50**

Facility Operations:
Wal-Mart 24 **hrs/day, 52weeks/year**
All others 12 **hrs/day, 52weeks/year**

Emission Factors

Vehicle Class	Exhaust (g/mi)	Idle (g/hr)
4+ axle	1.184	1.288
2 axle	0.117	0.897

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	0.23	0.23	<-------- Fleet Average for SCAQMD in 2013

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Emissions Over the Link (g/sec)	Max Hourly Emissions Over Link (lb/hr)	Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (tons/yr)	Annual Ave Emissions Over Link (tons/yr)	Annual Average Emissions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	1.184	14	375	0.23	3.86E+00	4.47E-05	3.06E+01	8.51E-03	1.55E-03	7.76E-07	4.47E-05
Wal-Mart (Parcel 14)	2 axle	0.117	14	375	0.23	3.82E-01	4.42E-06	3.03E+00	8.40E-04	1.53E-04	7.67E-08	4.42E-06
Parcel 1 (Retail1)	4+ axle	1.184	4	89	0.06	2.62E-01	6.06E-06	2.08E+00	5.77E-04	1.05E-04	5.26E-08	6.06E-06
Parcel 2 (Fast Food1)	4+ axle	1.184	2	143	0.09	2.10E-01	4.87E-06	1.67E+00	4.63E-04	8.46E-05	4.23E-08	4.87E-06
Parcel 3 (Retail2)	2 axle	0.117	2	157	0.10	2.28E-02	5.28E-07	1.81E-01	5.03E-05	9.17E-06	4.59E-09	5.28E-07
Parcel 4 (Retail3)	2 axle	0.117	2	183	0.11	2.66E-02	6.16E-07	2.11E-01	5.86E-05	1.07E-05	5.35E-09	6.16E-07
Parcel 5 (Fast Food/Retail)	4+ axle	1.184	4	172	0.11	5.06E-01	1.17E-05	4.01E+00	1.11E-03	2.03E-04	1.02E-07	1.17E-05
Parcel 6 (Retail4)	2 axle	0.117	2	95	0.06	1.38E-02	3.20E-07	1.10E-01	3.04E-05	5.55E-06	2.78E-09	3.20E-07
Parcel 7 (Restaurant1)	4+ axle	1.184	2	91	0.06	1.34E-01	3.10E-06	1.06E+00	2.95E-04	5.38E-05	2.69E-08	3.10E-06
Parcel 8 (Fast Food2)	4+ axle	1.184	2	90	0.06	1.32E-01	3.06E-06	1.05E+00	2.92E-04	5.32E-05	2.66E-08	3.06E-06
Parcel 9 (Fast Food 3)	4+ axle	1.184	2	60	0.04	8.83E-02	2.04E-06	7.00E-01	1.94E-04	3.55E-05	1.77E-08	2.04E-06
			50									
Total						**5.64E+00**	**8.14E-05**	**4.47E+01**	**1.24E-02**	**2.27E-03**	**1.13E-06**	**8.14E-05**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Max Hourly Emissions (lb/hr)	Total Daily Emissions (lbs/day)	Total Emissions (tons/yr)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	1.288	15	7	2.25	2.61E-05	2.07E-04	4.96E-03	9.06E-04	
Wal-Mart (Parcel 14)	2 axle	0.897	15	7	1.57	1.82E-05	1.44E-04	3.46E-03	6.31E-04	
Parcel 1 (Retail1)	4+ axle	1.288	15	2	0.64	1.49E-05	1.18E-04	1.42E-03	2.59E-04	
Parcel 2 (Fast Food1)	4+ axle	1.288	15	1	0.32	7.45E-06	5.91E-05	7.09E-04	1.29E-04	
Parcel 3 (Retail2)	2 axle	0.897	15	1	0.22	5.19E-06	4.12E-05	4.94E-04	9.01E-05	
Parcel 4 (Retail3)	2 axle	0.897	15	1	0.22	5.19E-06	4.12E-05	4.94E-04	9.01E-05	
Parcel 5 (Fast Food/Retail)	4+ axle	1.288	15	2	0.64	1.49E-05	1.18E-04	1.42E-03	2.59E-04	
Parcel 6 (Retail4)	2 axle	0.897	15	1	0.22	5.19E-06	4.12E-05	4.94E-04	9.01E-05	
Parcel 7 (Restaurant1)	4+ axle	1.288	15	1	0.32	7.45E-06	5.91E-05	7.09E-04	1.29E-04	
Parcel 8 (Fast Food2)	4+ axle	1.288	15	1	0.32	7.45E-06	5.91E-05	7.09E-04	1.29E-04	
Parcel 9 (Fast Food)	4+ axle	1.288	15	1	0.32	7.45E-06	5.91E-05	7.09E-04	1.29E-04	
Total				**25**	**7.07E+00**	**1.19E-04**	**9.47E-04**	**1.56E-02**	**2.84E-03**	

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	4	0.23	60	50	10	375	0.23	0.023	2.25E-01	2.60E-06	4.96E-04	9.05E-05
Wal-Mart (Parcel 14)	2 axle	35	0	0.23	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	0.23	60	50	10	89	0.06	0.006	2.67E-02	6.18E-07	5.88E-05	1.07E-05
Parcel 2 (Fast Food1)	4+ axle	35	2	0.23	60	50	10	143	0.09	0.009	4.29E-02	9.93E-07	9.45E-05	1.72E-05
Parcel 3 (Retail2)	2 axle	35	0	0.23	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.23	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	4	0.23	60	50	10	172	0.11	0.011	1.03E-01	2.39E-06	2.27E-04	4.15E-05
Parcel 6 (Retail4)	2 axle	35	0	0.23	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	0.23	60	50	10	91	0.06	0.006	2.73E-02	6.32E-07	6.01E-05	1.10E-05
Parcel 8 (Fast Food2)	4+ axle	35	2	0.23	60	50	10	90	0.06	0.006	2.70E-02	6.25E-07	5.95E-05	1.09E-05
Parcel 9 (Fast Food)	4+ axle	35	2	0.23	60	50	10	60	0.04	0.004	1.80E-02	4.17E-07	3.97E-05	7.24E-06
TOTAL			**18**								**4.70E-01**	**8.28E-06**	**1.04E-03**	**1.89E-04**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Total Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	2	0.23	60	50	0.5	2.42E+00	2.80E-05	5.32E-03	9.71E-04
Wal-Mart (Parcel 14)	2 axle	35	0	0.23	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	0.23	60	50	0.5	1.21E+00	2.80E-05	2.66E-03	4.85E-04
Parcel 2 (Fast Food1)	4+ axle	35	1	0.23	60	50	0.5	1.21E+00	2.80E-05	2.66E-03	4.85E-04
Parcel 3 (Retail2)	2 axle	35	0	0.23	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.23	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	2	0.23	60	50	0.5	2.42E+00	5.59E-05	5.32E-03	9.71E-04
Parcel 6 (Retail4)	2 axle	35	0	0.23	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	0.23	60	50	0.5	1.21E+00	2.80E-05	2.66E-03	4.85E-04
Parcel 8 (Fast Food2)	4+ axle	35	1	0.23	60	50	0.5	1.21E+00	2.80E-05	2.66E-03	4.85E-04
Parcel 9 (Fast Food)	4+ axle	35	1	0.23	60	50	0.5	1.21E+00	2.80E-05	2.66E-03	4.85E-04
TOTAL			**9**					**1.09E+01**	**2.24E-04**	**2.39E-02**	**4.37E-03**

Emission Summary

Facility Emission Summary	Ave Onsite Travel Emissions (g/sec)	Ave Onsite TRU Travel Emissions (g/sec)	Total Ave Onsite Travel Emissions (g/sec)	Ave Onsite Idle Emissions (g/sec)	Ave Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	4.47E-05	2.60E-06	4.73E-05	2.61E-05	2.80E-05	5.40E-05	1	5.40E-05	1.01E-04
Wal-Mart (Parcel 14)	4.42E-06	0.00E+00	4.42E-06	1.82E-05	0.00E+00	1.82E-05	1	1.82E-05	2.26E-05
Parcel 1 (Retail1)	6.06E-06	6.18E-07	6.68E-06	1.49E-05	2.80E-05	4.29E-05	1	4.29E-05	4.95E-05
Parcel 2 (Fast Food1)	4.87E-06	9.93E-07	5.86E-06	7.45E-06	2.80E-05	3.54E-05	1	3.54E-05	4.13E-05
Parcel 3 (Retail2)	5.28E-07	0.00E+00	5.28E-07	5.19E-06	0.00E+00	5.19E-06	1	5.19E-06	5.72E-06
Parcel 4 (Retail3)	6.16E-07	0.00E+00	6.16E-07	5.19E-06	0.00E+00	5.19E-06	1	5.19E-06	5.81E-06
Parcel 5 (Fast Food/Retail)	1.17E-05	2.39E-06	1.41E-05	1.49E-05	5.59E-05	7.08E-05	2	3.54E-05	8.49E-05
Parcel 6 (Retail4)	3.20E-07	0.00E+00	3.20E-07	5.19E-06	0.00E+00	5.19E-06	1	5.19E-06	5.51E-06
Parcel 7 (Restaurant1)	3.10E-06	6.32E-07	3.73E-06	7.45E-06	2.80E-05	3.54E-05	1	3.54E-05	3.91E-05
Parcel 8 (Fast Food2)	3.06E-06	6.25E-07	3.69E-06	7.45E-06	2.80E-05	3.54E-05	1	3.54E-05	3.91E-05
Parcel 9 (Fast Food 3)	2.04E-06	4.17E-07	2.46E-06	7.45E-06	2.80E-05	3.54E-05	1	3.54E-05	3.79E-05
TOTAL	**8.14E-05**	**8.28E-06**	**8.97E-05**	**1.19E-04**	**2.24E-04**	**3.43E-04**			**4.33E-04**

Emission Assumptions Emissions: PM10
Redlands Crossing

Total Daily Vehicle Trips:	22907	(excludes outparcels 10-13)
Total Daily Vehicle Trips:	22907	(includes all facilities)
Total Peak Hour Vehicle Trips - Saturday	1941	(excludes outparcels 10-13)
Total Peak Hour Vehicle Trips - Saturday	1941	(includes all facilities)

Trip Generation derived from project traffic report: Urban Crossroads 2010

Default SCAQMD Vehicle Fleet Mix for 2013 (from URBEMIS Model):

LDA	51.30%
LDT1	7.30%
LDT2	23.10%
MDT	10.70%
LHDT1	1.60%
LHDT2	0.50%
MHDT	0.90%
HHDT	0.60%
UB	0.10%
MC	2.80%
SB	0.10%
MH	0.90%
	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 96.2%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Operational Time of Customer Parking Lots 24 hours

Vehicle Class	**Composite Vehicle Mix**	**Vehicle Trips (trips/day)**	**Vehicle Trips (trips/peak PM Hr)**
LDA	53.3%	12215	1035
LDT1	7.6%	1738	147
LDT2	24.0%	5501	466
MDT	11.1%	2548	216
UB	0.1%	24	2
MC	2.9%	667	56
MH	0.9%	214	18
	100.0%	22907	1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Exhaust Emissions (g/sec)
LDA	0.055	12215	83.5	9.661E-04
LDT1	0.063	1738	13.6	1.575E-04
LDT2	0.104	5501	71.1	8.226E-04
MDT	0.103	2548	32.6	3.774E-04
UB	0.526	24	1.6	1.801E-05
MC	0.043	667	3.6	4.123E-05
MH	0.068	214	1.8	2.096E-05
Total		22907	207.7	2.404E-03

Composite Emission Factor 0.07 g/mi

Onsite Idling Emissions

Assume that each vehicle idles for 1 minute
Idling emission factor is derived by multiplying the emission factor at 2 mph by 2

Vehicle Class	Emission Factor at 2 mph (g/mi)	Idle Emission Factor (g/hr)	Number of Vehicles (vehicles/day)	Emissions (Grams/day)	Average Idling Emissions (g/sec)
LDA	0.067	0.134	6108	13.6	1.579E-04
LDT1	0.079	0.158	869	2.3	2.649E-05
LDT2	0.16	0.32	2750	14.7	1.698E-04
MDT	0.159	0.318	1274	6.8	7.815E-05
UB	0.698	1.396	12	0.3	3.206E-06
MC	0.042	0.084	333	0.5	5.402E-06
MH	0.057	0.114	107	0.2	2.356E-06
Total			11454	38.3	4.4325E-04

Composite Emission Factor 0.20 g/hr

Average Daily Emissions (all facilities)	2.847E-03	grams/sec
Area of the parking lot	53347	m2
Max hourly emission rate	5.34E-08	grams/m2-sec

Modeled Truck Emission Sources

Redlands Crossing

PM10 Emissions

Buildout Year: **2013**

Onsite Travel Emission Sources	Hourly Emissions (g/sec)
LP1	6.68E-06
LP2	5.86E-06
LP3	5.28E-07
LP4	6.16E-07
LP5A+LP5B	1.41E-05
LP6	3.20E-07
LP7	3.73E-06
LP8	3.69E-06
WM	5.17E-05
LP9	2.46E-06
Total	**8.97E-05**

Idling Emission Sources	Hourly Emissions (g/sec)
IP1	4.29E-05
IP2	3.54E-05
IP3	5.19E-06
IP4	5.19E-06
IP5A	3.54E-05
IP5B	3.54E-05
WMN	5.40E-05
WMS	1.82E-05
IP6	5.19E-06
IP7	3.54E-05
IP8	3.54E-05
IP9	3.54E-05
Total	**3.43E-04**

Scen Year: 2013 -- All model years in the range 1969 to 2013 selected
Season : Annual
Area : South Coast AQMD
****

Year: 2013 -- Model Years 1969 to 2013 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: PM10 Temperature: 65F Relative Humidity: 50%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.776	0.149	0	0	0.897	0.387	0	0	0.899	0.747	0	0	1.288	1.254
2	0.125	0.066	0.347	0.067	0.123	0.078	0.134	0.079	0.127	0.16	0.214	0.16	0.129	0.159	0.126	0.159	0.101	0.048	0.093	0.057	0.101	0.048	0.117	0.078	0.101	0.052	0.598	0.506	0.101	0.1	1.637	1.597
5	0.104	0.052	0.347	0.053	0.102	0.061	0.134	0.063	0.105	0.127	0.214	0.127	0.107	0.126	0.126	0.126	0.101	0.048	0.093	0.057	0.101	0.048	0.117	0.078	0.101	0.052	0.598	0.506	0.101	0.1	1.637	1.597
10	0.074	0.034	0.272	0.034	0.073	0.04	0.106	0.042	0.075	0.083	0.168	0.083	0.076	0.082	0.099	0.082	0.066	0.031	0.073	0.039	0.066	0.031	0.092	0.058	0.066	0.034	0.47	0.396	0.066	0.066	1.12	1.092
15	0.055	0.023	0.218	0.024	0.054	0.028	0.085	0.029	0.056	0.057	0.135	0.057	0.057	0.057	0.079	0.057	0.045	0.021	0.059	0.029	0.045	0.021	0.074	0.044	0.045	0.023	0.377	0.317	0.045	0.045	0.741	0.723
20	0.043	0.017	0.179	0.017	0.042	0.02	0.069	0.021	0.043	0.041	0.11	0.041	0.044	0.041	0.065	0.041	0.032	0.015	0.048	0.022	0.032	0.015	0.061	0.035	0.032	0.017	0.309	0.26	0.032	0.032	0.523	0.51
25	0.035	0.013	0.15	0.013	0.035	0.015	0.058	0.016	0.035	0.031	0.093	0.031	0.036	0.031	0.055	0.031	0.024	0.011	0.04	0.017	0.024	0.011	0.051	0.028	0.024	0.012	0.259	0.218	0.024	0.024	0.444	0.433
30	0.03	0.01	0.129	0.01	0.029	0.012	0.05	0.013	0.03	0.025	0.079	0.025	0.031	0.025	0.047	0.025	0.019	0.009	0.035	0.014	0.019	0.009	0.044	0.024	0.019	0.01	0.222	0.186	0.019	0.018	0.386	0.377
35	0.027	0.009	0.113	0.009	0.026	0.01	0.044	0.011	0.027	0.021	0.07	0.021	0.028	0.021	0.041	0.021	0.015	0.007	0.03	0.012	0.015	0.007	0.038	0.021	0.015	0.008	0.195	0.163	0.015	0.015	0.352	0.343
40	0.025	0.008	0.101	0.008	0.025	0.009	0.039	0.01	0.025	0.019	0.062	0.019	0.026	0.019	0.037	0.019	0.013	0.006	0.027	0.01	0.013	0.006	0.034	0.018	0.013	0.006	0.175	0.146	0.013	0.012	0.34	0.331
45	0.024	0.007	0.093	0.007	0.024	0.009	0.036	0.009	0.025	0.018	0.057	0.018	0.025	0.018	0.034	0.018	0.011	0.005	0.025	0.009	0.011	0.005	0.031	0.017	0.011	0.006	0.16	0.134	0.011	0.011	0.351	0.342
50	0.025	0.007	0.087	0.007	0.025	0.009	0.034	0.009	0.025	0.018	0.053	0.018	0.026	0.018	0.031	0.018	0.01	0.005	0.023	0.008	0.01	0.005	0.029	0.015	0.01	0.005	0.15	0.125	0.01	0.01	0.384	0.374
55	0.027	0.008	0.083	0.008	0.026	0.009	0.032	0.01	0.027	0.018	0.051	0.018	0.028	0.018	0.03	0.018	0.01	0.004	0.022	0.008	0.01	0.005	0.028	0.015	0.01	0.005	0.143	0.12	0.01	0.009	0.44	0.429

	Brake	Tire	Total
LDA	0.013	0.008	0.021
LDT1	0.013	0.008	0.021
LDT2	0.013	0.008	0.021
MDT	0.013	0.008	0.021
LHDT1	0.013	0.012	0.025
LHDT2	0.013	0.012	0.025
MHDT	0.013	0.012	0.025
HHDT	0.028	0.036	0.064
UB	0.009	0.013	0.022
MC	0.004	0.006	0.01
MH	0.012	0.013	0.025

Emission Assumptions **PM2.5** Emissions
Redlands Crossing

Facility Operations

Buildout year: 2013

Emission Factors

1) Onsite Vehicle Emissions

a) Truck
(1) EMFAC2007
(a) Annual Meteorology
Temperature: 65 degF
Relative Humidity: 50%
(b) Calculations for SoCAB
(c) Truck Mix
4+ axle heavy-heavy duty diesel trucks (HHDT)
2 axle diesel trucks (LHDT2)
(d) Onsite Truck and Customer Travel Spee 10 mph
(e) Idle speed: 0 mph
(e) Truck Idle time: 15 minutes per truck per day
(f) Idle time for customer vehicles: 1 min per day per vehicle

b) Truck TRU
(1) Emission factors derived from CARB 2003 ISOR ATCM for TRUs, Appendix D, Attachment A
(2) TRU size: 35 hp
(3) Cooling time: 0.5 hr/day
(4) Load Factor: 60 %
(5) On/off Cycle Factor 50 %
(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet
(b) Truck Operational Schedule of "Big Box" 24 hours/day
(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day
(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission:** **PM2.5**

Processes Modeled **Build-out:** **2013**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips
Wal-Mart (Parcel 14)	4+ axle	5	10	2	4	7	14
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2
Parcel 5 (Food Court A)	4+ axle	0	0	2	4	2	4
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2
Total		**16**	**32**	**9**	**18**	**25**	**50**

Facility Operations:
Wal-Mart 24 **hrs/day, 52weeks/year**
All others 12 **hrs/day, 52weeks/year**

Emission Factors

Vehicle Class	Exhaust (g/mi)	Idle (g/hr)
4+ axle	1.051	1.185
2 axle	0.093	0.825

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	0.23	0.23	<-------- Fleet Average for SCAQMD in 2013

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Emissions Over the Link (g/sec)	Max Hourly Emissions Over Link (lb/hr)	Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (tons/yr)	Annual Ave Emissions Over Link (tons/yr)	Annual Average Emissions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	1.051	14	375	0.23	3.43E+00	3.97E-05	2.72E+01	7.55E-03	1.38E-03	6.89E-07	3.97E-05
Wal-Mart (Parcel 14)	2 axle	0.093	14	375	0.23	3.03E-01	3.51E-06	2.41E+00	6.68E-04	1.22E-04	6.10E-08	3.51E-06
Parcel 1 (Retail1)	4+ axle	1.051	4	89	0.06	2.32E-01	5.38E-06	1.84E+00	5.12E-04	9.34E-05	4.67E-08	5.38E-06
Parcel 2 (Fast Food1)	4+ axle	1.051	2	143	0.09	1.87E-01	4.32E-06	1.48E+00	4.11E-04	7.51E-05	3.75E-08	4.32E-06
Parcel 3 (Retail2)	2 axle	0.093	2	157	0.10	1.81E-02	4.20E-07	1.44E-01	4.00E-05	7.29E-06	3.65E-09	4.20E-07
Parcel 4 (Retail3)	2 axle	0.093	2	183	0.11	2.11E-02	4.89E-07	1.68E-01	4.66E-05	8.50E-06	4.25E-09	4.89E-07
Parcel 5 (Fast Food/Retail)	4+ axle	1.051	4	172	0.11	4.49E-01	1.04E-05	3.56E+00	9.89E-04	1.81E-04	9.03E-08	1.04E-05
Parcel 6 (Retail4)	2 axle	0.093	2	95	0.06	1.10E-02	2.54E-07	8.70E-02	2.42E-05	4.41E-06	2.21E-09	2.54E-07
Parcel 7 (Restaurant1)	4+ axle	1.051	2	91	0.06	1.19E-01	2.75E-06	9.42E-01	2.62E-04	4.78E-05	2.39E-08	2.75E-06
Parcel 8 (Fast Food2)	4+ axle	1.051	2	90	0.06	1.18E-01	2.72E-06	9.32E-01	2.59E-04	4.72E-05	2.36E-08	2.72E-06
Parcel 9 (Fast Food 3)	4+ axle	1.051	2	60	0.04	7.83E-02	1.81E-06	6.21E-01	1.73E-04	3.15E-05	1.57E-08	1.81E-06
			50									
Total						**4.96E+00**	**7.17E-05**	**3.94E+01**	**1.09E-02**	**2.00E-03**	**9.98E-07**	**7.17E-05**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Max Hourly Emissions (lb/hr)	Total Daily Emissions (lbs/day)	Total Emissions (tons/yr)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	1.185	15	7	2.07	2.40E-05	1.90E-04	4.57E-03	8.34E-04	
Wal-Mart (Parcel 14)	2 axle	0.825	15	7	1.44	1.67E-05	1.33E-04	3.18E-03	5.80E-04	
Parcel 1 (Retail1)	4+ axle	1.185	15	2	0.59	1.37E-05	1.09E-04	1.31E-03	2.38E-04	
Parcel 2 (Fast Food1)	4+ axle	1.185	15	1	0.30	6.86E-06	5.44E-05	6.53E-04	1.19E-04	
Parcel 3 (Retail2)	2 axle	0.825	15	1	0.21	4.77E-06	3.79E-05	4.54E-04	8.29E-05	
Parcel 4 (Retail3)	2 axle	0.825	15	1	0.21	4.77E-06	3.79E-05	4.54E-04	8.29E-05	
Parcel 5 (Fast Food/Retail)	4+ axle	1.185	15	2	0.59	1.37E-05	1.09E-04	1.31E-03	2.38E-04	
Parcel 6 (Retail4)	2 axle	0.825	15	1	0.21	4.77E-06	3.79E-05	4.54E-04	8.29E-05	
Parcel 7 (Restaurant1)	4+ axle	1.185	15	1	0.30	6.86E-06	5.44E-05	6.53E-04	1.19E-04	
Parcel 8 (Fast Food2)	4+ axle	1.185	15	1	0.30	6.86E-06	5.44E-05	6.53E-04	1.19E-04	
Parcel 9 (Fast Food)	4+ axle	1.185	15	1	0.30	6.86E-06	5.44E-05	6.53E-04	1.19E-04	
Total				**25**	**6.51E+00**	**1.10E-04**	**8.71E-04**	**1.43E-02**	**2.62E-03**	

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	4	0.23	60	50	10	375	0.23	0.023	2.25E-01	2.60E-06	4.96E-04	9.05E-05
Wal-Mart (Parcel 14)	2 axle	35	0	0.23	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	0.23	60	50	10	89	0.06	0.006	2.67E-02	6.18E-07	5.88E-05	1.07E-05
Parcel 2 (Fast Food1)	4+ axle	35	2	0.23	60	50	10	143	0.09	0.009	4.29E-02	9.93E-07	9.45E-05	1.72E-05
Parcel 3 (Retail2)	2 axle	35	0	0.23	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.23	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	4	0.23	60	50	10	172	0.11	0.011	1.03E-01	2.39E-06	2.27E-04	4.15E-05
Parcel 6 (Retail4)	2 axle	35	0	0.23	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	0.23	60	50	10	91	0.06	0.006	2.73E-02	6.32E-07	6.01E-05	1.10E-05
Parcel 8 (Fast Food2)	4+ axle	35	2	0.23	60	50	10	90	0.06	0.006	2.70E-02	6.25E-07	5.95E-05	1.09E-05
Parcel 9 (Fast Food)	4+ axle	35	2	0.23	60	50	10	60	0.04	0.004	1.80E-02	4.17E-07	3.97E-05	7.24E-06
TOTAL			**18**								**4.70E-01**	**8.28E-06**	**1.04E-03**	**1.89E-04**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Total Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	2	0.23	60	50	0.5	2.42E+00	2.80E-05	5.32E-03	9.71E-04
Wal-Mart (Parcel 14)	2 axle	35	0	0.23	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	0.23	60	50	0.5	1.21E+00	2.80E-05	2.66E-03	4.85E-04
Parcel 2 (Fast Food1)	4+ axle	35	1	0.23	60	50	0.5	1.21E+00	2.80E-05	2.66E-03	4.85E-04
Parcel 3 (Retail2)	2 axle	35	0	0.23	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.23	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	2	0.23	60	50	0.5	2.42E+00	5.59E-05	5.32E-03	9.71E-04
Parcel 6 (Retail4)	2 axle	35	0	0.23	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	0.23	60	50	0.5	1.21E+00	2.80E-05	2.66E-03	4.85E-04
Parcel 8 (Fast Food2)	4+ axle	35	1	0.23	60	50	0.5	1.21E+00	2.80E-05	2.66E-03	4.85E-04
Parcel 9 (Fast Food)	4+ axle	35	1	0.23	60	50	0.5	1.21E+00	2.80E-05	2.66E-03	4.85E-04
TOTAL			**9**					**1.09E+01**	**2.24E-04**	**2.39E-02**	**4.37E-03**

Emission Summary

Facility Emission Summary	Ave Onsite Travel Emissions (g/sec)	Ave Onsite TRU Travel Emissions (g/sec)	Total Ave Onsite Travel Emissions (g/sec)	Ave Onsite Idle Emissions (g/sec)	Ave Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	3.97E-05	2.60E-06	4.23E-05	2.40E-05	2.80E-05	5.20E-05	1	5.20E-05	9.42E-05
Wal-Mart (Parcel 14)	3.51E-06	0.00E+00	3.51E-06	1.67E-05	0.00E+00	1.67E-05	1	1.67E-05	2.02E-05
Parcel 1 (Retail1)	5.38E-06	6.18E-07	6.00E-06	1.37E-05	2.80E-05	4.17E-05	1	4.17E-05	4.77E-05
Parcel 2 (Fast Food1)	4.32E-06	9.93E-07	5.32E-06	6.86E-06	2.80E-05	3.48E-05	1	3.48E-05	4.01E-05
Parcel 3 (Retail2)	4.20E-07	0.00E+00	4.20E-07	4.77E-06	0.00E+00	4.77E-06	1	4.77E-06	5.19E-06
Parcel 4 (Retail3)	4.89E-07	0.00E+00	4.89E-07	4.77E-06	0.00E+00	4.77E-06	1	4.77E-06	5.26E-06
Parcel 5 (Fast Food/Retail)	1.04E-05	2.39E-06	1.28E-05	1.37E-05	5.59E-05	6.96E-05	2	3.48E-05	8.24E-05
Parcel 6 (Retail4)	2.54E-07	0.00E+00	2.54E-07	4.77E-06	0.00E+00	4.77E-06	1	4.77E-06	5.03E-06
Parcel 7 (Restaurant1)	2.75E-06	6.32E-07	3.38E-06	6.86E-06	2.80E-05	3.48E-05	1	3.48E-05	3.82E-05
Parcel 8 (Fast Food2)	2.72E-06	6.25E-07	3.35E-06	6.86E-06	2.80E-05	3.48E-05	1	3.48E-05	3.82E-05
Parcel 9 (Fast Food 3)	1.81E-06	4.17E-07	2.23E-06	6.86E-06	2.80E-05	3.48E-05	1	3.48E-05	3.70E-05

Emission Assumptions Emissions: PM2.5

Redlands Crossing Parking Lot

Total Daily Vehicle Trips:	22907	(excludes outparcels 10-13)
Total Daily Vehicle Trips:	22907	(includes all facilities)
Total Peak Hour Vehicle Trips - Saturday	1941	(excludes outparcels 10-13)
Total Peak Hour Vehicle Trips - Saturday	1941	(includes all facilities)

Trip Generation derived from project traffic report: Urban Crossroads 2010

Default SCAQMD Vehicle Fleet Mix for 2013 (from URBEMIS Model):

LDA	51.30%
LDT1	7.30%
LDT2	23.10%
MDT	10.70%
LHDT1	1.60%
LHDT2	0.50%
MHDT	0.90%
HHDT	0.60%
UB	0.10%
MC	2.80%
SB	0.10%
MH	0.90%
	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 96.2%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Operational Time of Customer Parking Lots 24 hours

Vehicle Class	**Composite Vehicle Mix**	**Vehicle Trips (trips/day)**	**Vehicle Trips (trips/peak PM Hr)**
LDA	53.3%	12215	1035
LDT1	7.6%	1738	147
LDT2	24.0%	5501	466
MDT	11.1%	2548	216
UB	0.1%	24	2
MC	2.9%	667	56
MH	0.9%	214	18
	100.0%	22907	1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Exhaust Emissions (g/sec)
LDA	0.039	12215	59.2	6.851E-04
LDT1	0.046	1738	9.9	1.150E-04
LDT2	0.084	5501	57.4	6.644E-04
MDT	0.084	2548	26.6	3.078E-04
UB	0.468	24	1.4	1.602E-05
MC	0.034	667	2.8	3.260E-05
MH	0.064	214	1.7	1.972E-05
Total		22907	159.0	1.841E-03

Composite Emission Factor 0.06 g/mi

Onsite Idling Emissions

Assume that each vehicle idles for 1 minute
Idling emission factor is derived by multiplying the emission factor at 2 mph by 2

Vehicle Class	Emission Factor at 2 mph (g/mi)	Idle Emission Factor (g/hr)	Number of Vehicles (vehicles/day)	Emissions (Grams/day)	Average Idling Emissions (g/sec)
LDA	0.062	0.124	6108	12.6	1.461E-04
LDT1	0.073	0.146	869	2.1	2.448E-05
LDT2	0.149	0.298	2750	13.7	1.581E-04
MDT	0.147	0.294	1274	6.2	7.225E-05
UB	0.642	1.284	12	0.3	2.949E-06
MC	0.033	0.066	333	0.4	4.244E-06
MH	0.052	0.104	107	0.2	2.150E-06
Total			11454	35.4	4.1026E-04

Composite Emission Factor 0.19 g/hr

Average Daily Emissions (all facilities) 2.251E-03 grams/sec

Area of the parking lot 53347 m2

Ave hourly emission rate 4.22E-08 grams/m2-sec

Modeled Truck Emission Sources

Redlands Crossing

PM2.5 Emissions

Buildout Year: **2013**

Onsite Travel Emission Sources	Hourly Emissions (g/sec)
LP1	6.00E-06
LP2	5.32E-06
LP3	4.20E-07
LP4	4.89E-07
LP5A+LP5B	1.28E-05
LP6	2.54E-07
LP7	3.38E-06
LP8	3.35E-06
WM	4.58E-05
LP9	2.23E-06
Total	**8.00E-05**

Idling Emission Sources	Hourly Emissions (g/sec)
IP1	4.17E-05
IP2	3.48E-05
IP3	4.77E-06
IP4	4.77E-06
IP5A	3.48E-05
IP5B	3.48E-05
WMN	5.20E-05
WMS	1.67E-05
IP6	4.77E-06
IP7	3.48E-05
IP8	3.48E-05
IP9	3.48E-05
Total	**3.34E-04**

Season : Annual
Area : South Coast AQMD
****
Year: 2013 -- Model Years 1969 to 2013 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD
Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: PM2.5 Temperature: 65F Relative Humidity: 50%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.714	0.137	0	0	0.825	0.356	0	0	0.827	0.688	0	0	1.185	1.154
2	0.094	0.062	0.319	0.062	0.093	0.072	0.124	0.073	0.096	0.149	0.197	0.149	0.097	0.148	0.116	0.147	0.076	0.044	0.086	0.052	0.076	0.045	0.108	0.072	0.076	0.049	0.55	0.466	0.076	0.093	1.506	1.469
5	0.078	0.049	0.319	0.049	0.077	0.057	0.124	0.059	0.079	0.118	0.197	0.118	0.081	0.117	0.116	0.117	0.076	0.044	0.086	0.052	0.076	0.045	0.108	0.072	0.076	0.049	0.55	0.466	0.076	0.093	1.506	1.469
10	0.056	0.032	0.25	0.032	0.055	0.037	0.097	0.039	0.056	0.077	0.154	0.077	0.058	0.076	0.091	0.076	0.05	0.029	0.067	0.036	0.05	0.029	0.085	0.053	0.05	0.032	0.432	0.365	0.05	0.061	1.03	1.005
15	0.042	0.022	0.201	0.022	0.041	0.026	0.078	0.027	0.042	0.053	0.124	0.053	0.043	0.052	0.073	0.052	0.034	0.02	0.054	0.026	0.034	0.02	0.068	0.041	0.034	0.022	0.347	0.292	0.034	0.042	0.682	0.665
20	0.032	0.016	0.165	0.016	0.032	0.019	0.064	0.02	0.033	0.038	0.102	0.038	0.033	0.038	0.06	0.038	0.024	0.014	0.044	0.02	0.024	0.014	0.056	0.032	0.024	0.015	0.284	0.239	0.024	0.03	0.481	0.47
25	0.026	0.012	0.138	0.012	0.026	0.014	0.054	0.015	0.027	0.029	0.085	0.029	0.027	0.029	0.05	0.029	0.018	0.01	0.037	0.016	0.018	0.011	0.047	0.026	0.018	0.011	0.239	0.2	0.018	0.022	0.408	0.398
30	0.023	0.01	0.119	0.01	0.022	0.011	0.046	0.012	0.023	0.023	0.073	0.023	0.023	0.023	0.043	0.023	0.014	0.008	0.032	0.013	0.014	0.008	0.04	0.022	0.014	0.009	0.205	0.172	0.014	0.017	0.356	0.347
35	0.02	0.008	0.104	0.008	0.02	0.01	0.04	0.01	0.02	0.02	0.064	0.02	0.021	0.02	0.038	0.02	0.011	0.007	0.028	0.011	0.011	0.007	0.035	0.019	0.011	0.007	0.179	0.15	0.011	0.014	0.324	0.316
40	0.019	0.007	0.093	0.007	0.019	0.009	0.036	0.009	0.019	0.018	0.057	0.018	0.019	0.018	0.034	0.018	0.009	0.005	0.025	0.009	0.009	0.006	0.032	0.017	0.009	0.006	0.161	0.135	0.009	0.012	0.313	0.305
45	0.018	0.007	0.085	0.007	0.018	0.008	0.033	0.009	0.019	0.017	0.053	0.017	0.019	0.017	0.031	0.017	0.008	0.005	0.023	0.008	0.008	0.005	0.029	0.015	0.008	0.005	0.147	0.123	0.008	0.01	0.323	0.314
50	0.019	0.007	0.08	0.007	0.019	0.008	0.031	0.009	0.019	0.016	0.049	0.016	0.02	0.016	0.029	0.016	0.008	0.004	0.021	0.008	0.008	0.004	0.027	0.014	0.008	0.005	0.138	0.115	0.008	0.009	0.353	0.344
55	0.02	0.007	0.076	0.007	0.02	0.008	0.03	0.009	0.021	0.017	0.047	0.017	0.021	0.017	0.028	0.017	0.007	0.004	0.021	0.007	0.007	0.004	0.026	0.014	0.007	0.005	0.132	0.11	0.007	0.009	0.405	0.394

	Brake	Tire	Total
LDA	0.005	0.002	0.007
LDT1	0.005	0.002	0.007
LDT2	0.005	0.002	0.007
MDT	0.005	0.002	0.007
LHDT1	0.005	0.003	0.008
LHDT2	0.005	0.003	0.008
MHDT	0.005	0.003	0.008
HHDT	0.012	0.009	0.021
UB	0.005	0.003	0.008
MC	0.003	0.001	0.004
MH	0.005	0.003	0.008
MH	0.012	0.013	0.025

Redlands Crossing

Estimation of TRU Diesel Emission Factors from OFFROAD2007

For SCAQMD in 2013

Pollutant	Emissions (tons/day)	Emissions (grams/hr)	Activity (hrs/day)	Emission Factor (g/hp-hr)
CO	26.666	1008864	2.48E+05	4.06
Nox	27.802	1051842	2.48E+05	4.23
PM10	1.5056	56962	2.48E+05	0.23
PM2.5	1.35504	51266	2.48E+05	0.21
SOx	0.04159	1573	2.48E+05	0.01

Emission Assumptions **CO** Emissions
Redlands Crossing

Facility Operations

Planning Year **2030**

Emission Factors

1) Onsite Vehicle Emissions

a) Truck

(1) EMFAC2007

(a) Annual Meteorology

Temperature: 65 degF

Relative Humidity: 50%

(b) Calculations for SCAQMD

(c) Truck Mix

4+ axle heavy-heavy duty diesel trucks (HHDT)

2 axle diesel trucks (LHDT2)

(d) Onsite Truck and Customer Travel Spee 10 mph

(e) Idle speed: 0 mph

(e) Truck Idle time: 15 minutes per truck per day

(f) Idle time for customer vehicles: 1 min per day per vehicl

b) Truck TRU

(1) Emission factors derived from CARB OFFROAD Fleet Average for 2030

(2) TRU size: 35 hp

(3) Cooling time: 0.5 hr/day

(4) Load Factor: 60 %

(5) On/off Cycle Factor 50 %

(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet

(b) Truck Operational Schedule of "Big Box" 24 hours/day

(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day

(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission: CO**

Processes Modeled **Planning Year** **2030**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips		
Wal-Mart (Parcel 14)	4+ axle	5	10	3	6	8	16		
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14		
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4		
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2		
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2		
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2		
Parcel 5 (Food Court A and B)	4+ axle	0	0	2	4	2	4		
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2		
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2		
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2		
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2		
Total		**16**	**32**	**10**	**20**	**26**	**52**	**4**	**16**
								2	14
Facility Operations:							22		
Wal-Mart	24 **hrs/day, 52weeks/year**								
All others	12 **hrs/day, 52weeks/year**								

Emission Factors

Vehicle Class	Exhaust @ 10 mph (g/mi)	Idle (g/hr)
4+ axle	3.008	41.598
2 axle	1.827	26.3

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	3.86	3.86	<----- OFFROAD Fleet Average in SCAQMD in 2030

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Max Hourly Emissions Over Link (g/sec)	Max Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (lb/yr)	Annual Ave Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	3.008	16	375	0.23	1.12E+01	1.95E-04	2.47E-02	9.01E+00	4.51E-03
Wal-Mart (Parcel 14)	2 axle	1.827	14	375	0.23	5.96E+00	1.18E-04	1.31E-02	4.79E+00	2.40E-03
Parcel 1 (Retail1)	4+ axle	3.008	4	89	0.06	6.65E-01	4.62E-05	1.47E-03	5.35E-01	2.67E-04
Parcel 2 (Fast Food1)	4+ axle	3.008	2	143	0.09	5.34E-01	7.42E-05	1.18E-03	4.30E-01	2.15E-04
Parcel 3 (Retail2)	2 axle	1.827	2	157	0.10	3.56E-01	4.95E-05	7.85E-04	2.87E-01	1.43E-04
Parcel 4 (Retail3)	2 axle	1.827	2	183	0.11	4.15E-01	5.77E-05	9.15E-04	3.34E-01	1.67E-04
Parcel 5 (Fast Food/Retail)	4+ axle	3.008	4	172	0.11	1.29E+00	8.93E-05	2.83E-03	1.03E+00	5.17E-04
Parcel 6 (Retail4)	2 axle	1.827	2	95	0.06	2.16E-01	3.00E-05	4.75E-04	1.73E-01	8.67E-05
Parcel 7 (Restaurant1)	4+ axle	3.008	2	91	0.06	3.40E-01	4.72E-05	7.49E-04	2.73E-01	1.37E-04
Parcel 8 (Fast Food2)	4+ axle	3.008	2	90	0.06	3.36E-01	4.67E-05	7.41E-04	2.70E-01	1.35E-04
Parcel 9 (Fast Food 3)	4+ axle	3.008	2	60	0.04	2.24E-01	3.11E-05	4.94E-04	1.80E-01	9.01E-05
			52							
Total						**2.15E+01**	**7.85E-04**	**4.75E-02**	**1.73E+01**	**8.66E-03**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Release Height Above Ground (m)	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Total Daily Emissions (lbs/day)	Total Emissions (lbs/yr)	Total Emissions (tons/yr)	Annual Average Emssions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	41.598	15	8	4.15	83.20	2.89E-03	1.83E-01	6.69E+01	3.34E-02	9.63E-04
Wal-Mart (Parcel 14)	2 axle	26.3	15	7	4.15	46.03	1.83E-03	1.01E-01	3.70E+01	1.85E-02	5.33E-04
Parcel 1 (Retail1)	4+ axle	41.598	15	2	4.15	20.80	2.89E-03	4.58E-02	1.67E+01	8.36E-03	4.81E-04
Parcel 2 (Fast Food1)	4+ axle	41.598	15	1	4.15	10.40	2.89E-03	2.29E-02	8.36E+00	4.18E-03	2.41E-04
Parcel 3 (Retail2)	2 axle	26.3	15	1	4.15	6.58	1.83E-03	1.45E-02	5.29E+00	2.64E-03	1.52E-04
Parcel 4 (Retail3)	2 axle	26.3	15	1	4.15	6.58	1.83E-03	1.45E-02	5.29E+00	2.64E-03	1.52E-04
Parcel 5 (Fast Food/Retail)	4+ axle	41.598	15	2	4.15	20.80	2.89E-03	4.58E-02	1.67E+01	8.36E-03	4.81E-04
Parcel 6 (Retail4)	2 axle	26.3	15	1	4.15	6.58	1.83E-03	1.45E-02	5.29E+00	2.64E-03	1.52E-04
Parcel 7 (Restaurant1)	4+ axle	41.598	15	1	4.15	10.40	2.89E-03	2.29E-02	8.36E+00	4.18E-03	2.41E-04
Parcel 8 (Fast Food2)	4+ axle	41.598	15	1	4.15	10.40	2.89E-03	2.29E-02	8.36E+00	4.18E-03	2.41E-04
Parcel 9 (Fast Food)	4+ axle	41.598	15	1	4.15	10.40	2.89E-03	2.29E-02	8.36E+00	4.18E-03	2.41E-04
Total				**26**		**2.32E+02**	**2.75E-02**	**5.11E-01**	**1.87E+02**	**9.33E-02**	**3.88E-03**

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	6	3.86	60	50	10	375	0.23	0.023	5.66E+00	2.62E-04	1.25E-02	2.28E-03
Wal-Mart (Parcel 14)	2 axle	35	0	3.86	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	3.86	60	50	10	89	0.06	0.006	4.48E-01	6.22E-05	9.87E-04	1.80E-04
Parcel 2 (Fast Food1)	4+ axle	35	2	3.86	60	50	10	143	0.09	0.009	7.20E-01	1.00E-04	1.59E-03	2.89E-04
Parcel 3 (Retail2)	2 axle	35	0	3.86	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	3.86	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A and B)	4+ axle	35	4	3.86	60	50	10	172	0.11	0.011	1.73E+00	1.20E-04	3.82E-03	6.96E-04
Parcel 6 (Retail4)	2 axle	35	0	3.86	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	3.86	60	50	10	91	0.06	0.006	4.58E-01	6.36E-05	1.01E-03	1.84E-04
Parcel 8 (Fast Food2)	4+ axle	35	2	3.86	60	50	10	90	0.06	0.006	4.53E-01	6.29E-05	9.98E-04	1.82E-04
Parcel 9 (Fast Food)	4+ axle	35	2	3.86	60	50	10	60	0.04	0.004	3.02E-01	4.20E-05	6.65E-04	1.21E-04
TOTAL			**20**								**9.78E+00**	**7.13E-04**	**2.15E-02**	**3.93E-03**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Average Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	3	3.86	60	50	0.5	6.08E+01	5.63E-03	1.34E-01	2.44E-02
Wal-Mart (Parcel 14)	2 axle	35	0	3.86	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	3.86	60	50	0.5	2.03E+01	5.63E-03	4.46E-02	8.15E-03
Parcel 2 (Fast Food1)	4+ axle	35	1	3.86	60	50	0.5	2.03E+01	5.63E-03	4.46E-02	8.15E-03
Parcel 3 (Retail2)	2 axle	35	0	3.86	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	3.86	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A and B)	4+ axle	35	2	3.86	60	50	0.5	4.05E+01	5.63E-03	8.93E-02	1.63E-02
Parcel 6 (Retail4)	2 axle	35	0	3.86	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	3.86	60	50	0.5	2.03E+01	5.63E-03	4.46E-02	8.15E-03
Parcel 8 (Fast Food2)	4+ axle	35	1	3.86	60	50	0.5	2.03E+01	5.63E-03	4.46E-02	8.15E-03
Parcel 9 (Fast Food)	4+ axle	35	1	3.86	60	50	0.5	2.03E+01	5.63E-03	4.46E-02	8.15E-03
TOTAL			**10**					**2.03E+02**	**3.94E-02**	**4.46E-01**	**8.15E-02**

Emission Summary

Facility Emission Summary	Max Hrly Onsite Travel Emissions (g/sec)	Max Hrly Onsite TRU Travel Emissions (g/sec)	Total Max Hrly Onsite Travel Emissions (g/sec)	Max Hrly Onsite Idle Emissions (g/sec)	Max Hrly Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	1.95E-04	2.62E-04	4.57E-04	2.89E-03	5.63E-03	8.52E-03	1	8.52E-03	8.97E-03
Wal-Mart (Parcel 14)	1.18E-04	0.00E+00	1.18E-04	1.83E-03	0.00E+00	1.83E-03	1	1.83E-03	1.94E-03
Parcel 1 (Retail1)	4.62E-05	6.22E-05	1.08E-04	2.89E-03	5.63E-03	8.52E-03	1	8.52E-03	8.63E-03
Parcel 2 (Fast Food1)	7.42E-05	1.00E-04	1.74E-04	2.89E-03	5.63E-03	8.52E-03	1	8.52E-03	8.69E-03
Parcel 3 (Retail2)	4.95E-05	0.00E+00	4.95E-05	1.83E-03	0.00E+00	1.83E-03	1	1.83E-03	1.88E-03
Parcel 4 (Retail3)	5.77E-05	0.00E+00	5.77E-05	1.83E-03	0.00E+00	1.83E-03	1	1.83E-03	1.88E-03
Parcel 5 (Fast Food/Retail)	8.93E-05	1.20E-04	2.10E-04	2.89E-03	5.63E-03	8.52E-03	2	4.26E-03	8.73E-03
Parcel 6 (Retail4)	3.00E-05	0.00E+00	3.00E-05	1.83E-03	0.00E+00	1.83E-03	1	1.83E-03	1.86E-03
Parcel 7 (Restaurant1)	4.72E-05	6.36E-05	1.11E-04	2.89E-03	5.63E-03	8.52E-03	1	8.52E-03	8.63E-03
Parcel 8 (Fast Food2)	4.67E-05	6.29E-05	1.10E-04	2.89E-03	5.63E-03	8.52E-03	1	8.52E-03	8.63E-03
Parcel 9 (Fast Food 3)	3.11E-05	4.20E-05	7.31E-05	2.89E-03	5.63E-03	8.52E-03	1	8.52E-03	8.59E-03

Emission Assumptions Emissions: CO

Redlands Crossing Worker-Parking Lot

Total Daily Vehicle Trips - Saturday 22907

Total Peak Hour Vehicle Trips - Saturday 1941

Trip Generation derived from project traffic report: Urban Crossroads 2011

Default SCAQMD Vehicle Fleet Mix for 2030 (from URBEMIS Model):

LDA	49.40%
LDT1	7.30%
LDT2	23.90%
MDT	11.40%
LHDT1	1.80%
LHDT2	0.50%
MHDT	1.00%
HHDT	0.60%
UB	0.10%
MC	2.70%
SB	0.10%
MH	1.10%
OB	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 95.9%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Vehicle Class	**Composite Vehicle Mix**	**Vehicle Trips (trips/day)**	**Vehicle Trips (trips/peak PM Hr)**
LDA	51.5%	11800	1000
LDT1	7.6%	1744	148
LDT2	24.9%	5709	484
MDT	11.9%	2723	231
UB	0.1%	24	2
MC	2.8%	645	55
MH	1.1%	263	22
	100.0%	22907	1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200 m

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Vehicle Trips (trips/peak-PM_Hr)	Total Exhaust Emissions (grams/sec)
LDA	0.830	11800	1216.8	1000	2.864E-02
LDT1	1.095	1744	237.2	148	5.584E-03
LDT2	1.620	5709	1149.0	484	2.705E-02
MDT	2.016	2723	682.0	231	1.605E-02
UB	11.053	24	32.8	2	7.721E-04
MC	19.531	645	1565.0	55	3.684E-02
MH	0.750	263	24.5	22	5.763E-04
Total		22907	4907.4	1941	1.155E-01

Composite Emission Factor 1.72 g/mi

Onsite Idling Emissions

Assume that each vehicle idles for 1 minute
Idling emission factor is derived by multiplying the emission factor at 2 mph by 2

Vehicle Class	Emission Factor at 2 mph (g/mi)	Idle Emission Factor (g/hr)	Number of Vehicles (vehicles/day)	Emissions (Grams/day)	Number of Vehicles (vehicles/peak-PM_Hr)	Total Idling Emissions (Grams/sec)
LDA	0.959	1.918	5900	188.6	500	4.439E-03
LDT1	1.274	2.548	872	37.0	74	8.715E-04
LDT2	1.879	3.758	2854	178.8	242	4.208E-03
MDT	2.335	4.67	1362	106.0	115	2.494E-03
UB	16.926	33.852	12	6.7	1	1.586E-04
MC	22.916	45.832	322	246.3	27	5.798E-03
MH	1.121	2.242	131	4.9	11	1.155E-04
Total			11454	768.3	970.5	1.808E-02

Composite Emission Factor 4.025 g/hr

Max Hourly Emissions (all facilities) 1.336E-01 grams/sec

Area of the parking lot 53347 m2

Max hourly emission rate 2.50E-06 grams/m2-sec

Modeled Truck Emission Sources

Redlands Crossing

CO Emissions

Planning Year: **2030**

Onsite Travel Emission Sources	Hourly Emissions (g/sec)	Idling Emission Sources	Hourly Emissions (g/sec)
LP1	1.08E-04	IP1	8.52E-03
LP2	1.74E-04	IP2	8.52E-03
LP3	4.95E-05	IP3	1.83E-03
LP4	5.77E-05	IP4	1.83E-03
LP5A+LP5B	2.10E-04	IP5A	4.26E-03
LP6	3.00E-05	IP5B	4.26E-03
LP7	1.11E-04	WMN	8.52E-03
LP8	1.10E-04	WMS	1.83E-03
WM	5.75E-04	IP6	1.83E-03
LP9	7.31E-05	IP7	8.52E-03
		IP8	8.52E-03
		IP9	8.52E-03
Total	**1.50E-03**	**Total**	**6.69E-02**

Title : SCAQMD 2030 PM10
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 17:40:32
Scan Year: 2030 -- All model years in the range 1986 to 2030 selected
Season : Annual
Area : South Coast AQMD

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: Carbon Monoxide Temperature: 65F Relative Humidity: 60%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	OBUS	OBUS	OBUS	OBUS	UBUS	UBUS	UBUS	UBUS	MCY	MCY	MCY	MCY	SBUS	SBUS	SBUS	SBUS	MH	MH	MH	MH	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128.2	26.3	108.97	0	128.584	26.3	85.425	0	128.322	26.3	44.468	0	0	41.598	41.152	0	126.948	26.3	45.588	0	0	0	0	0	0	0	0	0	126.536	26.3	36.204	0	0	0	0	0	3.46	34.837	5.325
2	0	0.959	2.127	0.959	0	1.272	2.063	1.274	0	1.879	2.168	1.879	0	2.335	1.98	2.335	0	1.652	2.787	1.866	0	0.797	2.65	1.579	0	1.914	5.03	4.475	0	126.548	4.99	6.294	0	3.975	4.271	4.214	0	26.959	9.878	16.926	41.776	13.606	0	22.916	0	27.372	10.589	12.247	0	1.019	2.119	1.121	41.776	1.521	4.86	1.797
5	0	0.913	2.127	0.913	0	1.209	2.063	1.211	0	1.786	2.168	1.786	0	2.221	1.98	2.221	0	1.652	2.787	1.866	0	0.797	2.65	1.579	0	1.914	5.03	4.475	0	126.548	4.99	6.294	0	3.975	4.271	4.214	0	26.959	9.878	16.926	41.776	13.606	0	22.916	0	27.372	10.589	12.247	0	1.019	2.119	1.121	41.776	1.455	4.86	1.735
10	0	0.83	1.467	0.83	0	1.095	1.423	1.095	0	1.62	1.495	1.62	0	2.016	1.366	2.016	0	1.099	1.922	1.254	0	0.53	1.827	1.078	0	1.274	3.468	3.077	0	84.194	3.008	3.879	0	2.645	2.945	2.887	0	17.936	6.217	11.053	34.262	12.259	0	19.531	0	18.211	7.301	8.379	0	0.678	1.461	0.75	34.262	1.291	3.079	1.46
15	0	0.757	1.058	0.757	0	0.995	1.027	0.996	0	1.474	1.079	1.474	0	1.837	0.985	1.837	0	0.773	1.387	0.888	0	0.373	1.319	0.772	0	0.895	2.503	2.216	0	59.182	1.738	2.355	0	1.859	2.125	2.074	0	12.608	4.155	7.643	29.592	11.173	0	17.26	0	12.801	5.269	6.013	0	0.477	1.054	0.53	29.592	1.159	1.954	1.261
20	0	0.692	0.799	0.692	0	0.909	0.775	0.909	0	1.347	0.815	1.347	0	1.68	0.744	1.68	0	0.574	1.047	0.663	0	0.277	0.996	0.58	0	0.665	1.89	1.672	0	43.953	1.21	1.669	0	1.381	1.605	1.562	0	9.364	2.949	5.596	26.917	10.286	0	15.782	0	9.507	3.979	4.525	0	0.354	0.796	0.395	26.917	1.05	1.41	1.121
25	0	0.636	0.632	0.636	0	0.833	0.613	0.833	0	1.236	0.644	1.236	0	1.541	0.588	1.541	0	0.45	0.828	0.521	0	0.217	0.787	0.458	0	0.522	1.484	1.321	0	34.488	1.145	1.503	0	1.083	1.268	1.233	0	7.347	2.222	4.337	25.783	9.584	0	14.924	0	7.46	3.145	3.571	0	0.278	0.629	0.31	25.783	0.958	1.227	1.022
30	0	0.586	0.523	0.586	0	0.767	0.507	0.766	0	1.137	0.533	1.137	0	1.419	0.487	1.419	0	0.373	0.685	0.432	0	0.18	0.651	0.379	0	0.433	1.236	1.093	0	28.592	1.101	1.396	0	0.898	1.049	1.02	0	6.091	1.778	3.558	26.009	8.986	0	14.612	0	6.184	2.601	2.955	0	0.23	0.521	0.257	26.009	0.88	1.107	0.941
35	0	0.541	0.452	0.541	0	0.708	0.439	0.707	0	1.051	0.461	1.05	0	1.311	0.421	1.311	0	0.327	0.593	0.377	0	0.158	0.564	0.329	0	0.379	1.07	0.947	0	25.044	1.079	1.336	0	0.787	0.908	0.885	0	5.335	1.51	3.089	27.63	8.548	0	14.854	0	5.417	2.252	2.565	0	0.202	0.451	0.225	27.63	0.813	1.034	0.877
40	0	0.501	0.41	0.501	0	0.656	0.398	0.656	0	0.974	0.418	0.974	0	1.215	0.382	1.215	0	0.303	0.537	0.347	0	0.146	0.511	0.3	0	0.351	0.969	0.859	0	23.176	1.078	1.315	0	0.728	0.823	0.805	0	4.937	1.363	2.838	30.912	8.256	0	15.743	0	5.013	2.04	2.334	0	0.187	0.408	0.207	30.912	0.755	0.998	0.827
45	0	0.466	0.389	0.466	0	0.611	0.377	0.61	0	0.906	0.396	0.906	0	1.13	0.362	1.13	0	0.296	0.509	0.336	0	0.143	0.484	0.287	0	0.343	0.919	0.816	0	22.66	1.099	1.33	0	0.712	0.78	0.767	0	4.628	1.305	2.759	36.42	8.135	0	17.483	0	4.901	1.934	2.228	0	0.183	0.387	0.201	36.42	0.705	0.993	0.79
50	0	0.435	0.386	0.435	0	0.57	0.374	0.57	0	0.846	0.393	0.846	0	1.055	0.359	1.054	0	0.306	0.505	0.343	0	0.147	0.48	0.288	0	0.354	0.912	0.812	0	23.409	1.141	1.38	0	0.735	0.774	0.767	0	4.987	1.328	2.838	45.189	8.238	0	20.448	0	5.063	1.919	2.23	0	0.189	0.384	0.207	45.189	0.663	1.016	0.768
55	0	0.407	0.4	0.407	0	0.535	0.388	0.534	0	0.792	0.408	0.792	0	0.988	0.373	0.987	0	0.333	0.525	0.37	0	0.161	0.499	0.304	0	0.387	0.947	0.847	0	25.55	1.204	1.465	0	0.803	0.804	0.804	0	5.443	1.434	3.088	59.046	8.661	0	25.312	0	5.526	1.993	2.342	0	0.206	0.399	0.224	59.046	0.628	1.068	0.765

Emission Assumptions **Nox** Emissions
Redlands Crossing

Facility Operations

Planning Year: 2030

Emission Factors

1) Onsite Vehicle Emissions

a) Truck
(1) EMFAC2007
(a) Annual Meteorology
Temperature: 65 degF
Relative Humidity: 50%
(b) Calculations for SCAQMD
(c) Truck Mix
4+ axle heavy-heavy duty diesel trucks (HHDT)
2 axle diesel trucks (LHDT2)
(d) Onsite Truck and Customer Travel Speed: 10 mph
(e) Idle speed: 0 mph
(e) Truck Idle time: 15 minutes per truck per day

(f) Idle time for customer vehicles: 1 min per day per vehicle
b) Truck TRU
(1) Emission factors derived from CARB OFFROAD Fleet Average for 2030
(2) TRU size: 35 hp
(3) Cooling time: 0.5 hr/day
(4) Load Factor: 60 %
(5) On/off Cycle Factor 50 %
(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet
(b) Truck Operational Schedule of "Big Box" 24 hours/day
(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day
(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission: Nox**

Processes Modeled **Planning Year** **2030**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips
Wal-Mart (Parcel 14)	4+ axle	5	10	3	6	8	16
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2
Parcel 5 (Food Court A and B)	4+ axle	0	0	2	4	2	4
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2
Total		**16**	**32**	**10**	**20**	**26**	**52**

Facility Operations: 22
Wal-Mart 24 **hrs/day, 52weeks/year**
All others 12 **hrs/day, 52weeks/year**

Emission Factors

Vehicle Class	Exhaust @ 10 mph (g/mi)	Idle (g/hr)
4+ axle	5.402	123.216
2 axle	1.373	75.051

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	2.68	2.68	<----- OFFROAD Fleet Average in SCAQMD in 2030

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Max Hourly Emissions Over Link (g/sec)	Max Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (lb/yr)	Annual Ave Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	5.402	16	375	0.23	2.01E+01	3.50E-04	4.43E-02	1.62E+01	8.09E-03
Wal-Mart (Parcel 14)	2 axle	1.373	14	375	0.23	4.48E+00	8.88E-05	9.86E-03	3.60E+00	1.80E-03
Parcel 1 (Retail1)	4+ axle	5.402	4	89	0.06	1.19E+00	8.30E-05	2.63E-03	9.60E-01	4.80E-04
Parcel 2 (Fast Food1)	4+ axle	5.402	2	143	0.09	9.60E-01	1.33E-04	2.11E-03	7.72E-01	3.86E-04
Parcel 3 (Retail2)	2 axle	1.373	2	157	0.10	2.68E-01	3.72E-05	5.90E-04	2.15E-01	1.08E-04
Parcel 4 (Retail3)	2 axle	1.373	2	183	0.11	3.12E-01	4.34E-05	6.88E-04	2.51E-01	1.25E-04
Parcel 5 (Fast Food/Retail)	4+ axle	5.402	4	172	0.11	2.31E+00	1.60E-04	5.09E-03	1.86E+00	9.28E-04
Parcel 6 (Retail4)	2 axle	1.373	2	95	0.06	1.62E-01	2.25E-05	3.57E-04	1.30E-01	6.51E-05
Parcel 7 (Restaurant1)	4+ axle	5.402	2	91	0.06	6.11E-01	8.48E-05	1.35E-03	4.91E-01	2.46E-04
Parcel 8 (Fast Food2)	4+ axle	5.402	2	90	0.06	6.04E-01	8.39E-05	1.33E-03	4.86E-01	2.43E-04
Parcel 9 (Fast Food 3)	4+ axle	5.402	2	60	0.04	4.03E-01	5.59E-05	8.87E-04	3.24E-01	1.62E-04
			52							
Total						**3.14E+01**	**1.14E-03**	**6.92E-02**	**2.53E+01**	**1.26E-02**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Release Height Above Ground (m)	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Total Daily Emissions (lbs/day)	Total Emissions (lbs/yr)	Total Emissions (tons/yr)	Annual Average Emssions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	123.216	15	8	4.15	246.43	8.56E-03	5.43E-01	1.98E+02	9.91E-02	2.85E-03
Wal-Mart (Parcel 14)	2 axle	75.051	15	7	4.15	131.34	5.21E-03	2.89E-01	1.06E+02	5.28E-02	1.52E-03
Parcel 1 (Retail1)	4+ axle	123.216	15	2	4.15	61.61	8.56E-03	1.36E-01	4.95E+01	2.48E-02	1.43E-03
Parcel 2 (Fast Food1)	4+ axle	123.216	15	1	4.15	30.80	8.56E-03	6.79E-02	2.48E+01	1.24E-02	7.13E-04
Parcel 3 (Retail2)	2 axle	75.051	15	1	4.15	18.76	5.21E-03	4.13E-02	1.51E+01	7.54E-03	4.34E-04
Parcel 4 (Retail3)	2 axle	75.051	15	1	4.15	18.76	5.21E-03	4.13E-02	1.51E+01	7.54E-03	4.34E-04
Parcel 5 (Fast Food/Retail)	4+ axle	123.216	15	2	4.15	61.61	8.56E-03	1.36E-01	4.95E+01	2.48E-02	1.43E-03
Parcel 6 (Retail4)	2 axle	75.051	15	1	4.15	18.76	5.21E-03	4.13E-02	1.51E+01	7.54E-03	4.34E-04
Parcel 7 (Restaurant1)	4+ axle	123.216	15	1	4.15	30.80	8.56E-03	6.79E-02	2.48E+01	1.24E-02	7.13E-04
Parcel 8 (Fast Food2)	4+ axle	123.216	15	1	4.15	30.80	8.56E-03	6.79E-02	2.48E+01	1.24E-02	7.13E-04
Parcel 9 (Fast Food)	4+ axle	123.216	15	1	4.15	30.80	8.56E-03	6.79E-02	2.48E+01	1.24E-02	7.13E-04
Total				**26**		**6.80E+02**	**8.07E-02**	**1.50E+00**	**5.47E+02**	**2.74E-01**	**1.14E-02**

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	6	2.68	60	50	10	375	0.23	0.023	3.93E+00	1.82E-04	8.66E-03	1.58E-03
Wal-Mart (Parcel 14)	2 axle	35	0	2.68	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	2.68	60	50	10	89	0.06	0.006	3.11E-01	4.32E-05	6.85E-04	1.25E-04
Parcel 2 (Fast Food1)	4+ axle	35	2	2.68	60	50	10	143	0.09	0.009	5.00E-01	6.94E-05	1.10E-03	2.01E-04
Parcel 3 (Retail2)	2 axle	35	0	2.68	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	2.68	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A and B)	4+ axle	35	4	2.68	60	50	10	172	0.11	0.011	1.20E+00	8.35E-05	2.65E-03	4.83E-04
Parcel 6 (Retail4)	2 axle	35	0	2.68	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	2.68	60	50	10	91	0.06	0.006	3.18E-01	4.42E-05	7.01E-04	1.28E-04
Parcel 8 (Fast Food2)	4+ axle	35	2	2.68	60	50	10	90	0.06	0.006	3.15E-01	4.37E-05	6.93E-04	1.26E-04
Parcel 9 (Fast Food)	4+ axle	35	2	2.68	60	50	10	60	0.04	0.004	2.10E-01	2.91E-05	4.62E-04	8.43E-05
TOTAL			**20**								**6.79E+00**	**4.95E-04**	**1.50E-02**	**2.73E-03**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Average Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	3	2.68	60	50	0.5	4.22E+01	3.91E-03	9.30E-02	1.70E-02
Wal-Mart (Parcel 14)	2 axle	35	0	2.68	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	2.68	60	50	0.5	1.41E+01	3.91E-03	3.10E-02	5.66E-03
Parcel 2 (Fast Food1)	4+ axle	35	1	2.68	60	50	0.5	1.41E+01	3.91E-03	3.10E-02	5.66E-03
Parcel 3 (Retail2)	2 axle	35	0	2.68	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	2.68	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A and B)	4+ axle	35	2	2.68	60	50	0.5	2.81E+01	3.91E-03	6.20E-02	1.13E-02
Parcel 6 (Retail4)	2 axle	35	0	2.68	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	2.68	60	50	0.5	1.41E+01	3.91E-03	3.10E-02	5.66E-03
Parcel 8 (Fast Food2)	4+ axle	35	1	2.68	60	50	0.5	1.41E+01	3.91E-03	3.10E-02	5.66E-03
Parcel 9 (Fast Food)	4+ axle	35	1	2.68	60	50	0.5	1.41E+01	3.91E-03	3.10E-02	5.66E-03
TOTAL			**10**					**1.41E+02**	**2.74E-02**	**3.10E-01**	**5.66E-02**

Emission Summary

Facility Emission Summary	Max Hrly Onsite Travel Emissions (g/sec)	Max Hrly Onsite TRU Travel Emissions (g/sec)	Total Max Hrly Onsite Travel Emissions (g/sec)	Max Hrly Onsite Idle Emissions (g/sec)	Max Hrly Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	3.50E-04	1.82E-04	5.32E-04	8.56E-03	3.91E-03	1.25E-02	1	1.25E-02	1.30E-02
Wal-Mart (Parcel 14)	8.88E-05	0.00E+00	8.88E-05	5.21E-03	0.00E+00	5.21E-03	1	5.21E-03	5.30E-03
Parcel 1 (Retail1)	8.30E-05	4.32E-05	1.26E-04	8.56E-03	3.91E-03	1.25E-02	1	1.25E-02	1.26E-02
Parcel 2 (Fast Food1)	1.33E-04	6.94E-05	2.03E-04	8.56E-03	3.91E-03	1.25E-02	1	1.25E-02	1.27E-02
Parcel 3 (Retail2)	3.72E-05	0.00E+00	3.72E-05	5.21E-03	0.00E+00	5.21E-03	1	5.21E-03	5.25E-03
Parcel 4 (Retail3)	4.34E-05	0.00E+00	4.34E-05	5.21E-03	0.00E+00	5.21E-03	1	5.21E-03	5.26E-03
Parcel 5 (Fast Food/Retail)	1.60E-04	8.35E-05	2.44E-04	8.56E-03	3.91E-03	1.25E-02	2	6.23E-03	1.27E-02
Parcel 6 (Retail4)	2.25E-05	0.00E+00	2.25E-05	5.21E-03	0.00E+00	5.21E-03	1	5.21E-03	5.23E-03
Parcel 7 (Restaurant1)	8.48E-05	4.42E-05	1.29E-04	8.56E-03	3.91E-03	1.25E-02	1	1.25E-02	1.26E-02
Parcel 8 (Fast Food2)	8.39E-05	4.37E-05	1.28E-04	8.56E-03	3.91E-03	1.25E-02	1	1.25E-02	1.26E-02
Parcel 9 (Fast Food 3)	5.59E-05	2.91E-05	8.51E-05	8.56E-03	3.91E-03	1.25E-02	1	1.25E-02	1.26E-02
TOTAL	**1.14E-03**	**4.95E-04**	**1.64E-03**	**8.07E-02**	**2.74E-02**	**1.08E-01**			**1.10E-01**

Emission Assumptions Emissions: **Nox**

Redlands Crossing Worker and Parking Lot

Total Daily Vehicle Trips - Saturday 22907

Total Peak Hour Vehicle Trips - Saturday 1941

Trip Generation derived from project traffic report: Urban Crossroads 2011

Default SCAQMD Vehicle Fleet Mix for 2030 (from URBEMIS Model):

LDA	49.40%
LDT1	7.30%
LDT2	23.90%
MDT	11.40%
LHDT1	1.80%
LHDT2	0.50%
MHDT	1.00%
HHDT	0.60%
UB	0.10%
MC	2.70%
SB	0.10%
MH	1.10%
OB	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 95.9%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Vehicle Class	**Composite Vehicle Mix**	**Vehicle Trips (trips/day)**	**Vehicle Trips (trips/peak PM Hr)**
LDA	51.5%	11800	1000
LDT1	7.6%	1744	148
LDT2	24.9%	5709	484
MDT	11.9%	2723	231
UB	0.1%	24	2
MC	2.8%	645	55
MH	1.1%	263	22
	100.0%	22907	1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200 m

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Vehicle Trips (trips/peak-PM_Hr)	Total Exhaust Emissions (grams/sec)
LDA	0.059	11800	86.5	1000	2.036E-03
LDT1	0.081	1744	17.5	148	4.130E-04
LDT2	0.137	5709	97.2	484	2.287E-03
MDT	0.165	2723	55.8	231	1.314E-03
UB	10.692	24	31.7	2	7.468E-04
MC	1.097	645	87.9	55	2.069E-03
MH	0.342	263	11.2	22	2.628E-04
Total		22907	387.8	1941	9.129E-03

Composite Emission Factor 0.14 g/mi

Onsite Idling Emissions

Assume that each vehicle idles for 1 minute
Idling emission factor is derived by multiplying the emission factor at 2 mph by 2

Vehicle Class	Emission Factor at 2 mph (g/mi)	Idle Emission Factor (g/hr)	Number of Vehicles (vehicles/day)	Emissions (Grams/day)	Number of Vehicles (vehicles/peak-PM_Hr)	Total Idling Emissions (Grams/sec)
LDA	0.072	0.144	5900	14.2	500	3.333E-04
LDT1	0.101	0.202	872	2.9	74	6.909E-05
LDT2	0.17	0.34	2854	16.2	242	3.807E-04
MDT	0.206	0.412	1362	9.3	115	2.201E-04
UB	13.681	27.362	12	5.4	1	1.282E-04
MC	1.148	2.296	322	12.3	27	2.904E-04
MH	0.382	0.764	131	1.7	11	3.937E-05
Total			11454	62.1	970.5	1.461E-03

Composite Emission Factor 0.325 g/hr

Max Hourly Emissions (all facilities) 1.059E-02 grams/sec

Area of the parking lot 53347 m2

Max hourly emission rate 1.99E-07 grams/m2-sec

Modeled Truck Emission Sources

Redlands Crossing

Nox Emissions

Planning Year: **2030**

Onsite Travel Emission Sources	Hourly Emissions (g/sec)	Idling Emission Sources	Hourly Emissions (g/sec)
LP1	1.26E-04	IP1	1.25E-02
LP2	2.03E-04	IP2	1.25E-02
LP3	3.72E-05	IP3	5.21E-03
LP4	4.34E-05	IP4	5.21E-03
LP5A+LP5B	2.44E-04	IP5A	6.23E-03
LP6	2.25E-05	IP5B	6.23E-03
LP7	1.29E-04	WMN	1.25E-02
LP8	1.28E-04	WMS	5.21E-03
WM	6.21E-04	IP6	5.21E-03
LP9	8.51E-05	IP7	1.25E-02
		IP8	1.25E-02
		IP9	1.25E-02
Total	**1.64E-03**	**Total**	**1.08E-01**

Title : SCAQMD 2030 PM10
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2011/09/27 17:40:32
Scen Year: 2030 -- All model years in the range 1986 to 2030 selected
Season : Annual
Area : South Coast AQMD
****
Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: Oxides of Nitrogen Temperature: 65F Relative Humidity: 60%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.377	75.051	15.28	0	1.383	75.051	32.467	0	1.379	75.051	61.932	0	0	123.216	121.894
2	0	0.072	2.065	0.072	0	0.096	2.079	0.101	0	0.17	2.056	0.17	0	0.206	2.097	0.206	0	0.131	1.724	0.432	0	0.095	1.655	0.753	0	0.16	1.906	1.595	0	3.655	7.224	7.185
5	0	0.067	2.065	0.067	0	0.088	2.079	0.094	0	0.157	2.056	0.158	0	0.19	2.097	0.191	0	0.131	1.724	0.432	0	0.095	1.655	0.753	0	0.16	1.906	1.595	0	3.655	7.224	7.185
10	0	0.059	1.713	0.059	0	0.077	1.725	0.081	0	0.136	1.705	0.137	0	0.164	1.74	0.165	0	0.138	1.43	0.382	0	0.1	1.373	0.637	0	0.168	1.581	1.33	0	3.841	5.402	5.385
15	0	0.052	1.473	0.052	0	0.068	1.483	0.071	0	0.121	1.466	0.121	0	0.145	1.496	0.145	0	0.144	1.229	0.349	0	0.105	1.18	0.559	0	0.176	1.359	1.149	0	4.026	4.107	4.106
20	0	0.047	1.312	0.047	0	0.061	1.321	0.064	0	0.108	1.306	0.108	0	0.13	1.332	0.13	0	0.151	1.095	0.329	0	0.109	1.051	0.507	0	0.184	1.211	1.028	0	4.211	3.356	3.365
25	0	0.043	1.21	0.043	0	0.056	1.219	0.059	0	0.099	1.205	0.099	0	0.119	1.23	0.119	0	0.158	1.01	0.319	0	0.114	0.97	0.475	0	0.192	1.117	0.953	0	4.397	3.022	3.037
30	0	0.04	1.157	0.04	0	0.052	1.165	0.055	0	0.093	1.152	0.093	0	0.111	1.176	0.111	0	0.164	0.966	0.316	0	0.119	0.928	0.46	0	0.201	1.068	0.914	0	4.582	2.742	2.761
35	0	0.038	1.147	0.038	0	0.049	1.155	0.052	0	0.088	1.142	0.088	0	0.105	1.165	0.106	0	0.171	0.957	0.319	0	0.124	0.919	0.46	0	0.209	1.059	0.907	0	4.767	2.515	2.539
40	0	0.037	1.177	0.037	0	0.048	1.185	0.051	0	0.085	1.172	0.085	0	0.102	1.196	0.102	0	0.178	0.983	0.33	0	0.129	0.944	0.473	0	0.217	1.087	0.932	0	4.952	2.341	2.369
45	0	0.036	1.252	0.036	0	0.047	1.261	0.05	0	0.084	1.247	0.084	0	0.1	1.272	0.101	0	0.184	1.045	0.347	0	0.133	1.004	0.501	0	0.225	1.156	0.99	0	5.138	2.221	2.253
50	0	0.036	1.38	0.036	0	0.047	1.39	0.051	0	0.084	1.374	0.084	0	0.1	1.402	0.101	0	0.191	1.152	0.372	0	0.138	1.106	0.547	0	0.233	1.274	1.089	0	5.323	2.155	2.189
55	0	0.037	1.576	0.037	0	0.048	1.587	0.052	0	0.085	1.569	0.085	0	0.103	1.601	0.103	0	0.197	1.316	0.409	0	0.143	1.264	0.616	0	0.241	1.455	1.239	0	5.508	2.142	2.178

Emission Assumptions **PM10** Emissions
Redlands Crossing

Facility Operations

Planning Year: 2030

Emission Factors

1) Onsite Vehicle Emissions

a) Truck
(1) EMFAC2007
(a) Annual Meteorology
Temperature: 65 degF
Relative Humidity: 50%
(b) Calculations for SoCAB
(c) Truck Mix
4+ axle heavy-heavy duty diesel trucks (HHDT)
2 axle diesel trucks (LHDT2)
(d) Onsite Truck and Customer Travel Spee 10 mph
(e) Idle speed: 0 mph
(e) Truck Idle time: 15 minutes per truck per day
(f) Idle time for customer vehicles: 1 min per day per vehicle

b) Truck TRU
(1) Emission factors derived from CARB OFFROAD Model for Fleet year 2030
(2) TRU size: 35 hp
(3) Cooling time: 0.5 hr/day
(4) Load Factor: 60 %
(5) On/off Cycle Factor 50 %
(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet
(b) Truck Operational Schedule of "Big Box" 24 hours/day
(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day
(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission: PM10**

Processes Modeled **Planning Year: 2030**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips
Wal-Mart (Parcel 14)	4+ axle	5	10	2	4	7	14
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2
Parcel 5 (Food Court A)	4+ axle	0	0	2	4	2	4
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2
Total		**16**	**32**	**9**	**18**	**25**	**50**

Facility Operations:
Wal-Mart 24 **hrs/day, 52weeks/year**
All others 12 **hrs/day, 52weeks/year**

Emission Factors

Vehicle Class	Exhaust (g/mi)	Idle (g/hr)
4+ axle	0.162	0.167
2 axle	0.073	0.809

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	0.012	0.012	<-------- Fleet Average for SCAQMD in 2030

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Emissions Over the Link (g/sec)	Max Hourly Emissions Over Link (lb/hr)	Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (tons/yr)	Annual Ave Emissions Over Link (tons/yr)	Annual Average Emissions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	0.162	14	375	0.23	5.28E-01	6.12E-06	4.19E+00	1.16E-03	2.12E-04	1.06E-07	6.12E-06
Wal-Mart (Parcel 14)	2 axle	0.073	14	375	0.23	2.38E-01	2.76E-06	1.89E+00	5.24E-04	9.57E-05	4.79E-08	2.76E-06
Parcel 1 (Retail1)	4+ axle	0.162	4	89	0.06	3.58E-02	8.29E-07	2.84E-01	7.89E-05	1.44E-05	7.20E-09	8.29E-07
Parcel 2 (Fast Food1)	4+ axle	0.162	2	143	0.09	2.88E-02	6.66E-07	2.28E-01	6.34E-05	1.16E-05	5.78E-09	6.66E-07
Parcel 3 (Retail2)	2 axle	0.073	2	157	0.10	1.42E-02	3.30E-07	1.13E-01	3.14E-05	5.72E-06	2.86E-09	3.30E-07
Parcel 4 (Retail3)	2 axle	0.073	2	183	0.11	1.66E-02	3.84E-07	1.32E-01	3.66E-05	6.67E-06	3.34E-09	3.84E-07
Parcel 5 (Fast Food/Retail)	4+ axle	0.162	4	172	0.11	6.92E-02	1.60E-06	5.49E-01	1.53E-04	2.78E-05	1.39E-08	1.60E-06
Parcel 6 (Retail4)	2 axle	0.073	2	95	0.06	8.62E-03	1.99E-07	6.83E-02	1.90E-05	3.46E-06	1.73E-09	1.99E-07
Parcel 7 (Restaurant1)	4+ axle	0.162	2	91	0.06	1.83E-02	4.24E-07	1.45E-01	4.03E-05	7.36E-06	3.68E-09	4.24E-07
Parcel 8 (Fast Food2)	4+ axle	0.162	2	90	0.06	1.81E-02	4.19E-07	1.44E-01	3.99E-05	7.28E-06	3.64E-09	4.19E-07
Parcel 9 (Fast Food 3)	4+ axle	0.162	2	60	0.04	1.21E-02	2.80E-07	9.58E-02	2.66E-05	4.85E-06	2.43E-09	2.80E-07
			50									
Total						**9.88E-01**	**1.40E-05**	**7.84E+00**	**2.18E-03**	**3.97E-04**	**1.99E-07**	**1.40E-05**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Max Hourly Emissions (lb/hr)	Total Daily Emissions (lbs/day)	Total Emissions (tons/yr)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	0.167	15	7	0.29	3.38E-06	2.68E-05	6.44E-04	1.17E-04	
Wal-Mart (Parcel 14)	2 axle	0.809	15	7	1.42	1.64E-05	1.30E-04	3.12E-03	5.69E-04	
Parcel 1 (Retail1)	4+ axle	0.167	15	2	0.08	1.93E-06	1.53E-05	1.84E-04	3.36E-05	
Parcel 2 (Fast Food1)	4+ axle	0.167	15	1	0.04	9.66E-07	7.66E-06	9.20E-05	1.68E-05	
Parcel 3 (Retail2)	2 axle	0.809	15	1	0.20	4.68E-06	3.71E-05	4.45E-04	8.13E-05	
Parcel 4 (Retail3)	2 axle	0.809	15	1	0.20	4.68E-06	3.71E-05	4.45E-04	8.13E-05	
Parcel 5 (Fast Food/Retail)	4+ axle	0.167	15	2	0.08	1.93E-06	1.53E-05	1.84E-04	3.36E-05	
Parcel 6 (Retail4)	2 axle	0.809	15	1	0.20	4.68E-06	3.71E-05	4.45E-04	8.13E-05	
Parcel 7 (Restaurant1)	4+ axle	0.167	15	1	0.04	9.66E-07	7.66E-06	9.20E-05	1.68E-05	
Parcel 8 (Fast Food2)	4+ axle	0.167	15	1	0.04	9.66E-07	7.66E-06	9.20E-05	1.68E-05	
Parcel 9 (Fast Food)	4+ axle	0.167	15	1	0.04	9.66E-07	7.66E-06	9.20E-05	1.68E-05	
Total				**25**	**2.65E+00**	**4.15E-05**	**3.29E-04**	**5.83E-03**	**1.06E-03**	

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	4	0.012	60	50	10	375	0.23	0.023	1.17E-02	1.36E-07	2.59E-05	4.72E-06
Wal-Mart (Parcel 14)	2 axle	35	0	0.012	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	0.012	60	50	10	89	0.06	0.006	1.39E-03	3.23E-08	3.07E-06	5.60E-07
Parcel 2 (Fast Food1)	4+ axle	35	2	0.012	60	50	10	143	0.09	0.009	2.24E-03	5.18E-08	4.93E-06	9.00E-07
Parcel 3 (Retail2)	2 axle	35	0	0.012	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.012	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	4	0.012	60	50	10	172	0.11	0.011	5.39E-03	1.25E-07	1.19E-05	2.16E-06
Parcel 6 (Retail4)	2 axle	35	0	0.012	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	0.012	60	50	10	91	0.06	0.006	1.42E-03	3.30E-08	3.14E-06	5.73E-07
Parcel 8 (Fast Food2)	4+ axle	35	2	0.012	60	50	10	90	0.06	0.006	1.41E-03	3.26E-08	3.10E-06	5.66E-07
Parcel 9 (Fast Food)	4+ axle	35	2	0.012	60	50	10	60	0.04	0.004	9.39E-04	2.17E-08	2.07E-06	3.78E-07
TOTAL			**18**								**2.45E-02**	**4.32E-07**	**5.40E-05**	**9.86E-06**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Total Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	2	0.012	60	50	0.5	1.26E-01	1.46E-06	2.78E-04	5.06E-05
Wal-Mart (Parcel 14)	2 axle	35	0	0.012	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	0.012	60	50	0.5	6.30E-02	1.46E-06	1.39E-04	2.53E-05
Parcel 2 (Fast Food1)	4+ axle	35	1	0.012	60	50	0.5	6.30E-02	1.46E-06	1.39E-04	2.53E-05
Parcel 3 (Retail2)	2 axle	35	0	0.012	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.012	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	2	0.012	60	50	0.5	1.26E-01	2.92E-06	2.78E-04	5.06E-05
Parcel 6 (Retail4)	2 axle	35	0	0.012	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	0.012	60	50	0.5	6.30E-02	1.46E-06	1.39E-04	2.53E-05
Parcel 8 (Fast Food2)	4+ axle	35	1	0.012	60	50	0.5	6.30E-02	1.46E-06	1.39E-04	2.53E-05
Parcel 9 (Fast Food)	4+ axle	35	1	0.012	60	50	0.5	6.30E-02	1.46E-06	1.39E-04	2.53E-05
TOTAL			**9**					**5.67E-01**	**1.17E-05**	**1.25E-03**	**2.28E-04**

Emission Summary

Facility Emission Summary	Ave Onsite Travel Emissions (g/sec)	Ave Onsite TRU Travel Emissions (g/sec)	Total Ave Onsite Travel Emissions (g/sec)	Ave Onsite Idle Emissions (g/sec)	Ave Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	6.12E-06	1.36E-07	6.25E-06	3.38E-06	1.46E-06	4.84E-06	1	4.84E-06	1.11E-05
Wal-Mart (Parcel 14)	2.76E-06	0.00E+00	2.76E-06	1.64E-05	0.00E+00	1.64E-05	1	1.64E-05	1.91E-05
Parcel 1 (Retail1)	8.29E-07	3.23E-08	8.62E-07	1.93E-06	1.46E-06	3.39E-06	1	3.39E-06	4.25E-06
Parcel 2 (Fast Food1)	6.66E-07	5.18E-08	7.18E-07	9.66E-07	1.46E-06	2.42E-06	1	2.42E-06	3.14E-06
Parcel 3 (Retail2)	3.30E-07	0.00E+00	3.30E-07	4.68E-06	0.00E+00	4.68E-06	1	4.68E-06	5.01E-06
Parcel 4 (Retail3)	3.84E-07	0.00E+00	3.84E-07	4.68E-06	0.00E+00	4.68E-06	1	4.68E-06	5.07E-06
Parcel 5 (Fast Food/Retail)	1.60E-06	1.25E-07	1.73E-06	1.93E-06	2.92E-06	4.85E-06	2	2.42E-06	6.58E-06
Parcel 6 (Retail4)	1.99E-07	0.00E+00	1.99E-07	4.68E-06	0.00E+00	4.68E-06	1	4.68E-06	4.88E-06
Parcel 7 (Restaurant1)	4.24E-07	3.30E-08	4.57E-07	9.66E-07	1.46E-06	2.42E-06	1	2.42E-06	2.88E-06
Parcel 8 (Fast Food2)	4.19E-07	3.26E-08	4.52E-07	9.66E-07	1.46E-06	2.42E-06	1	2.42E-06	2.88E-06
Parcel 9 (Fast Food 3)	2.80E-07	2.17E-08	3.01E-07	9.66E-07	1.46E-06	2.42E-06	1	2.42E-06	2.73E-06

Emission Assumptions Emissions: PM10

Redlands Crossing Worker and Parking Lot

Total Daily Vehicle Trips: 22907

Total Peak Hour Vehicle Trips - Saturday 1941

Trip Generation derived from project traffic report: Urban Crossroads 2011

Default SCAQMD Vehicle Fleet Mix for 2030 (from URBEMIS Model):

LDA	49.40%
LDT1	7.30%
LDT2	23.90%
MDT	11.40%
LHDT1	1.80%
LHDT2	0.50%
MHDT	1.00%
HHDT	0.60%
UB	0.10%
MC	2.70%
SB	0.10%
MH	1.10%
OB	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 95.9%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Operational Time of Customer Parking Lots 24 hours

Vehicle Class	**Composite Vehicle Mix**	**Vehicle Trips (trips/day)**	**Vehicle Trips (trips/peak PM Hr)**
LDA	51.5%	11800	1000
LDT1	7.6%	1744	148
LDT2	24.9%	5709	484
MDT	11.9%	2723	231
UB	0.1%	24	2
MC	2.8%	645	55
MH	1.1%	263	22
	100.0%	22907	1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200 m

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Exhaust Emissions (g/sec)
LDA	0.058	11800	85.0	9.841E-04
LDT1	0.065	1744	14.1	1.630E-04
LDT2	0.117	5709	83.0	9.605E-04
MDT	0.121	2723	40.9	4.738E-04
UB	0.305	24	0.9	1.048E-05
MC	0.049	645	3.9	4.544E-05
MH	0.021	263	0.7	7.934E-06
Total		22907	228.6	2.645E-03

Composite Emission Factor 0.08 g/mi

Onsite Idling Emissions

Assume that each vehicle idles for 1 minute
Idling emission factor is derived by multiplying the emission factor at 2 mph by 2

Vehicle Class	Emission Factor at 2 mph (g/mi)	Idle Emission Factor (g/hr)	Number of Vehicles (vehicles/day)	Emissions (Grams/day)	Average Idling Emissions (g/sec)
LDA	0.072	0.144	5900	14.2	1.639E-04
LDT1	0.087	0.174	872	2.5	2.926E-05
LDT2	0.188	0.376	2854	17.9	2.070E-04
MDT	0.189	0.378	1362	8.6	9.928E-05
UB	0.41	0.82	12	0.2	1.889E-06
MC	0.03	0.06	322	0.3	3.732E-06
MH	0.029	0.058	131	0.1	1.470E-06
Total			11454	43.8	5.0655E-04

Composite Emission Factor 0.23 g/hr

Average Daily Emissions (all facilities) 3.152E-03 grams/sec

Area of the parking lot 53347 m2

Ave hourly emission rate 5.91E-08 grams/m2-sec

Modeled Truck Emission Sources

Redlands Crossing

PM10 Emissions

Planning Year **2030**

Onsite Travel Emission Sources	Hourly Emissions (g/sec)
LP1	8.62E-07
LP2	7.18E-07
LP3	3.30E-07
LP4	3.84E-07
LP5A+LP5B	1.73E-06
LP6	1.99E-07
LP7	4.57E-07
LP8	4.52E-07
WM	9.01E-06
LP9	3.01E-07
Total	**1.44E-05**

Idling Emission Sources	Hourly Emissions (g/sec)
IP1	3.39E-06
IP2	2.42E-06
IP3	4.68E-06
IP4	4.68E-06
IP5A	2.42E-06
IP5B	2.42E-06
WMN	4.84E-06
WMS	1.64E-05
IP6	4.68E-06
IP7	2.42E-06
IP8	2.42E-06
IP9	2.42E-06
Total	**5.32E-05**

Season : Annual
Area : South Coast AQMD
****
Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD
Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: PM10 Temperature: 65F Relative Humidity: 60%

Speed	LDA	LDA	LDA	LDA	LDT1	LDT1	LDT1	LDT1	LDT2	LDT2	LDT2	LDT2	MDV	MDV	MDV	MDV	LHD1	LHD1	LHD1	LHD1	LHD2	LHD2	LHD2	LHD2	MHD	MHD	MHD	MHD	HHD	HHD	HHD	HHD	OBUS	OBUS	OBUS	OBUS	UBUS	UBUS	UBUS	UBUS	MCY	MCY	MCY	MCY	SBUS	SBUS	SBUS	SBUS	MH	MH	MH	MH	ALL	ALL	ALL	ALL
MPH	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL	NCAT	CAT	DSL	ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.791	0.149	0	0	0.809	0.341	0	0	0.807	0.663	0	0	0.167	0.185	0	0	0.804	0.65	0	0	0	0	0	0	0	0	0	0	0.857	0.773	0	0	0	0	0	0	0.396	0.024
2	0	0.072	0.119	0.072	0	0.087	0.111	0.087	0	0.188	0.124	0.188	0	0.189	0.1	0.189	0	0.053	0.063	0.055	0	0.05	0.061	0.055	0	0.055	0.352	0.299	0	0.089	0.111	0.111	0	0.051	0.296	0.249	0	0.088	0.636	0.41	0.08	0.006	0	0.03	0	0.068	0.967	0.878	0	0.013	0.18	0.029	0.08	0.115	0.183	0.119
5	0	0.057	0.119	0.057	0	0.068	0.111	0.068	0	0.148	0.124	0.148	0	0.149	0.1	0.149	0	0.053	0.063	0.055	0	0.05	0.061	0.055	0	0.055	0.352	0.299	0	0.089	0.111	0.111	0	0.051	0.296	0.249	0	0.088	0.636	0.41	0.08	0.006	0	0.03	0	0.068	0.967	0.878	0	0.013	0.18	0.029	0.08	0.091	0.183	0.096
10	0	0.037	0.093	0.037	0	0.044	0.087	0.044	0	0.096	0.097	0.096	0	0.096	0.079	0.096	0	0.035	0.05	0.037	0	0.033	0.048	0.039	0	0.036	0.276	0.234	0	0.058	0.098	0.097	0	0.034	0.233	0.194	0	0.058	0.461	0.295	0.063	0.004	0	0.024	0	0.045	0.759	0.688	0	0.009	0.141	0.021	0.063	0.059	0.149	0.064
15	0	0.025	0.075	0.025	0	0.03	0.07	0.03	0	0.065	0.078	0.065	0	0.066	0.063	0.066	0	0.024	0.04	0.027	0	0.022	0.039	0.029	0	0.024	0.222	0.187	0	0.04	0.086	0.085	0	0.023	0.187	0.155	0	0.04	0.347	0.22	0.052	0.003	0	0.019	0	0.03	0.609	0.552	0	0.006	0.113	0.016	0.052	0.04	0.124	0.045
20	0	0.018	0.061	0.018	0	0.022	0.057	0.022	0	0.047	0.084	0.047	0	0.047	0.052	0.047	0	0.017	0.033	0.02	0	0.016	0.032	0.023	0	0.017	0.182	0.153	0	0.028	0.077	0.076	0	0.016	0.153	0.127	0	0.028	0.27	0.17	0.045	0.003	0	0.017	0	0.022	0.5	0.452	0	0.004	0.093	0.012	0.045	0.029	0.105	0.033
25	0	0.014	0.052	0.014	0	0.016	0.048	0.017	0	0.036	0.054	0.036	0	0.036	0.044	0.036	0	0.012	0.027	0.015	0	0.012	0.027	0.018	0	0.013	0.153	0.128	0	0.021	0.074	0.074	0	0.012	0.128	0.106	0	0.021	0.217	0.136	0.041	0.002	0	0.015	0	0.016	0.419	0.379	0	0.003	0.078	0.01	0.041	0.022	0.094	0.026
30	0	0.011	0.044	0.011	0	0.013	0.041	0.013	0	0.029	0.046	0.029	0	0.029	0.037	0.029	0	0.01	0.024	0.012	0	0.009	0.023	0.015	0	0.01	0.131	0.109	0	0.016	0.074	0.074	0	0.009	0.11	0.091	0	0.016	0.181	0.113	0.039	0.002	0	0.014	0	0.012	0.359	0.325	0	0.002	0.067	0.008	0.039	0.018	0.087	0.022
35	0	0.009	0.039	0.009	0	0.011	0.036	0.011	0	0.024	0.04	0.024	0	0.024	0.033	0.024	0	0.008	0.021	0.01	0	0.007	0.02	0.013	0	0.008	0.115	0.096	0	0.013	0.078	0.077	0	0.008	0.096	0.079	0	0.013	0.157	0.097	0.038	0.002	0	0.014	0	0.01	0.315	0.285	0	0.002	0.058	0.007	0.038	0.015	0.084	0.019
40	0	0.008	0.035	0.008	0	0.01	0.032	0.01	0	0.022	0.036	0.022	0	0.022	0.029	0.022	0	0.007	0.018	0.009	0	0.006	0.018	0.011	0	0.007	0.103	0.086	0	0.011	0.084	0.084	0	0.006	0.086	0.071	0	0.011	0.14	0.087	0.04	0.002	0	0.014	0	0.008	0.282	0.255	0	0.002	0.052	0.006	0.04	0.013	0.084	0.017
45	0	0.008	0.032	0.008	0	0.009	0.03	0.009	0	0.02	0.033	0.02	0	0.02	0.027	0.02	0	0.006	0.017	0.008	0	0.005	0.016	0.01	0	0.006	0.094	0.078	0	0.01	0.094	0.093	0	0.006	0.079	0.065	0	0.01	0.13	0.08	0.043	0.002	0	0.016	0	0.007	0.258	0.233	0	0.001	0.048	0.006	0.043	0.012	0.087	0.017
50	0	0.008	0.03	0.008	0	0.009	0.028	0.009	0	0.02	0.031	0.02	0	0.02	0.025	0.02	0	0.005	0.016	0.007	0	0.005	0.015	0.009	0	0.005	0.088	0.073	0	0.009	0.107	0.106	0	0.005	0.074	0.061	0	0.009	0.125	0.077	0.049	0.002	0	0.018	0	0.007	0.242	0.219	0	0.001	0.045	0.005	0.049	0.012	0.093	0.017
55	0	0.008	0.028	0.008	0	0.01	0.027	0.01	0	0.021	0.03	0.021	0	0.021	0.024	0.021	0	0.005	0.015	0.007	0	0.005	0.015	0.009	0	0.005	0.084	0.07	0	0.008	0.122	0.121	0	0.005	0.071	0.058	0	0.008	0.124	0.076	0.058	0.003	0	0.021	0	0.006	0.231	0.209	0	0.001	0.043	0.005	0.058	0.013	0.101	0.018

	Brake	Tire	Total
LDA	0.013	0.008	0.021
LDT1	0.013	0.008	0.021
LDT2	0.013	0.008	0.021
MDT	0.013	0.008	0.021
LHDT1	0.013	0.012	0.025
LHDT2	0.013	0.012	0.025
MHDT	0.013	0.012	0.025
HHDT	0.028	0.036	0.064
UB	0.009	0.013	0.022
MC	0.004	0.006	0.01
MH	0.012	0.013	0.025

Emission Assumptions **PM2.5** Emissions
Redlands Crossing

Facility Operations

Planning Year 2030

Emission Factors

1) Onsite Vehicle Emissions

a) Truck
(1) EMFAC2007
(a) Annual Meteorology
Temperature: 65 degF
Relative Humidity: 50%
(b) Calculations for SoCAB
(c) Truck Mix
4+ axle heavy-heavy duty diesel trucks (HHDT)
2 axle diesel trucks (LHDT2)
(d) Onsite Truck and Customer Travel Spee 10 mph
(e) Idle speed: 0 mph
(e) Truck Idle time: 15 minutes per truck per day
(f) Idle time for customer vehicles: 1 min per day per vehicle

b) Truck TRU
(1) Emission factors derived from CARB OFFROAD Model Fleet Average in 2030
(2) TRU size: 35 hp
(3) Cooling time: 0.5 hr/day
(4) Load Factor: 60 %
(5) On/off Cycle Factor 50 %
(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet
(b) Truck Operational Schedule of "Big Box" 24 hours/day
(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day
(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission: PM2.5**

Processes Modeled **Planning year: 2030**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips
Wal-Mart (Parcel 14)	4+ axle	5	10	2	4	7	14
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2
Parcel 5 (Food Court A)	4+ axle	0	0	2	4	2	4
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2
Total		**16**	**32**	**9**	**18**	**25**	**50**

Facility Operations:
Wal-Mart 24 **hrs/day, 52weeks/year**
All others 12 **hrs/day, 52weeks/year**

Emission Factors

Vehicle Class	Exhaust (g/mi)	Idle (g/hr)
4+ axle	0.111	0.153
2 axle	0.052	0.744

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	0.012	0.012	<-------- Fleet Average for SCAQMD in 2030

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Emissions Over the Link (g/sec)	Max Hourly Emissions Over Link (lb/hr)	Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (tons/yr)	Annual Ave Emissions Over Link (tons/yr)	Annual Average Emissions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	0.111	14	375	0.23	3.62E-01	4.19E-06	2.87E+00	7.97E-04	1.46E-04	7.28E-08	4.19E-06
Wal-Mart (Parcel 14)	2 axle	0.052	14	375	0.23	1.70E-01	1.96E-06	1.34E+00	3.74E-04	6.82E-05	3.41E-08	1.96E-06
Parcel 1 (Retail1)	4+ axle	0.111	4	89	0.06	2.45E-02	5.68E-07	1.95E-01	5.41E-05	9.87E-06	4.93E-09	5.68E-07
Parcel 2 (Fast Food1)	4+ axle	0.111	2	143	0.09	1.97E-02	4.57E-07	1.56E-01	4.34E-05	7.93E-06	3.96E-09	4.57E-07
Parcel 3 (Retail2)	2 axle	0.052	2	157	0.10	1.01E-02	2.35E-07	8.04E-02	2.23E-05	4.08E-06	2.04E-09	2.35E-07
Parcel 4 (Retail3)	2 axle	0.052	2	183	0.11	1.18E-02	2.74E-07	9.37E-02	2.60E-05	4.75E-06	2.38E-09	2.74E-07
Parcel 5 (Fast Food/Retail)	4+ axle	0.111	4	172	0.11	4.74E-02	1.10E-06	3.76E-01	1.04E-04	1.91E-05	9.54E-09	1.10E-06
Parcel 6 (Retail4)	2 axle	0.052	2	95	0.06	6.14E-03	1.42E-07	4.87E-02	1.35E-05	2.47E-06	1.23E-09	1.42E-07
Parcel 7 (Restaurant1)	4+ axle	0.111	2	91	0.06	1.25E-02	2.91E-07	9.95E-02	2.76E-05	5.04E-06	2.52E-09	2.91E-07
Parcel 8 (Fast Food2)	4+ axle	0.111	2	90	0.06	1.24E-02	2.87E-07	9.84E-02	2.73E-05	4.99E-06	2.49E-09	2.87E-07
Parcel 9 (Fast Food 3)	4+ axle	0.111	2	60	0.04	8.27E-03	1.92E-07	6.56E-02	1.82E-05	3.33E-06	1.66E-09	1.92E-07
			50									
Total						**6.85E-01**	**9.70E-06**	**5.43E+00**	**1.51E-03**	**2.75E-04**	**1.38E-07**	**9.70E-06**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Max Hourly Emissions (lb/hr)	Total Daily Emissions (lbs/day)	Total Emissions (tons/yr)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	0.153	15	7	0.27	3.10E-06	2.46E-05	5.90E-04	1.08E-04	
Wal-Mart (Parcel 14)	2 axle	0.744	15	7	1.30	1.51E-05	1.19E-04	2.87E-03	5.23E-04	
Parcel 1 (Retail1)	4+ axle	0.153	15	2	0.08	1.77E-06	1.40E-05	1.69E-04	3.08E-05	
Parcel 2 (Fast Food1)	4+ axle	0.153	15	1	0.04	8.85E-07	7.02E-06	8.43E-05	1.54E-05	
Parcel 3 (Retail2)	2 axle	0.744	15	1	0.19	4.31E-06	3.41E-05	4.10E-04	7.48E-05	
Parcel 4 (Retail3)	2 axle	0.744	15	1	0.19	4.31E-06	3.41E-05	4.10E-04	7.48E-05	
Parcel 5 (Fast Food/Retail)	4+ axle	0.153	15	2	0.08	1.77E-06	1.40E-05	1.69E-04	3.08E-05	
Parcel 6 (Retail4)	2 axle	0.744	15	1	0.19	4.31E-06	3.41E-05	4.10E-04	7.48E-05	
Parcel 7 (Restaurant1)	4+ axle	0.153	15	1	0.04	8.85E-07	7.02E-06	8.43E-05	1.54E-05	
Parcel 8 (Fast Food2)	4+ axle	0.153	15	1	0.04	8.85E-07	7.02E-06	8.43E-05	1.54E-05	
Parcel 9 (Fast Food)	4+ axle	0.153	15	1	0.04	8.85E-07	7.02E-06	8.43E-05	1.54E-05	
Total				**25**	**2.43E+00**	**3.82E-05**	**3.03E-04**	**5.36E-03**	**9.78E-04**	

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	4	0.012	60	50	10	375	0.23	0.023	1.17E-02	1.36E-07	2.59E-05	4.72E-06
Wal-Mart (Parcel 14)	2 axle	35	0	0.012	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	0.012	60	50	10	89	0.06	0.006	1.39E-03	3.23E-08	3.07E-06	5.60E-07
Parcel 2 (Fast Food1)	4+ axle	35	2	0.012	60	50	10	143	0.09	0.009	2.24E-03	5.18E-08	4.93E-06	9.00E-07
Parcel 3 (Retail2)	2 axle	35	0	0.012	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.012	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	4	0.012	60	50	10	172	0.11	0.011	5.39E-03	1.25E-07	1.19E-05	2.16E-06
Parcel 6 (Retail4)	2 axle	35	0	0.012	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	0.012	60	50	10	91	0.06	0.006	1.42E-03	3.30E-08	3.14E-06	5.73E-07
Parcel 8 (Fast Food2)	4+ axle	35	2	0.012	60	50	10	90	0.06	0.006	1.41E-03	3.26E-08	3.10E-06	5.66E-07
Parcel 9 (Fast Food)	4+ axle	35	2	0.012	60	50	10	60	0.04	0.004	9.39E-04	2.17E-08	2.07E-06	3.78E-07
TOTAL			**18**								**2.45E-02**	**4.32E-07**	**5.40E-05**	**9.86E-06**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Total Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	2	0.012	60	50	0.5	1.26E-01	1.46E-06	2.78E-04	5.06E-05
Wal-Mart (Parcel 14)	2 axle	35	0	0.012	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	0.012	60	50	0.5	6.30E-02	1.46E-06	1.39E-04	2.53E-05
Parcel 2 (Fast Food1)	4+ axle	35	1	0.012	60	50	0.5	6.30E-02	1.46E-06	1.39E-04	2.53E-05
Parcel 3 (Retail2)	2 axle	35	0	0.012	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.012	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	2	0.012	60	50	0.5	1.26E-01	2.92E-06	2.78E-04	5.06E-05
Parcel 6 (Retail4)	2 axle	35	0	0.012	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	0.012	60	50	0.5	6.30E-02	1.46E-06	1.39E-04	2.53E-05
Parcel 8 (Fast Food2)	4+ axle	35	1	0.012	60	50	0.5	6.30E-02	1.46E-06	1.39E-04	2.53E-05
Parcel 9 (Fast Food)	4+ axle	35	1	0.012	60	50	0.5	6.30E-02	1.46E-06	1.39E-04	2.53E-05
TOTAL			**9**					**5.67E-01**	**1.17E-05**	**1.25E-03**	**2.28E-04**

Emission Summary

Facility Emission Summary	Ave Onsite Travel Emissions (g/sec)	Ave Onsite TRU Travel Emissions (g/sec)	Total Ave Onsite Travel Emissions (g/sec)	Ave Onsite Idle Emissions (g/sec)	Ave Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	4.19E-06	1.36E-07	4.33E-06	3.10E-06	1.46E-06	4.56E-06	1	4.56E-06	8.88E-06
Wal-Mart (Parcel 14)	1.96E-06	0.00E+00	1.96E-06	1.51E-05	0.00E+00	1.51E-05	1	1.51E-05	1.70E-05
Parcel 1 (Retail1)	5.68E-07	3.23E-08	6.00E-07	1.77E-06	1.46E-06	3.23E-06	1	3.23E-06	3.83E-06
Parcel 2 (Fast Food1)	4.57E-07	5.18E-08	5.08E-07	8.85E-07	1.46E-06	2.34E-06	1	2.34E-06	2.85E-06
Parcel 3 (Retail2)	2.35E-07	0.00E+00	2.35E-07	4.31E-06	0.00E+00	4.31E-06	1	4.31E-06	4.54E-06
Parcel 4 (Retail3)	2.74E-07	0.00E+00	2.74E-07	4.31E-06	0.00E+00	4.31E-06	1	4.31E-06	4.58E-06
Parcel 5 (Fast Food/Retail)	1.10E-06	1.25E-07	1.22E-06	1.77E-06	2.92E-06	4.69E-06	2	2.34E-06	5.91E-06
Parcel 6 (Retail4)	1.42E-07	0.00E+00	1.42E-07	4.31E-06	0.00E+00	4.31E-06	1	4.31E-06	4.45E-06
Parcel 7 (Restaurant1)	2.91E-07	3.30E-08	3.23E-07	8.85E-07	1.46E-06	2.34E-06	1	2.34E-06	2.67E-06
Parcel 8 (Fast Food2)	2.87E-07	3.26E-08	3.20E-07	8.85E-07	1.46E-06	2.34E-06	1	2.34E-06	2.66E-06
Parcel 9 (Fast Food 3)	1.92E-07	2.17E-08	2.13E-07	8.85E-07	1.46E-06	2.34E-06	1	2.34E-06	2.56E-06

Emission Assumptions Emissions: PM2.5

Redlands Crossing Worker and Parking Lot

Total Daily Vehicle Trips: 22907

Total Peak Hour Vehicle Trips - Saturday 1941

Trip Generation derived from project traffic report: Urban Crossroads 2011

Default SCAQMD Vehicle Fleet Mix for 2030 (from URBEMIS Model):

LDA	49.40%
LDT1	7.30%
LDT2	23.90%
MDT	11.40%
LHDT1	1.80%
LHDT2	0.50%
MHDT	1.00%
HHDT	0.60%
UB	0.10%
MC	2.70%
SB	0.10%
MH	1.10%
OB	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 95.9%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Operational Time of Customer Parking Lots 24 hours

Vehicle Class	**Composite Vehicle Mix**	**Vehicle Trips (trips/day)**	**Vehicle Trips (trips/peak PM Hr)**
LDA	51.5%	11800	1000
LDT1	7.6%	1744	148
LDT2	24.9%	5709	484
MDT	11.9%	2723	231
UB	0.1%	24	2
MC	2.8%	645	55
MH	1.1%	263	22
	100.0%	22907	1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Exhaust Emissions (g/sec)
LDA	0.041	11800	60.1	6.957E-04
LDT1	0.048	1744	10.4	1.204E-04
LDT2	0.096	5709	68.1	7.881E-04
MDT	0.097	2723	32.8	3.798E-04
UB	0.275	24	0.8	9.446E-06
MC	0.026	645	2.1	2.411E-05
MH	0.044	263	1.4	1.662E-05
Total		22907	175.7	2.034E-03

Composite Emission Factor 0.06 g/mi

Onsite Idling Emissions

Assume that each vehicle idles for 1 minute
Idling emission factor is derived by multiplying the emission factor at 2 mph by 2

Vehicle Class	Emission Factor at 2 mph (g/mi)	Idle Emission Factor (g/hr)	Number of Vehicles (vehicles/day)	Emissions (Grams/day)	Average Idling Emissions (g/sec)
LDA	0.067	0.134	5900	13.2	1.525E-04
LDT1	0.08	0.16	872	2.3	2.691E-05
LDT2	0.174	0.348	2854	16.6	1.916E-04
MDT	0.175	0.35	1362	7.9	9.192E-05
UB	0.377	0.754	12	0.2	1.737E-06
MC	0.023	0.046	322	0.2	2.861E-06
MH	0.027	0.054	131	0.1	1.368E-06
Total			11454	40.5	4.6892E-04

Composite Emission Factor 0.21 g/hr

Average Daily Emissions (all facilities) 2.503E-03 grams/sec

Area of the parking lot 53347 m2

Ave hourly emission rate 4.69E-08 grams/m2-sec

Modeled Truck Emission Sources

Redlands Crossing

PM2.5 Emissions

Planning Year: **2030**

Onsite Travel Emission Sources	Hourly Emissions (g/sec)
LP1	6.00E-07
LP2	5.08E-07
LP3	2.35E-07
LP4	2.74E-07
LP5A+LP5B	1.22E-06
LP6	1.42E-07
LP7	3.23E-07
LP8	3.20E-07
WM	6.29E-06
LP9	2.13E-07
Total	**1.01E-05**

Idling Emission Sources	Hourly Emissions (g/sec)
IP1	3.23E-06
IP2	2.34E-06
IP3	4.31E-06
IP4	4.31E-06
IP5A	2.34E-06
IP5B	2.34E-06
WMN	4.56E-06
WMS	1.51E-05
IP6	4.31E-06
IP7	2.34E-06
IP8	2.34E-06
IP9	2.34E-06
Total	**4.98E-05**

Season : Annual
Area : South Coast AQMD

****

Year: 2030 -- Model Years 1986 to 2030 Inclusive -- Annual

Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD

Table 1: Running Exhaust Emissions (grams/mile; grams/idle-hour)

Pollutant Name: PM2.5 Temperature: 65F Relative Humidity: 60%

Speed MPH	LDA NCAT	LDA CAT	LDA DSL	LDA ALL	LDT1 NCAT	LDT1 CAT	LDT1 DSL	LDT1 ALL	LDT2 NCAT	LDT2 CAT	LDT2 DSL	LDT2 ALL	MDV NCAT	MDV CAT	MDV DSL	MDV ALL	LHD1 NCAT	LHD1 CAT	LHD1 DSL	LHD1 ALL	LHD2 NCAT	LHD2 CAT	LHD2 DSL	LHD2 ALL	MHD NCAT	MHD CAT	MHD DSL	MHD ALL	HHD NCAT	HHD CAT	HHD DSL	HHD ALL
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.728	0.137	0	0	0.744	0.314	0	0	0.742	0.61	0	0	0.153	0.152
2	0	0.067	0.109	0.067	0	0.08	0.102	0.08	0	0.174	0.114	0.174	0	0.175	0.092	0.175	0	0.049	0.058	0.051	0	0.046	0.056	0.05	0	0.051	0.324	0.275	0	0.083	0.102	0.102
5	0	0.053	0.109	0.053	0	0.063	0.102	0.063	0	0.137	0.114	0.137	0	0.138	0.092	0.138	0	0.049	0.058	0.051	0	0.046	0.056	0.05	0	0.051	0.324	0.275	0	0.083	0.102	0.102
10	0	0.034	0.086	0.034	0	0.041	0.08	0.041	0	0.089	0.089	0.089	0	0.089	0.073	0.089	0	0.032	0.046	0.035	0	0.03	0.044	0.036	0	0.033	0.254	0.215	0	0.054	0.09	0.089
15	0	0.023	0.069	0.023	0	0.028	0.064	0.028	0	0.061	0.072	0.061	0	0.061	0.058	0.061	0	0.022	0.037	0.025	0	0.021	0.036	0.027	0	0.023	0.204	0.172	0	0.037	0.079	0.078
20	0	0.017	0.056	0.017	0	0.02	0.053	0.02	0	0.044	0.059	0.044	0	0.044	0.048	0.044	0	0.016	0.03	0.018	0	0.015	0.029	0.021	0	0.016	0.167	0.14	0	0.026	0.071	0.07
25	0	0.013	0.047	0.013	0	0.015	0.044	0.015	0	0.033	0.049	0.033	0	0.033	0.04	0.033	0	0.012	0.025	0.014	0	0.011	0.024	0.017	0	0.012	0.14	0.118	0	0.02	0.068	0.068
30	0	0.01	0.041	0.01	0	0.012	0.038	0.012	0	0.027	0.042	0.027	0	0.027	0.034	0.027	0	0.009	0.022	0.011	0	0.008	0.021	0.014	0	0.009	0.12	0.101	0	0.015	0.068	0.068
35	0	0.009	0.036	0.009	0	0.01	0.033	0.01	0	0.022	0.037	0.022	0	0.023	0.03	0.023	0	0.007	0.019	0.009	0	0.007	0.018	0.012	0	0.007	0.105	0.088	0	0.012	0.072	0.071
40	0	0.008	0.032	0.008	0	0.009	0.03	0.009	0	0.02	0.033	0.02	0	0.02	0.027	0.02	0	0.006	0.017	0.008	0	0.006	0.016	0.01	0	0.006	0.094	0.079	0	0.01	0.078	0.077
45	0	0.007	0.029	0.007	0	0.009	0.027	0.009	0	0.019	0.03	0.019	0	0.019	0.025	0.019	0	0.005	0.016	0.007	0	0.005	0.015	0.009	0	0.006	0.087	0.072	0	0.009	0.086	0.086
50	0	0.007	0.027	0.007	0	0.009	0.025	0.009	0	0.019	0.029	0.019	0	0.019	0.023	0.019	0	0.005	0.015	0.007	0	0.005	0.014	0.009	0	0.005	0.081	0.067	0	0.008	0.098	0.097
55	0	0.007	0.026	0.007	0	0.009	0.024	0.009	0	0.019	0.027	0.019	0	0.02	0.022	0.02	0	0.005	0.014	0.006	0	0.004	0.014	0.008	0	0.005	0.077	0.065	0	0.008	0.113	0.111

	Brake	Tire	Total
LDA	0.005	0.002	0.007
LDT1	0.005	0.002	0.007
LDT2	0.005	0.002	0.007
MDT	0.005	0.002	0.007
LHDT1	0.005	0.003	0.008
LHDT2	0.005	0.003	0.008
MHDT	0.005	0.003	0.008
HHDT	0.012	0.009	0.021
UB	0.005	0.003	0.008
MC	0.003	0.001	0.004
MH	0.005	0.003	0.008
MH	0.012	0.013	0.025

Redlands WalMart (without Mitigation)
Construction LST Analysis for CO, PM10, and PM2.5
Prepared by Michael Brandman Associates

Construction Hours	8	hrs/day - weekdays
Size of Area Source	10.5	acres

Emissions

Activity	Pollutant	Emissions (lbs/day)	Area of Source (m2)	Hours per day of Operation	Emissions (g/s-m2)
Grading	CO	85.1	42504	8	3.15E-05
Grading	NOx	157.8	42504	8	5.85E-05
Grading	PM10 Exhaust	7.6	42504	8	2.82E-06
Grading	PM10 Fugitive	9.4	42504	8	3.48E-06
Grading	PM2.5 Exhaust	7.6	42504	8	2.82E-06
Grading	PM2.5 Fugitive	3.7	42504	8	1.37E-06

Maximum Concentrations with Unit Emissions from the AERMOD Model

	Receptor Concentration
Maximum 1-hour (ug/m3)	25245000
Maximum 8-hour (ug/m3)	4207000

CO Results

Location	1-hour CO (ug/m3)	1-hour CO (ppm)	8-hour CO (ug/m3)	8-hour CO (ppm)
Nearest Receptor	796	0.7	133	0.1

PM10 and PM2.5 Results from AERMOD Model

The following is an excerpt from the SCAQMD LST Methodology, which is used to estimate PM10 concentrations.

$$C_x = 0.9403\ C_o\ e^{-0.0462\ x}$$

Where: C_x is the predicted PM10 concentration at x meters from the fence line;
C_o is the PM10 concentration at the fence line as estimated by ISC3;
e is the natural logarithm; and
x is the distance in meters from the fence line.

796

Distance from fenceline (m)	24-hr Fugitive Dust Concentration with Unit Area Source Emission (ug/m3)	PM10 Fugitive Dust Concentration with Actual Emissions (ug/m3)	24-hr Exhaust Concentration with Unit Area Emission (ug/m3)	PM10 Exhaust Concentration with Actual Emissions (ug/m3)	PM2.5 Fugtive Dust Concentration with Actual Emissions (ug/m3)	PM2.5 Exhaust Concentration with Actual Emissions (ug/m3)
0	4396000	15.3			6.0	
25	2160000	4.5	2006000	5.6	3.0	5.6

Distance to Nearest Sensitive Receptor (m)	25

Maximum Total PM10 (ug/m3) at nearest sensitive receptor	10.2
Maximum Total PM2.5 (ug/m3) at nearest sensitive receptor	8.6

Redlands Crossing

Estimation of Annual Average PM10 During Construction

Annual Onsite Construction Fugitive Dust Emissions:	0.21	tons/year from CalEEMod
Annual Onsite Construction Exhaust Emissions:	0.66	tons/year from CalEEMod

Annual Average Emission Rate During Construction (Construction Duration of 1 year)

0.047945205	lbs/hr fugitive dust during construction
0.006046423	g/sec fugitive dust during construction
0.150684932	lbs/hr exhaust emissions during construction
0.01900	g/sec exhaust emissions during construction

Area of Construction:	177555	m2
Area Fugitive Dust Emission Rate:	3.41E-08	g/m2-sec
Area Exhaust Emission Rate:	1.07E-07	g/m2-sec

PM10 and PM2.5 Results

The following is an excerpt from the SCAQMD LST Methodology, which is used to estimate PM10 concentrations.

$$C_x = 0.9403\ C_o\ e^{-0.0462\ x}$$

Where: C_x is the predicted PM10 concentration at x meters from the fence line;
C_o is the PM10 concentration at the fence line as estimated by ISC3;
e is the natural logarithm; and
x is the distance in meters from the fence line.

Distance from fenceline (m)	Annual Fugitive Dust Concentration (ug/m3)	Annual Exhaust Concentration (ug/m3)	Total PM10 Concentration (ug/m3)
0	0.29	--------	
25	0.09	0.58	0.67

Distance to Nearest Sensitive Receptor (m) 25 East side of the project across Karon St

Maximum Total PM10 (ug/m3) at nearest sensitive receptor 0.67

Emission Assumptions **DPM-SR** Emissions
Redlands Crossing

Facility Operations

Time Period 2010 - 2080

Emission Factors

1) Onsite Vehicle Emissions

a) Truck

(1) EMFAC2007

(a) Annual Meteorology

Temperature: 65 degF

Relative Humidity: 50%

(b) Calculations for SoCAB

(c) Truck Mix

4+ axle heavy-heavy duty diesel trucks (HHDT)

2 axle diesel trucks (LHDT2)

(d) Onsite Truck and Customer Travel Spee 10 mph

(e) Idle speed: 0 mph

(e) Truck Idle time: 15 minutes per truck per day

(f) Idle time for customer vehicles: 1 min per day per vehicle

b) Truck TRU

(1) Emission factors derived from CARB OFFROAD Model as an average over 2010 to 2080

(2) TRU size: 35 hp

(3) Cooling time: 0.5 hr/day

(4) Load Factor: 60 %

(5) On/off Cycle Factor 50 %

(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet

(b) Truck Operational Schedule of "Big Box" 24 hours/day

(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day

(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission: DPM-SR**

Processes Modeled **Time Period: 2010 - 2080**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips
Wal-Mart (Parcel 14)	4+ axle	5	10	2	4	7	14
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2
Parcel 5 (Food Court A)	4+ axle	0	0	2	4	2	4
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2
Total		**16**	**32**	**9**	**18**	**25**	**50**

Facility Operations:
Wal-Mart 24 **hrs/day, 52weeks/year**
All others 12 **hrs/day, 52weeks/year**

Emission Factors

Vehicle Class	Exhaust (g/mi)	Idle (g/hr)
4+ axle	0.217	0.342
2 axle	0.051	0.82

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	0.051	0.051	<-------- Fleet Average TRU Emission Factor from 2010 to 2080

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Emissions Over the Link (g/sec)	Max Hourly Emissions Over Link (lb/hr)	Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (tons/yr)	Annual Ave Emissions Over Link (tons/yr)	Annual Average Emissions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	0.217	14	375	0.23	7.08E-01	8.19E-06	5.61E+00	1.56E-03	2.84E-04	1.42E-07	8.19E-06
Wal-Mart (Parcel 14)	2 axle	0.051	14	375	0.23	1.66E-01	1.93E-06	1.32E+00	3.66E-04	6.69E-05	3.34E-08	1.93E-06
Parcel 1 (Retail1)	4+ axle	0.217	4	89	0.06	4.80E-02	1.11E-06	3.81E-01	1.06E-04	1.93E-05	9.65E-09	1.11E-06
Parcel 2 (Fast Food1)	4+ axle	0.217	2	143	0.09	3.86E-02	8.92E-07	3.06E-01	8.49E-05	1.55E-05	7.75E-09	8.92E-07
Parcel 3 (Retail2)	2 axle	0.051	2	157	0.10	9.95E-03	2.30E-07	7.89E-02	2.19E-05	4.00E-06	2.00E-09	2.30E-07
Parcel 4 (Retail3)	2 axle	0.051	2	183	0.11	1.16E-02	2.68E-07	9.19E-02	2.55E-05	4.66E-06	2.33E-09	2.68E-07
Parcel 5 (Fast Food/Retail)	4+ axle	0.217	4	172	0.11	9.27E-02	2.15E-06	7.35E-01	2.04E-04	3.73E-05	1.86E-08	2.15E-06
Parcel 6 (Retail4)	2 axle	0.051	2	95	0.06	6.02E-03	1.39E-07	4.77E-02	1.33E-05	2.42E-06	1.21E-09	1.39E-07
Parcel 7 (Restaurant1)	4+ axle	0.217	2	91	0.06	2.45E-02	5.68E-07	1.95E-01	5.40E-05	9.86E-06	4.93E-09	5.68E-07
Parcel 8 (Fast Food2)	4+ axle	0.217	2	90	0.06	2.43E-02	5.62E-07	1.92E-01	5.34E-05	9.75E-06	4.88E-09	5.62E-07
Parcel 9 (Fast Food 3)	4+ axle	0.217	2	60	0.04	1.62E-02	3.74E-07	1.28E-01	3.56E-05	6.50E-06	3.25E-09	3.74E-07
			50									
Total						**1.15E+00**	**1.64E-05**	**9.09E+00**	**2.52E-03**	**4.61E-04**	**2.30E-07**	**1.64E-05**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Max Hourly Emissions (lb/hr)	Total Daily Emissions (lbs/day)	Total Emissions (tons/yr)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	0.342	15	7	0.60	6.93E-06	5.49E-05	1.32E-03	2.41E-04	
Wal-Mart (Parcel 14)	2 axle	0.82	15	7	1.44	1.66E-05	1.32E-04	3.16E-03	5.77E-04	
Parcel 1 (Retail1)	4+ axle	0.342	15	2	0.17	3.96E-06	3.14E-05	3.77E-04	6.87E-05	
Parcel 2 (Fast Food1)	4+ axle	0.342	15	1	0.09	1.98E-06	1.57E-05	1.88E-04	3.44E-05	
Parcel 3 (Retail2)	2 axle	0.82	15	1	0.21	4.75E-06	3.76E-05	4.52E-04	8.24E-05	
Parcel 4 (Retail3)	2 axle	0.82	15	1	0.21	4.75E-06	3.76E-05	4.52E-04	8.24E-05	
Parcel 5 (Fast Food/Retail)	4+ axle	0.342	15	2	0.17	3.96E-06	3.14E-05	3.77E-04	6.87E-05	
Parcel 6 (Retail4)	2 axle	0.82	15	1	0.21	4.75E-06	3.76E-05	4.52E-04	8.24E-05	
Parcel 7 (Restaurant1)	4+ axle	0.342	15	1	0.09	1.98E-06	1.57E-05	1.88E-04	3.44E-05	
Parcel 8 (Fast Food2)	4+ axle	0.342	15	1	0.09	1.98E-06	1.57E-05	1.88E-04	3.44E-05	
Parcel 9 (Fast Food)	4+ axle	0.342	15	1	0.09	1.98E-06	1.57E-05	1.88E-04	3.44E-05	
Total				**25**	**3.33E+00**	**5.36E-05**	**4.25E-04**	**7.34E-03**	**1.34E-03**	

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	4	0.051	60	50	10	375	0.23	0.023	4.99E-02	5.78E-07	1.10E-04	2.01E-05
Wal-Mart (Parcel 14)	2 axle	35	0	0.051	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	0.051	60	50	10	89	0.06	0.006	5.92E-03	1.37E-07	1.30E-05	2.38E-06
Parcel 2 (Fast Food1)	4+ axle	35	2	0.051	60	50	10	143	0.09	0.009	9.51E-03	2.20E-07	2.10E-05	3.82E-06
Parcel 3 (Retail2)	2 axle	35	0	0.051	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.051	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	4	0.051	60	50	10	172	0.11	0.011	2.29E-02	5.30E-07	5.04E-05	9.20E-06
Parcel 6 (Retail4)	2 axle	35	0	0.051	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	0.051	60	50	10	91	0.06	0.006	6.05E-03	1.40E-07	1.33E-05	2.43E-06
Parcel 8 (Fast Food2)	4+ axle	35	2	0.051	60	50	10	90	0.06	0.006	5.99E-03	1.39E-07	1.32E-05	2.41E-06
Parcel 9 (Fast Food)	4+ axle	35	2	0.051	60	50	10	60	0.04	0.004	3.99E-03	9.24E-08	8.79E-06	1.60E-06
TOTAL			**18**								**1.04E-01**	**1.84E-06**	**2.30E-04**	**4.19E-05**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Total Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	2	0.051	60	50	0.5	5.36E-01	6.20E-06	1.18E-03	2.15E-04
Wal-Mart (Parcel 14)	2 axle	35	0	0.051	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	0.051	60	50	0.5	2.68E-01	6.20E-06	5.90E-04	1.08E-04
Parcel 2 (Fast Food1)	4+ axle	35	1	0.051	60	50	0.5	2.68E-01	6.20E-06	5.90E-04	1.08E-04
Parcel 3 (Retail2)	2 axle	35	0	0.051	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.051	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	2	0.051	60	50	0.5	5.36E-01	1.24E-05	1.18E-03	2.15E-04
Parcel 6 (Retail4)	2 axle	35	0	0.051	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	0.051	60	50	0.5	2.68E-01	6.20E-06	5.90E-04	1.08E-04
Parcel 8 (Fast Food2)	4+ axle	35	1	0.051	60	50	0.5	2.68E-01	6.20E-06	5.90E-04	1.08E-04
Parcel 9 (Fast Food)	4+ axle	35	1	0.051	60	50	0.5	2.68E-01	6.20E-06	5.90E-04	1.08E-04
TOTAL			**9**					**2.41E+00**	**4.96E-05**	**5.31E-03**	**9.69E-04**

Emission Summary

Facility Emission Summary	Ave Onsite Travel Emissions (g/sec)	Ave Onsite TRU Travel Emissions (g/sec)	Total Ave Onsite Travel Emissions (g/sec)	Ave Onsite Idle Emissions (g/sec)	Ave Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	8.19E-06	5.78E-07	8.77E-06	6.93E-06	6.20E-06	1.31E-05	1	1.31E-05	2.19E-05
Wal-Mart (Parcel 14)	1.93E-06	0.00E+00	1.93E-06	1.66E-05	0.00E+00	1.66E-05	1	1.66E-05	1.85E-05
Parcel 1 (Retail1)	1.11E-06	1.37E-07	1.25E-06	3.96E-06	6.20E-06	1.02E-05	1	1.02E-05	1.14E-05
Parcel 2 (Fast Food1)	8.92E-07	2.20E-07	1.11E-06	1.98E-06	6.20E-06	8.18E-06	1	8.18E-06	9.29E-06
Parcel 3 (Retail2)	2.30E-07	0.00E+00	2.30E-07	4.75E-06	0.00E+00	4.75E-06	1	4.75E-06	4.98E-06
Parcel 4 (Retail3)	2.68E-07	0.00E+00	2.68E-07	4.75E-06	0.00E+00	4.75E-06	1	4.75E-06	5.01E-06
Parcel 5 (Fast Food/Retail)	2.15E-06	5.30E-07	2.68E-06	3.96E-06	1.24E-05	1.64E-05	2	8.18E-06	1.90E-05
Parcel 6 (Retail4)	1.39E-07	0.00E+00	1.39E-07	4.75E-06	0.00E+00	4.75E-06	1	4.75E-06	4.88E-06
Parcel 7 (Restaurant1)	5.68E-07	1.40E-07	7.08E-07	1.98E-06	6.20E-06	8.18E-06	1	8.18E-06	8.89E-06
Parcel 8 (Fast Food2)	5.62E-07	1.39E-07	7.00E-07	1.98E-06	6.20E-06	8.18E-06	1	8.18E-06	8.88E-06
Parcel 9 (Fast Food 3)	3.74E-07	9.24E-08	4.67E-07	1.98E-06	6.20E-06	8.18E-06	1	8.18E-06	8.64E-06

Emission Assumptions Emissions: DPM-SR

Redlands Crossing Parking Lot

Total Daily Vehicle Trips: 22907 (excludes outparcels 10-13)
Total Daily Vehicle Trips: 22907 (includes all facilities)

Total Peak Hour Vehicle Trips - Saturday 1941 (excludes outparcels 10-13)
Total Peak Hour Vehicle Trips - Saturday 1941 (includes all facilities)

Trip Generation derived from project traffic report: Urban Crossroads 2011

Default SCAQMD Vehicle Fleet Mix for 2010 (from URBEMIS Model):

LDA	51.70%
LDT1	7.30%
LDT2	22.90%
MDT	10.60%
LHDT1	1.60%
LHDT2	0.50%
MHDT	0.90%
HHDT	0.50%
UB	0.10%
MC	2.80%
SB	0.10%
MH	0.90%
OB	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 96.3%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Operational Time of Customer Parking Lots 24 hours

Vehicle Class	**Composite Vehicle Mix**	**Vehicle Trips (trips/day)**	**% Diesel Vehicles**	**Diesel Vehicle Trips (trips/day)**	**Vehicle Trips (trips/peak PM Hr)**
LDA	53.7%	12298	0.2%	25	1042
LDT1	7.6%	1736	2.7%	47	147
LDT2	23.8%	5447	0.0%	0	462
MDT	11.0%	2521	0.0%	0	214
UB	0.1%	24	100.0%	24	2
MC	2.9%	666	0.0%	0	56
MH	0.9%	214	11.1%	24	18
	100.0%	22907			1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Exhaust Emissions (g/sec)
LDA	0.113	25	0.3	3.997E-06
LDT1	0.082	47	0.5	5.528E-06
LDT2	0.093	0	0.0	0.000E+00
MDT	0.079	0	0.0	0.000E+00
UB	0.326	24	1.0	1.115E-05
MC	0.000	0	0.0	0.000E+00
MH	0.127	24	0.4	4.340E-06
Total		119	2.2	2.502E-05

Composite Emission Factor 0.15 g/mi

Onsite Idling Emissions (there are no diesel idling emissions for these vehicle classes)

Average Daily Emissions (all facilities) 2.502E-05 grams/sec

Area of the parking lot 53347 m2

Max hourly emission rate 4.69E-10 grams/m2-sec

Modeled Truck Emission Sources

Redlands Crossing

DPM-SR Emissions

Time Period: **2010 - 2080**

Onsite Travel Emission Sources	Hourly Emissions (g/sec)	Idling Emission Sources	Hourly Emissions (g/sec)
LP1	1.25E-06	IP1	1.02E-05
LP2	1.11E-06	IP2	8.18E-06
LP3	2.30E-07	IP3	4.75E-06
LP4	2.68E-07	IP4	4.75E-06
LP5A+LP5B	2.68E-06	IP5A	8.18E-06
LP6	1.39E-07	IP5B	8.18E-06
LP7	7.08E-07	WMN	1.31E-05
LP8	7.00E-07	WMS	1.66E-05
WM	1.07E-05	IP6	4.75E-06
LP9	4.67E-07	IP7	8.18E-06
		IP8	8.18E-06
		IP9	8.18E-06
Total	**1.82E-05**	**Total**	**1.03E-04**

Title : SCAQMD - Annual
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2007/05/09 19:54:56
Scen Year: 70-year Average of Fleet Averages All model years in the range 2010 to 2080 selected
Season : Annual
Area : South Coast AQMD
****
Year: 70-yr -- Model Years 1964 to 2080 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD

SPEED=0 MPH	LHDT1DSL	LHDT2DSL	MHDTDSL	HHDTDSL
AV 2010 - 2080	0.793	0.820	0.821	0.342

SPEED=10 MPH	LDA	LDT1	LDT2	MDT	LHDT1DSL	LHDT2DSL	MHDTDSL	HHDTDSL	UB	MC	MH
AV 2010 - 2080	0.113	0.082	0.093	0.079	0.051	0.051	0.298	0.217	0.326	0.000	0.127

Metropolis Project

Estimation of TRU Diesel Emission Factors from OFFROAD2007

For SCAQMD in 2010

Pollutant	Emissions (tons/day)	Emissions (grams/hr)	Activity (hrs/day)	Emission Factor (g/hp-hr)
CO	25.642	970122	2.13E+05	4.55
Nox	26.01	984045	2.13E+05	4.61
PM10	2.065	78126	2.13E+05	0.37
PM2.5	1.8585	70313	2.13E+05	0.33
SOx	0.0357	1351	2.13E+05	0.01

For SCAQMD in 2015

Pollutant	Emissions (tons/day)	Emissions (grams/hr)	Activity (hrs/day)	Emission Factor (g/hp-hr)
CO	28.472	1077191	2.75E+05	3.92
Nox	27.151	1027213	2.75E+05	3.74
PM10	1.055	39914	2.75E+05	0.15
PM2.5	0.9495	35923	2.75E+05	0.13
SOx	0.04602	1741	2.75E+05	0.01

For SCAQMD in 2020

Pollutant	Emissions (tons/day)	Emissions (grams/hr)	Activity (hrs/day)	Emission Factor (g/hp-hr)
CO	36.153	1367789	3.54E+05	3.86
Nox	27.241	1030618	3.54E+05	2.91
PM10	0.346	13090	3.54E+05	0.04
PM2.5	0.3114	11781	3.54E+05	0.03
SOx	0.0593	2244	3.54E+05	0.01

For SCAQMD in 2030

Pollutant	Emissions (tons/day)	Emissions (grams/hr)	Activity (hrs/day)	Emission Factor (g/hp-hr)
CO	59.985	2269433	5.88E+05	3.86
Nox	41.693	1577385	5.88E+05	2.68
PM10	0.201	7605	5.88E+05	0.013
PM2.5	0.1809	6844	5.88E+05	0.012
SOx	0.0985	3727	5.88E+05	0.006

For SCAQMD in 2040

Pollutant	Emissions (tons/day)	Emissions (grams/hr)	Activity (hrs/day)	Emission Factor (g/hp-hr)
CO	99.582	3767519	9.77E+05	3.86
Nox	69.217	2618710	9.77E+05	2.68
PM10	0.334	12636	9.77E+05	0.01
PM2.5	0.3006	11373	9.77E+05	0.01
SOx	0.1635	6186	9.77E+05	0.01

	Averages from 2010 to 2080 Emission Factor (g/hp-hr)
CO	3.912
Nox	2.927
PM10	0.051
PM2.5	0.046
SOx	0.006

	Averages from 2010 to 2050 Emission Factor (g/hp-hr)
CO	3.95235327
Nox	3.11158706
PM10	0.07961358
PM2.5	0.07165222
SOx	0.00633352

Redlands Crossing

Calculation of Toxic Air Contaminant Emissions

Benzene

Basic Assumptions

Annual gasoline throughput

Assumption is that the station is services by two tankers per day:	17600	gal/day
Each tanker truck has a capacity of 8,800 gallons		
	6424000	gal/year

Operational time: 24 hours/day

Summary of Benzene Emissions

Process	Emissions (lb/hr)	Emissions (lb/day)	Emissions (tons/yr)	Emissions (g/sec)
Gasoline Loading Emissions	0.000924	0.022176	0.0040471	1.17E-04
Gasoline Breathing Emissions	0.000055	0.00132	0.0002409	6.94E-06
Gasoline Refueling Emissions	0.000704	0.016896	0.0030835	8.88E-05
Gasoline Spillage Emissions	0.00308	0.07392	0.0134904	3.88E-04
Total	0.004763	0.114312	0.0208619	0.00060067

Redlands Crossing

Summary of Benzene Emissions

Process	Average Emissions (lb/hr)	Average Emissions (lb/day)	Total Emissions (tons/yr)	Average Emissions (g/sec)
Gasoline Loading Emissions	0.000924	0.022176	0.00404712	0.00011653
Gasoline Breathing Emissions	0.000055	0.00132	0.0002409	6.9361E-06
Gasoline Refueling Emissions	0.000704	0.016896	0.00308352	8.8782E-05
Gasoline Spillage Emissions	0.00308	0.07392	0.0134904	0.00038842
Total	0.004763	0.114312	0.02086194	0.00060067

Redlands Crossing

Gasoline Loading Emission Summary

Location	Throughput (gal/yr)	VOC Emission Factor (lb/1000 gal)	VOC Emissions (lb/yr)	VOC Emissions (lb/day)	Benzene Emissions (lb/yr)	Benzene Emissions (lb/hr)	Benzene Emissions (g/sec)	Stak Exit Velocity (mps)
Underground Tank	6424000	0.42	2698.08	7.392	8.09424	0.000924	0.0001165	0.00035

Source: SCAQMD: Emission Inventory and Risk Assessment Guidelines for Gasoline Dispensing Stations (January, 2007)

Assumes underground tanks with Phase I and II controls with vent valves

Benzene = VOC * 0.003

Redlands Crossing

Gasoline Breathing Loss Emissions Summary

Location	Throughput (gal/yr)	VOC Emission Factor (lb/1000gal)	VOC Emissions (lb/yr)	VOC Emissions (lb/day)	Benzene Emissions (lb/yr)	Benzene Emissions (lb/hr)	Benzene Emission s (g/sec)	Average Stack Velocity (mps)
Service Station	6,424,000	0.025	160.6	0.44	0.4818	0.000055	6.94E-06	0.000106

Source: SCAQMD: Emission Inventory and Risk Assessment Guidelines for Gasoline Dispensing Stations (January, 2007)

Benzene = VOC * 0.003

Redlands Crossing

Gasoline Refueling Emissions Summary

Location	Throughput (gal/yr)	VOC Emission Factor (lb/1000gal)	VOC Emissions (lb/yr)	VOC Emissions (lb/day)	Benzene Emissions (lb/yr)	Benzene Emissions (lb/hr)
Service Station	6,424,000	0.32	2055.68	5.632	6.16704	0.000704

Source: SCAQMD: Emission Inventory and Risk Assessment Guidelines for Gasoline Dispensing Stations (January, 2007)

Benzene = VOC * 0.003

Redlands Crossing

Gasoline Spillage Emission Summary

Location	Throughput (gal/yr)	VOC Emission Factor (lb/1000gal)	VOC Emissions (lb/yr)	VOC Emissions (lb/day)	Benzene Emissions (lb/yr)	Benzene Emission s (lb/hr)
Service Station	6,424,000	0.42	2698.08	7.392	26.9808	0.00308

Source: SCAQMD: Emission Inventory and Risk Assessment Guidelines for Gasoline Dispensing Stations (January, 2007)

Benzene = VOC * 0.01

Emission Assumptions **DPM-SR** Emissions
Redlands Crossing

Facility Operations

Buildout year: 2013

Emission Factors

1) Onsite Vehicle Emissions

a) Truck
(1) EMFAC2007
(a) Annual Meteorology
Temperature: 65 degF
Relative Humidity: 50%
(b) Calculations for SoCAB
(c) Truck Mix
4+ axle heavy-heavy duty diesel trucks (HHDT)
2 axle diesel trucks (LHDT2)
(d) Onsite Truck and Customer Travel Spee 10 mph
(e) Idle speed: 0 mph
(e) Truck Idle time: 15 minutes per truck per day
(f) Idle time for customer vehicles: 1 min per day per vehicle

b) Truck TRU
(1) Emission factors derived from CARB 2003 ISOR ATCM for TRUs, Appendix D, Attachment A
(2) TRU size: 35 hp
(3) Cooling time: 0.5 hr/day
(4) Load Factor: 60 %
(5) On/off Cycle Factor 50 %
(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet
(b) Truck Operational Schedule of "Big Box" 24 hours/day
(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day
(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission:** **DPM-SR**

Processes Modeled **Build-out:** **2013**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips
Wal-Mart (Parcel 14)	4+ axle	5	10	2	4	7	14
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2
Parcel 5 (Food Court A)	4+ axle	0	0	2	4	2	4
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2
Total		**16**	**32**	**9**	**18**	**25**	**50**

Facility Operations:
Wal-Mart 24 **hrs/day, 52weeks/year**
All others 12 **hrs/day, 52weeks/year**

Emission Factors

Vehicle Class	Exhaust (g/mi)	Idle (g/hr)
4+ axle	0.167	0.224
2 axle	0.049	0.81

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	0.0418	0.0418	<-------- Average TRU Emission Factor from 2013 to 2082

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Emissions Over the Link (g/sec)	Max Hourly Emissions Over Link (lb/hr)	Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (tons/yr)	Annual Ave Emissions Over Link (tons/yr)	Annual Average Emissions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	0.167	14	375	0.23	5.45E-01	6.30E-06	4.32E+00	1.20E-03	2.19E-04	1.09E-07	6.30E-06
Wal-Mart (Parcel 14)	2 axle	0.049	14	375	0.23	1.60E-01	1.85E-06	1.27E+00	3.52E-04	6.42E-05	3.21E-08	1.85E-06
Parcel 1 (Retail1)	4+ axle	0.167	4	89	0.06	3.69E-02	8.55E-07	2.93E-01	8.13E-05	1.48E-05	7.42E-09	8.55E-07
Parcel 2 (Fast Food1)	4+ axle	0.167	2	143	0.09	2.97E-02	6.87E-07	2.35E-01	6.54E-05	1.19E-05	5.96E-09	6.87E-07
Parcel 3 (Retail2)	2 axle	0.049	2	157	0.10	9.56E-03	2.21E-07	7.58E-02	2.11E-05	3.84E-06	1.92E-09	2.21E-07
Parcel 4 (Retail3)	2 axle	0.049	2	183	0.11	1.11E-02	2.58E-07	8.83E-02	2.45E-05	4.48E-06	2.24E-09	2.58E-07
Parcel 5 (Fast Food/Retail)	4+ axle	0.167	4	172	0.11	7.14E-02	1.65E-06	5.66E-01	1.57E-04	2.87E-05	1.43E-08	1.65E-06
Parcel 6 (Retail4)	2 axle	0.049	2	95	0.06	5.78E-03	1.34E-07	4.59E-02	1.27E-05	2.32E-06	1.16E-09	1.34E-07
Parcel 7 (Restaurant1)	4+ axle	0.167	2	91	0.06	1.89E-02	4.37E-07	1.50E-01	4.16E-05	7.59E-06	3.79E-09	4.37E-07
Parcel 8 (Fast Food2)	4+ axle	0.167	2	90	0.06	1.87E-02	4.32E-07	1.48E-01	4.11E-05	7.51E-06	3.75E-09	4.32E-07
Parcel 9 (Fast Food 3)	4+ axle	0.167	2	60	0.04	1.24E-02	2.88E-07	9.87E-02	2.74E-05	5.00E-06	2.50E-09	2.88E-07
			50									
Total						**9.19E-01**	**1.31E-05**	**7.29E+00**	**2.02E-03**	**3.69E-04**	**1.85E-07**	**1.31E-05**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Max Hourly Emissions (lb/hr)	Total Daily Emissions (lbs/day)	Total Emissions (tons/yr)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	0.224	15	7	0.39	4.54E-06	3.60E-05	8.63E-04	1.58E-04	
Wal-Mart (Parcel 14)	2 axle	0.81	15	7	1.42	1.64E-05	1.30E-04	3.12E-03	5.70E-04	
Parcel 1 (Retail1)	4+ axle	0.224	15	2	0.11	2.59E-06	2.06E-05	2.47E-04	4.50E-05	
Parcel 2 (Fast Food1)	4+ axle	0.224	15	1	0.06	1.30E-06	1.03E-05	1.23E-04	2.25E-05	
Parcel 3 (Retail2)	2 axle	0.81	15	1	0.20	4.69E-06	3.72E-05	4.46E-04	8.14E-05	
Parcel 4 (Retail3)	2 axle	0.81	15	1	0.20	4.69E-06	3.72E-05	4.46E-04	8.14E-05	
Parcel 5 (Fast Food/Retail)	4+ axle	0.224	15	2	0.11	2.59E-06	2.06E-05	2.47E-04	4.50E-05	
Parcel 6 (Retail4)	2 axle	0.81	15	1	0.20	4.69E-06	3.72E-05	4.46E-04	8.14E-05	
Parcel 7 (Restaurant1)	4+ axle	0.224	15	1	0.06	1.30E-06	1.03E-05	1.23E-04	2.25E-05	
Parcel 8 (Fast Food2)	4+ axle	0.224	15	1	0.06	1.30E-06	1.03E-05	1.23E-04	2.25E-05	
Parcel 9 (Fast Food)	4+ axle	0.224	15	1	0.06	1.30E-06	1.03E-05	1.23E-04	2.25E-05	
Total				**25**	**2.87E+00**	**4.54E-05**	**3.60E-04**	**6.31E-03**	**1.15E-03**	

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	4	0.0418	60	50	10	375	0.23	0.023	4.09E-02	4.73E-07	9.01E-05	1.64E-05
Wal-Mart (Parcel 14)	2 axle	35	0	0.0418	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	0.0418	60	50	10	89	0.06	0.006	4.85E-03	1.12E-07	1.07E-05	1.95E-06
Parcel 2 (Fast Food1)	4+ axle	35	2	0.0418	60	50	10	143	0.09	0.009	7.80E-03	1.81E-07	1.72E-05	3.13E-06
Parcel 3 (Retail2)	2 axle	35	0	0.0418	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.0418	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	4	0.0418	60	50	10	172	0.11	0.011	1.88E-02	4.34E-07	4.13E-05	7.54E-06
Parcel 6 (Retail4)	2 axle	35	0	0.0418	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	0.0418	60	50	10	91	0.06	0.006	4.96E-03	1.15E-07	1.09E-05	1.99E-06
Parcel 8 (Fast Food2)	4+ axle	35	2	0.0418	60	50	10	90	0.06	0.006	4.91E-03	1.14E-07	1.08E-05	1.97E-06
Parcel 9 (Fast Food)	4+ axle	35	2	0.0418	60	50	10	60	0.04	0.004	3.27E-03	7.57E-08	7.21E-06	1.32E-06
TOTAL			**18**								**8.54E-02**	**1.50E-06**	**1.88E-04**	**3.43E-05**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Total Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	2	0.0418	60	50	0.5	4.39E-01	5.08E-06	9.67E-04	1.76E-04
Wal-Mart (Parcel 14)	2 axle	35	0	0.0418	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	0.0418	60	50	0.5	2.19E-01	5.08E-06	4.83E-04	8.82E-05
Parcel 2 (Fast Food1)	4+ axle	35	1	0.0418	60	50	0.5	2.19E-01	5.08E-06	4.83E-04	8.82E-05
Parcel 3 (Retail2)	2 axle	35	0	0.0418	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.0418	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	2	0.0418	60	50	0.5	4.39E-01	1.02E-05	9.67E-04	1.76E-04
Parcel 6 (Retail4)	2 axle	35	0	0.0418	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	0.0418	60	50	0.5	2.19E-01	5.08E-06	4.83E-04	8.82E-05
Parcel 8 (Fast Food2)	4+ axle	35	1	0.0418	60	50	0.5	2.19E-01	5.08E-06	4.83E-04	8.82E-05
Parcel 9 (Fast Food)	4+ axle	35	1	0.0418	60	50	0.5	2.19E-01	5.08E-06	4.83E-04	8.82E-05
TOTAL			**9**					**1.98E+00**	**4.06E-05**	**4.35E-03**	**7.94E-04**

Emission Summary

Facility Emission Summary	Ave Onsite Travel Emissions (g/sec)	Ave Onsite TRU Travel Emissions (g/sec)	Total Ave Onsite Travel Emissions (g/sec)	Ave Onsite Idle Emissions (g/sec)	Ave Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	6.30E-06	4.73E-07	6.78E-06	4.54E-06	5.08E-06	9.62E-06	1	9.62E-06	1.64E-05
Wal-Mart (Parcel 14)	1.85E-06	0.00E+00	1.85E-06	1.64E-05	0.00E+00	1.64E-05	1	1.64E-05	1.83E-05
Parcel 1 (Retail1)	8.55E-07	1.12E-07	9.67E-07	2.59E-06	5.08E-06	7.67E-06	1	7.67E-06	8.64E-06
Parcel 2 (Fast Food1)	6.87E-07	1.81E-07	8.67E-07	1.30E-06	5.08E-06	6.38E-06	1	6.38E-06	7.24E-06
Parcel 3 (Retail2)	2.21E-07	0.00E+00	2.21E-07	4.69E-06	0.00E+00	4.69E-06	1	4.69E-06	4.91E-06
Parcel 4 (Retail3)	2.58E-07	0.00E+00	2.58E-07	4.69E-06	0.00E+00	4.69E-06	1	4.69E-06	4.95E-06
Parcel 5 (Fast Food/Retail)	1.65E-06	4.34E-07	2.09E-06	2.59E-06	1.02E-05	1.28E-05	2	6.38E-06	1.48E-05
Parcel 6 (Retail4)	1.34E-07	0.00E+00	1.34E-07	4.69E-06	0.00E+00	4.69E-06	1	4.69E-06	4.82E-06
Parcel 7 (Restaurant1)	4.37E-07	1.15E-07	5.52E-07	1.30E-06	5.08E-06	6.38E-06	1	6.38E-06	6.93E-06
Parcel 8 (Fast Food2)	4.32E-07	1.14E-07	5.46E-07	1.30E-06	5.08E-06	6.38E-06	1	6.38E-06	6.92E-06
Parcel 9 (Fast Food 3)	2.88E-07	7.57E-08	3.64E-07	1.30E-06	5.08E-06	6.38E-06	1	6.38E-06	6.74E-06

Emission Assumptions Emissions: DPM-SR

Redlands Crossing Workers and Parking Lot

Total Daily Vehicle Trips: 22907 (excludes outparcels 10-13)
Total Daily Vehicle Trips: 22907 (includes all facilities)

Total Peak Hour Vehicle Trips - Saturday 1941 (excludes outparcels 10-13)
Total Peak Hour Vehicle Trips - Saturday 1941 (includes all facilities)

Trip Generation derived from project traffic report: Urban Crossroads 2011

Default SCAQMD Vehicle Fleet Mix for 2013 (from URBEMIS Model):

LDA	51.30%
LDT1	7.30%
LDT2	23.10%
MDT	10.70%
LHDT1	1.60%
LHDT2	0.50%
MHDT	0.90%
HHDT	0.60%
UB	0.10%
MC	2.80%
SB	0.10%
MH	0.90%
	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 96.2%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Operational Time of Customer Parking Lots 24 hours

Vehicle Class	Composite Vehicle Mix	Vehicle Trips (trips/day)	% Diesel Vehicles	Diesel Vehicle Trips (trips/day)	Vehicle Trips (trips/peak PM Hr)
LDA	53.3%	12215	0.2%	24	1035
LDT1	7.6%	1738	2.7%	47	147
LDT2	24.0%	5501	0.0%	0	466
MDT	11.1%	2548	0.0%	0	216
UB	0.1%	24	100.0%	24	2
MC	2.9%	667	0.0%	0	56
MH	0.9%	214	11.1%	24	18
	100.0%	22907			1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200 m

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Exhaust Emissions (g/sec)
LDA	0.104	24	0.3	3.654E-06
LDT1	0.080	47	0.5	5.399E-06
LDT2	0.088	0	0.0	0.000E+00
MDT	0.077	0	0.0	0.000E+00
UB	0.326	24	1.0	1.116E-05
MC	0.000	0	0.0	0.000E+00
MH	0.127	24	0.4	4.344E-06
Total		119	2.1	2.456E-05

Composite Emission Factor 0.14 g/mi

Onsite Idling Emissions (there are no diesel idling emissions for these vehicle classes)

Average Daily Emissions (all facilities) 2.456E-05 grams/sec

Area of the parking lot 53347 m2

Max hourly emission rate 4.60E-10 grams/m2-sec

Modeled Truck Emission Sources

Redlands Crossing

DPM-SR Emissions

Buildout Year: **2013**

Onsite Travel Emission Sources	Hourly Emissions (g/sec)
LP1	9.67E-07
LP2	8.67E-07
LP3	2.21E-07
LP4	2.58E-07
LP5A+LP5B	2.09E-06
LP6	1.34E-07
LP7	5.52E-07
LP8	5.46E-07
WM	8.63E-06
LP9	3.64E-07
Total	**1.46E-05**

Idling Emission Sources	Hourly Emissions (g/sec)
IP1	7.67E-06
IP2	6.38E-06
IP3	4.69E-06
IP4	4.69E-06
IP5A	6.38E-06
IP5B	6.38E-06
WMN	9.62E-06
WMS	1.64E-05
IP6	4.69E-06
IP7	6.38E-06
IP8	6.38E-06
IP9	6.38E-06
Total	**8.60E-05**

Title : SCAQMD - Annual
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2007/05/09 19:54:56
Scen Year: 70-year Average of Fleet Averages All model years in the range 2013 to 2083 selected
Season : Annual
Area : South Coast AQMD
****
Year: 70-yr -- Model Years 1967 to 2083 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD

SPEED=0 MPH	LHDT1DSL	LHDT2DSL	MHDTDSL	HHDTDSL
AV 2013 - 2083	0.794	0.810	0.810	0.224

SPEED=10 MPH	LDA	LDT1	LDT2	MDT	LHDT1DSL	LHDT2DSL	MHDTDSL	HHDTDSL	UB	MC	MH
AV 2013 - 2083	0.104	0.080	0.088	0.077	0.050	0.049	0.287	0.167	0.326	0.000	0.127

Redlands Crossing

DPM Emission Rate for TRU (70-year Average)

Assumption:

LETRU Rate (2013 to 2019):	0.22	g/hp-hr
ULETRU (2020 to 2082):	0.022	g/hp-hr

Average Emission Rate from 2013 to 2082)

0.0418 g/hp-hr

Emission Assumptions **DPM-SR** Emissions
Redlands Crossing

Facility Operations

Planning Year **2030**

Emission Factors

1) Onsite Vehicle Emissions

a) Truck

(1) EMFAC2007

(a) Annual Meteorology

Temperature: 65 degF

Relative Humidity: 50%

(b) Calculations for SoCAB

(c) Truck Mix

4+ axle heavy-heavy duty diesel trucks (HHDT)

2 axle diesel trucks (LHDT2)

(d) Onsite Truck and Customer Travel Spee 10 mph

(e) Idle speed: 0 mph

(e) Truck Idle time: 15 minutes per truck per day

(f) Idle time for customer vehicles: 1 min per day per vehicle

b) Truck TRU

(1) Emission factors derived from CARB Offroad Model Fleet Average for 2030

(2) TRU size: 35 hp

(3) Cooling time: 0.5 hr/day

(4) Load Factor: 60 %

(5) On/off Cycle Factor 50 %

(5) Emission calculated for both onsite truck travel and in operation while truck is idling

2) Other Parameters

(a) Width of Volume Source: 12 feet

(b) Truck Operational Schedule of "Big Box" 24 hours/day

(c) Truck Operational Schedule of other Retail/Commercial: 12 hours/day

(d) Customer vehicle operational schedule: 24 hours/day

Travel Link Distances

Building	Distance (m)
LP1	89
LP2	143
LP3	157
LP4	183
LP5	172
LP6	95
LP7	91
LP8	90
LP9	60
WM	375

Redlands Crossing **Emission: DPM-SR**

Processes Modeled **Planning Year** **2030**

Onsite delivery traffic
Truck idling
Onsite TRU operations

Facilities in Operation

Location	Truck type	Daily Trucks w/o TRUs	Daily Truck Trips w/o TRUs	Daily Trucks w/TRUs	Daily Truck Trips w/TRUs	Total Daily Trucks	Total Daily Truck Trips
Wal-Mart (Parcel 14)	4+ axle	5	10	2	4	7	14
Wal-Mart (Parcel 14)	2 axle	7	14	0	0	7	14
Parcel 1 (Retail1)	4+ axle	1	2	1	2	2	4
Parcel 2 (Fast Food1)	4+ axle	0	0	1	2	1	2
Parcel 3 (Retail2)	2 axle	1	2	0	0	1	2
Parcel 4 (Retail3)	2 axle	1	2	0	0	1	2
Parcel 5 (Food Court A)	4+ axle	0	0	2	4	2	4
Parcel 6 (Retail4)	2 axle	1	2	0	0	1	2
Parcel 7 (Restaurant1)	4+ axle	0	0	1	2	1	2
Parcel 8 (Fast Food2)	4+ axle	0	0	1	2	1	2
Parcel 9 (Fast Food 3)	4+ axle	0	0	1	2	1	2
Total		**16**	**32**	**9**	**18**	**25**	**50**

Facility Operations:
Wal-Mart 24 **hrs/day, 52weeks/year**
All others 12 **hrs/day, 52weeks/year**

Emission Factors

Vehicle Class	Exhaust (g/mi)	Idle (g/hr)
4+ axle	0.098	0.167
2 axle	0.048	0.809

TRU	Exhaust (g/hp-hr)	Idle (g/hp-hr)	
	0.022	0.022	<-------- Complies with the CARB ULTRU Emission Standard

Onsite Roadway Links Modeled

Link	Truck Type	Emission Factor (g/mi)	Trips per day (in and out)	Length (m)	Length (mi)	Daily Emissions Over the Link (g/day)	Emissions Over the Link (g/sec)	Max Hourly Emissions Over Link (lb/hr)	Daily Emissions (lbs/day)	Annual Avg Emissions Over Link (tons/yr)	Annual Ave Emissions Over Link (tons/yr)	Annual Average Emissions (g/sec)
Wal-Mart (Parcel 14)	4+ axle	0.098	14	375	0.23	3.20E-01	3.70E-06	2.53E+00	7.04E-04	1.28E-04	6.42E-08	3.70E-06
Wal-Mart (Parcel 14)	2 axle	0.048	14	375	0.23	1.57E-01	1.81E-06	1.24E+00	3.45E-04	6.29E-05	3.15E-08	1.81E-06
Parcel 1 (Retail1)	4+ axle	0.098	4	89	0.06	2.17E-02	5.02E-07	1.72E-01	4.77E-05	8.71E-06	4.36E-09	5.02E-07
Parcel 2 (Fast Food1)	4+ axle	0.098	2	143	0.09	1.74E-02	4.03E-07	1.38E-01	3.84E-05	7.00E-06	3.50E-09	4.03E-07
Parcel 3 (Retail2)	2 axle	0.048	2	157	0.10	9.36E-03	2.17E-07	7.42E-02	2.06E-05	3.76E-06	1.88E-09	2.17E-07
Parcel 4 (Retail3)	2 axle	0.048	2	183	0.11	1.09E-02	2.53E-07	8.65E-02	2.40E-05	4.39E-06	2.19E-09	2.53E-07
Parcel 5 (Fast Food/Retail)	4+ axle	0.098	4	172	0.11	4.19E-02	9.70E-07	3.32E-01	9.23E-05	1.68E-05	8.42E-09	9.70E-07
Parcel 6 (Retail4)	2 axle	0.048	2	95	0.06	5.67E-03	1.31E-07	4.49E-02	1.25E-05	2.28E-06	1.14E-09	1.31E-07
Parcel 7 (Restaurant1)	4+ axle	0.098	2	91	0.06	1.11E-02	2.56E-07	8.79E-02	2.44E-05	4.45E-06	2.23E-09	2.56E-07
Parcel 8 (Fast Food2)	4+ axle	0.098	2	90	0.06	1.10E-02	2.54E-07	8.69E-02	2.41E-05	4.40E-06	2.20E-09	2.54E-07
Parcel 9 (Fast Food 3)	4+ axle	0.098	2	60	0.04	7.31E-03	1.69E-07	5.79E-02	1.61E-05	2.94E-06	1.47E-09	1.69E-07
			50									
Total						**6.12E-01**	**8.67E-06**	**4.86E+00**	**1.35E-03**	**2.46E-04**	**1.23E-07**	**8.67E-06**

Truck Idling

Idle time 15 minutes

Building/Location	Truck Type	Emission Factor (g/idle-hour)	Idling Time (min)	Daily Trucks	Total Emissions (g/day)	Max Hourly Emissions (g/sec)	Max Hourly Emissions (lb/hr)	Total Daily Emissions (lbs/day)	Total Emissions (tons/yr)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	0.167	15	7	0.29	3.38E-06	2.68E-05	6.44E-04	1.17E-04	
Wal-Mart (Parcel 14)	2 axle	0.809	15	7	1.42	1.64E-05	1.30E-04	3.12E-03	5.69E-04	
Parcel 1 (Retail1)	4+ axle	0.167	15	2	0.08	1.93E-06	1.53E-05	1.84E-04	3.36E-05	
Parcel 2 (Fast Food1)	4+ axle	0.167	15	1	0.04	9.66E-07	7.66E-06	9.20E-05	1.68E-05	
Parcel 3 (Retail2)	2 axle	0.809	15	1	0.20	4.68E-06	3.71E-05	4.45E-04	8.13E-05	
Parcel 4 (Retail3)	2 axle	0.809	15	1	0.20	4.68E-06	3.71E-05	4.45E-04	8.13E-05	
Parcel 5 (Fast Food/Retail)	4+ axle	0.167	15	2	0.08	1.93E-06	1.53E-05	1.84E-04	3.36E-05	
Parcel 6 (Retail4)	2 axle	0.809	15	1	0.20	4.68E-06	3.71E-05	4.45E-04	8.13E-05	
Parcel 7 (Restaurant1)	4+ axle	0.167	15	1	0.04	9.66E-07	7.66E-06	9.20E-05	1.68E-05	
Parcel 8 (Fast Food2)	4+ axle	0.167	15	1	0.04	9.66E-07	7.66E-06	9.20E-05	1.68E-05	
Parcel 9 (Fast Food)	4+ axle	0.167	15	1	0.04	9.66E-07	7.66E-06	9.20E-05	1.68E-05	
Total				**25**	**2.65E+00**	**4.15E-05**	**3.29E-04**	**5.83E-03**	**1.06E-03**	

Truck TRU Operations

Building/Location - Travel	Truck Type	TRU Size (hp)	Daily Truck Trips w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Speed (mi/h)	Travel Distance (m)	Travel Distance (mi)	Travel Time (hr)	Average Emissions Over the Link (g/day)	Average Emissions Over Link (g/sec)	Average Emissions Over Link (lbs/day)	Average Emissions Over Link (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	4	0.022	60	50	10	375	0.23	0.023	2.15E-02	2.49E-07	4.74E-05	8.65E-06
Wal-Mart (Parcel 14)	2 axle	35	0	0.022	60	50	10	375	0.23	0.023	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	2	0.022	60	50	10	89	0.06	0.006	2.55E-03	5.91E-08	5.63E-06	1.03E-06
Parcel 2 (Fast Food1)	4+ axle	35	2	0.022	60	50	10	143	0.09	0.009	4.10E-03	9.50E-08	9.04E-06	1.65E-06
Parcel 3 (Retail2)	2 axle	35	0	0.022	60	50	10	157	0.10	0.010	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.022	60	50	10	183	0.11	0.011	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	4	0.022	60	50	10	172	0.11	0.011	9.87E-03	2.29E-07	2.17E-05	3.97E-06
Parcel 6 (Retail4)	2 axle	35	0	0.022	60	50	10	95	0.06	0.006	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	2	0.022	60	50	10	91	0.06	0.006	2.61E-03	6.05E-08	5.75E-06	1.05E-06
Parcel 8 (Fast Food2)	4+ axle	35	2	0.022	60	50	10	90	0.06	0.006	2.58E-03	5.98E-08	5.69E-06	1.04E-06
Parcel 9 (Fast Food)	4+ axle	35	2	0.022	60	50	10	60	0.04	0.004	1.72E-03	3.99E-08	3.79E-06	6.92E-07
TOTAL			**18**								**4.50E-02**	**7.92E-07**	**9.91E-05**	**1.81E-05**

Building/Location - Idling	Truck Type	TRU Size (hp)	Daily Trucks w/TRUs	Emission Factor (g/bhp-hr)	Load Factor (%)	On/Off Cycle Factor (%)	Cooling Time (hr/day)	Total Emissions (g/day)	Average Emissions (g/sec)	Total Emissions (lbs/day)	Total Emissions (tons/yr)
Wal-Mart (Parcel 14)	4+ axle	35	2	0.022	60	50	0.5	2.31E-01	2.67E-06	5.09E-04	9.29E-05
Wal-Mart (Parcel 14)	2 axle	35	0	0.022	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 1 (Retail1)	4+ axle	35	1	0.022	60	50	0.5	1.16E-01	2.67E-06	2.54E-04	4.64E-05
Parcel 2 (Fast Food1)	4+ axle	35	1	0.022	60	50	0.5	1.16E-01	2.67E-06	2.54E-04	4.64E-05
Parcel 3 (Retail2)	2 axle	35	0	0.022	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 4 (Retail3)	2 axle	35	0	0.022	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 5 (Food Court A)	4+ axle	35	2	0.022	60	50	0.5	2.31E-01	5.35E-06	5.09E-04	9.29E-05
Parcel 6 (Retail4)	2 axle	35	0	0.022	60	50	0.5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Parcel 7 (Restaurant1)	4+ axle	35	1	0.022	60	50	0.5	1.16E-01	2.67E-06	2.54E-04	4.64E-05
Parcel 8 (Fast Food2)	4+ axle	35	1	0.022	60	50	0.5	1.16E-01	2.67E-06	2.54E-04	4.64E-05
Parcel 9 (Fast Food)	4+ axle	35	1	0.022	60	50	0.5	1.16E-01	2.67E-06	2.54E-04	4.64E-05
TOTAL			**9**					**1.04E+00**	**2.14E-05**	**2.29E-03**	**4.18E-04**

Emission Summary

Facility Emission Summary	Ave Onsite Travel Emissions (g/sec)	Ave Onsite TRU Travel Emissions (g/sec)	Total Ave Onsite Travel Emissions (g/sec)	Ave Onsite Idle Emissions (g/sec)	Ave Onsite TRU IdleEmissions (g/sec)	Total Onsite Idle Emissions (g/sec)	Number of Idle Sources	Emissions per Idle Source (g/sec)	Total Onsite Emissions (g/sec)
Wal-Mart (Parcel 14)	3.70E-06	2.49E-07	3.95E-06	3.38E-06	2.67E-06	6.06E-06	1	6.06E-06	1.00E-05
Wal-Mart (Parcel 14)	1.81E-06	0.00E+00	1.81E-06	1.64E-05	0.00E+00	1.64E-05	1	1.64E-05	1.82E-05
Parcel 1 (Retail1)	5.02E-07	5.91E-08	5.61E-07	1.93E-06	2.67E-06	4.61E-06	1	4.61E-06	5.17E-06
Parcel 2 (Fast Food1)	4.03E-07	9.50E-08	4.98E-07	9.66E-07	2.67E-06	3.64E-06	1	3.64E-06	4.14E-06
Parcel 3 (Retail2)	2.17E-07	0.00E+00	2.17E-07	4.68E-06	0.00E+00	4.68E-06	1	4.68E-06	4.90E-06
Parcel 4 (Retail3)	2.53E-07	0.00E+00	2.53E-07	4.68E-06	0.00E+00	4.68E-06	1	4.68E-06	4.93E-06
Parcel 5 (Fast Food/Retail)	9.70E-07	2.29E-07	1.20E-06	1.93E-06	5.35E-06	7.28E-06	2	3.64E-06	8.48E-06
Parcel 6 (Retail4)	1.31E-07	0.00E+00	1.31E-07	4.68E-06	0.00E+00	4.68E-06	1	4.68E-06	4.81E-06
Parcel 7 (Restaurant1)	2.56E-07	6.05E-08	3.17E-07	9.66E-07	2.67E-06	3.64E-06	1	3.64E-06	3.96E-06
Parcel 8 (Fast Food2)	2.54E-07	5.98E-08	3.13E-07	9.66E-07	2.67E-06	3.64E-06	1	3.64E-06	3.95E-06
Parcel 9 (Fast Food 3)	1.69E-07	3.99E-08	2.09E-07	9.66E-07	2.67E-06	3.64E-06	1	3.64E-06	3.85E-06
TOTAL	**8.67E-06**	**7.92E-07**	**9.46E-06**	**4.15E-05**	**2.14E-05**	**6.29E-05**			**7.24E-05**

Emission Assumptions Emissions: DPM-SR

Redlands Crossing Worker and Parking Lot

Total Daily Vehicle Trips: 22907 (excludes outparcels 10-13)
Total Daily Vehicle Trips: 22907 (includes all facilities)

Total Peak Hour Vehicle Trips - Saturday 1941 (excludes outparcels 10-13)
Total Peak Hour Vehicle Trips - Saturday 1941 (includes all facilities)

Trip Generation derived from project traffic report: Urban Crossroads 2011

Default SCAQMD Vehicle Fleet Mix for 2030 (from URBEMIS Model):

LDA	49.40%
LDT1	7.30%
LDT2	23.90%
MDT	11.40%
LHDT1	1.80%
LHDT2	0.50%
MHDT	1.00%
HHDT	0.60%
UB	0.10%
MC	2.70%
SB	0.10%
MH	1.10%
	0.10%
	100.00%

Assume that customer vehicles entering project are LDA, LDT1, LDT2, MDT, UB, MC. and MH
LHDT1, LHDT2, MHDT, and HHDT are counted separately and SB not included

Therefore, sum of LDA, LDT1, LDT2, MDT, UB, MC. and MH is: 95.9%

Redistributing the vehicle mix between the above vehicle classes amounts to
a new vehicle fleet mix as below and trip distribution by vehicle class

Operational Time of Customer Parking Lots 24 hours

Vehicle Class	Composite Vehicle Mix	Vehicle Trips (trips/day)	% Diesel Vehicles	Diesel Vehicle Trips (trips/day)	Vehicle Trips (trips/peak PM Hr)
LDA	51.5%	11800	0.2%	24	1000
LDT1	7.6%	1744	2.7%	47	148
LDT2	24.9%	5709	0.0%	0	484
MDT	11.9%	2723	0.0%	0	231
UB	0.1%	24	100.0%	24	2
MC	2.8%	645	0.0%	0	55
MH	1.1%	263	11.1%	29	22
	100.0%	22907			1941

Onsite Travel Exhaust Emissions

Assume that the vehicle speed while traveling onsite is 10 mph
Assume trip length is the average distance from the project entrances to the center of the project: 200 m

Vehicle Class	Emission Factor (g/mi)	Vehicle Trips (trips/day)	Emissions (grams/day)	Exhaust Emissions (g/sec)
LDA	0.093	24	0.3	3.156E-06
LDT1	0.087	47	0.5	5.890E-06
LDT2	0.097	0	0.0	0.000E+00
MDT	0.079	0	0.0	0.000E+00
UB	0.461	24	1.4	1.583E-05
MC	0.000	0	0.0	0.000E+00
MH	0.141	29	0.5	5.913E-06
Total		124	2.7	3.079E-05

Composite Emission Factor 0.17 g/mi

Onsite Idling Emissions (there are no diesel idling emissions for these vehicle classes)

Average Daily Emissions (all facilities) 3.079E-05 grams/sec

Area of the parking lot 53347 m2

Max hourly emission rate 5.77E-10 grams/m2-sec

Modeled Truck Emission Sources

Redlands Crossing

DPM-SR Emissions

Planning Year **2030**

Onsite Travel Emission Sources	**Hourly Emissions (g/sec)**
LP1	5.61E-07
LP2	4.98E-07
LP3	2.17E-07
LP4	2.53E-07
LP5A+LP5B	1.20E-06
LP6	1.31E-07
LP7	3.17E-07
LP8	3.13E-07
WM	5.76E-06
LP9	2.09E-07
Total	**9.46E-06**

Idling Emission Sources	**Hourly Emissions (g/sec)**
IP1	4.61E-06
IP2	3.64E-06
IP3	4.68E-06
IP4	4.68E-06
IP5A	3.64E-06
IP5B	3.64E-06
WMN	6.06E-06
WMS	1.64E-05
IP6	4.68E-06
IP7	3.64E-06
IP8	3.64E-06
IP9	3.64E-06
Total	**6.29E-05**

Title : SCAQMD - Annual
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2007/05/09 19:54:56
Scen Year: Fleet Averages All model years in the range 1986 to 2030 selected
Season : Annual
Area : South Coast AQMD
****
Year: 70-yr -- Model Years 1986 to 2030 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

District Average District Average South Coast AQMD

SPEED=0 MPH	LHDT1DSL	LHDT2DSL	MHDTDSL	HHDTDSL
AV 2030	0.791	0.809	0.807	0.167

SPEED=10 MPH	LDA	LDT1	LDT2	MDT	LHDT1DSL	LHDT2DSL	MHDTDSL	HHDTDSL	UB	MC	MH
AV 2030	0.093	0.087	0.097	0.079	0.05	0.048	0.276	0.098	0.461	0.000	0.141

Appendix D:
Caline4 Output

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2010: 8
     RUN: Hour 1           (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM            ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	13	0	13	600	AG	1248	4.2	.0	16.1
B. NB Approach	13	600	13	756	AG	1062	7.1	.0	16.1
C. NB Depart	13	756	13	911	AG	798	7.1	.0	16.1
D. NB External	13	911	13	1511	AG	798	4.2	.0	16.1
E. NB Left	13	600	7	756	AG	186	7.1	.0	16.1
F. SB Left	0	911	7	756	AG	96	7.1	.0	16.1
G. SB External	0	1511	0	911	AG	579	4.2	.0	16.1
H. SB Approach	0	911	0	756	AG	483	7.1	.0	16.1
I. SB Depart	0	756	0	600	AG	1135	7.1	.0	16.1
J. SB External	0	600	0	0	AG	1135	4.2	.0	16.1
K. EB External	-750	750	-150	750	AG	491	4.2	.0	14.3
L. EB Approach	-150	750	7	750	AG	381	7.1	.0	14.3
M. EB Depart	7	750	163	750	AG	714	7.1	.0	14.3
N. EB External	163	750	763	750	AG	714	4.2	.0	14.3
O. WB External	763	761	163	761	AG	920	4.2	.0	14.3
P. WB Approach	163	761	7	761	AG	407	7.1	.0	14.3
Q. WB Depart	7	761	-150	761	AG	591	7.1	.0	14.3
R. WB External	-150	761	-750	761	AG	591	4.2	.0	14.3
S. EB Left	-150	750	7	756	AG	110	7.1	.0	14.3
T. WB Left	163	761	7	756	AG	513	7.1	.0	14.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-10	741	2.0
2. Receptor	23	741	2.0
3. Receptor	23	770	2.0
4. Receptor	-10	770	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	82.	1.3	.0	.2	.0	.0	.0	.0	.0	.0
2. Receptor	352.	1.1	.0	.0	.5	.0	.0	.0	.0	.0
3. Receptor	187.	1.4	.0	.6	.0	.0	.0	.0	.0	.0
4. Receptor	173.	1.3	.1	.2	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.3	.0	.0	.0	.4	.0	.0	.1	.0	.0	.0	.2
2. Receptor	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.1
3. Receptor	.2	.1	.0	.0	.1	.0	.0	.0	.0	.0	.0	.1
4. Receptor	.6	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2010: 9
     RUN: Hour 1           (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM            ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	11	0	11	600	AG	1347	4.2	.0	14.3
B. NB Approach	11	600	11	753	AG	1005	7.1	.0	14.3
C. NB Depart	11	753	11	905	AG	1156	7.1	.0	14.3
D. NB External	11	905	11	1505	AG	1156	4.2	.0	14.3
E. NB Left	11	600	6	753	AG	342	7.1	.0	14.3
F. SB Left	0	905	6	753	AG	0	7.1	.0	14.3
G. SB External	0	1505	0	905	AG	911	4.2	.0	14.3
H. SB Approach	0	905	0	753	AG	911	7.1	.0	14.3
I. SB Depart	0	753	0	600	AG	875	7.1	.0	14.3
J. SB External	0	600	0	0	AG	875	4.2	.0	14.3
K. EB External	-750	750	-150	750	AG	0	4.2	.0	10.0
L. EB Approach	-150	750	6	750	AG	0	7.1	.0	10.0
M. EB Depart	6	750	161	750	AG	0	7.1	.0	10.0
N. EB External	161	750	761	750	AG	0	4.2	.0	10.0
O. WB External	761	755	161	755	AG	715	4.2	.0	10.0
P. WB Approach	161	755	6	755	AG	566	7.1	.0	10.0
Q. WB Depart	6	755	-150	755	AG	942	7.1	.0	10.0
R. WB External	-150	755	-750	755	AG	942	4.2	.0	10.0
S. EB Left	-150	750	6	753	AG	0	7.1	.0	10.0
T. WB Left	161	755	6	753	AG	149	7.1	.0	10.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-9	744	2.0
2. Receptor	20	744	2.0
3. Receptor	20	761	2.0
4. Receptor	-9	761	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	7.	1.1	.0	.0	.2	.1	.0	.0	.0	.6
2. Receptor	354.	1.2	.0	.0	.7	.0	.0	.0	.1	.1
3. Receptor	186.	1.3	.0	.6	.0	.0	.1	.0	.0	.0
4. Receptor	172.	1.2	.1	.2	.0	.0	.1	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
2. Receptor	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
3. Receptor	.1	.1	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0
4. Receptor	.5	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2010: 10
     RUN: Hour 1           (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM            ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	11	0	11	600	AG	1156	4.2	.0	14.3
B. NB Approach	11	600	11	753	AG	1156	7.1	.0	14.3
C. NB Depart	11	753	11	905	AG	1346	7.1	.0	14.3
D. NB External	11	905	11	1505	AG	1346	4.2	.0	14.3
E. NB Left	11	600	6	753	AG	0	7.1	.0	14.3
F. SB Left	0	905	6	753	AG	210	7.1	.0	14.3
G. SB External	0	1505	0	905	AG	874	4.2	.0	14.3
H. SB Approach	0	905	0	753	AG	664	7.1	.0	14.3
I. SB Depart	0	753	0	600	AG	1037	7.1	.0	14.3
J. SB External	0	600	0	0	AG	1037	4.2	.0	14.3
K. EB External	-750	750	-150	750	AG	786	4.2	.0	10.0
L. EB Approach	-150	750	6	750	AG	386	7.1	.0	10.0
M. EB Depart	6	750	161	750	AG	433	7.1	.0	10.0
N. EB External	161	750	761	750	AG	433	4.2	.0	10.0
O. WB External	761	755	161	755	AG	0	4.2	.0	10.0
P. WB Approach	161	755	6	755	AG	0	7.1	.0	10.0
Q. WB Depart	6	755	-150	755	AG	0	7.1	.0	10.0
R. WB External	-150	755	-750	755	AG	0	4.2	.0	10.0
S. EB Left	-150	750	6	753	AG	400	7.1	.0	10.0
T. WB Left	161	755	6	753	AG	0	7.1	.0	10.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-9	744	2.0
2. Receptor	20	744	2.0
3. Receptor	20	761	2.0
4. Receptor	-9	761	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	8.	1.1	.0	.0	.3	.1	.0	.0	.0	.4
2. Receptor	353.	1.3	.0	.0	.8	.0	.0	.0	.0	.1
3. Receptor	187.	1.1	.0	.7	.0	.0	.0	.0	.0	.0
4. Receptor	173.	1.2	.1	.2	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. Receptor	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
3. Receptor	.2	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. Receptor	.6	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2010: 11
     RUN: Hour 1           (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM            ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	11	0	11	600	AG	807	4.2	.0	14.3
B. NB Approach	11	600	11	756	AG	728	7.1	.0	14.3
C. NB Depart	11	756	11	911	AG	1156	7.1	.0	14.3
D. NB External	11	911	11	1511	AG	1156	4.2	.0	14.3
E. NB Left	11	600	6	756	AG	79	7.1	.0	14.3
F. SB Left	0	911	6	756	AG	172	7.1	.0	14.3
G. SB External	0	1511	0	911	AG	1037	4.2	.0	14.3
H. SB Approach	0	911	0	756	AG	865	7.1	.0	14.3
I. SB Depart	0	756	0	600	AG	811	7.1	.0	14.3
J. SB External	0	600	0	0	AG	811	4.2	.0	14.3
K. EB External	-750	750	-150	750	AG	940	4.2	.0	14.3
L. EB Approach	-150	750	6	750	AG	616	7.1	.0	14.3
M. EB Depart	6	750	161	750	AG	820	7.1	.0	14.3
N. EB External	161	750	761	750	AG	820	4.2	.0	14.3
O. WB External	761	761	161	761	AG	671	4.2	.0	14.3
P. WB Approach	161	761	6	761	AG	565	7.1	.0	14.3
Q. WB Depart	6	761	-150	761	AG	668	7.1	.0	14.3
R. WB External	-150	761	-750	761	AG	668	4.2	.0	14.3
S. EB Left	-150	750	6	756	AG	324	7.1	.0	14.3
T. WB Left	161	761	6	756	AG	106	7.1	.0	14.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-9	741	2.0
2. Receptor	20	741	2.0
3. Receptor	20	770	2.0
4. Receptor	-9	770	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	7.	1.3	.0	.0	.2	.1	.0	.0	.0	.5
2. Receptor	353.	1.4	.0	.0	.7	.0	.0	.0	.1	.2
3. Receptor	262.	1.3	.0	.0	.3	.0	.0	.0	.0	.1
4. Receptor	97.	1.2	.0	.0	.2	.0	.0	.0	.0	.2

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0
2. Receptor	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
3. Receptor	.0	.0	.0	.2	.0	.0	.0	.0	.4	.0	.1	.0
4. Receptor	.0	.0	.0	.0	.2	.0	.0	.4	.0	.0	.0	.0

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2010: 17
     RUN: Hour 1           (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM            ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	11	0	11	600	AG	817	4.2	.0	14.3
B. NB Approach	11	600	11	755	AG	560	7.1	.0	14.3
C. NB Depart	11	755	11	911	AG	693	7.1	.0	14.3
D. NB External	11	911	11	1511	AG	693	4.2	.0	14.3
E. NB Left	11	600	6	755	AG	257	7.1	.0	14.3
F. SB Left	0	911	6	755	AG	131	7.1	.0	14.3
G. SB External	0	1511	0	911	AG	395	4.2	.0	14.3
H. SB Approach	0	911	0	755	AG	264	7.1	.0	14.3
I. SB Depart	0	755	0	600	AG	837	7.1	.0	14.3
J. SB External	0	600	0	0	AG	837	4.2	.0	14.3
K. EB External	-750	750	-150	750	AG	1211	4.2	.0	13.7
L. EB Approach	-150	750	6	750	AG	1129	7.1	.0	13.7
M. EB Depart	6	750	161	750	AG	936	7.1	.0	13.7
N. EB External	161	750	761	750	AG	936	4.2	.0	13.7
O. WB External	761	761	161	761	AG	625	4.2	.0	13.7
P. WB Approach	161	761	6	761	AG	508	7.1	.0	13.7
Q. WB Depart	6	761	-150	761	AG	582	7.1	.0	13.7
R. WB External	-150	761	-750	761	AG	582	4.2	.0	13.7
S. EB Left	-150	750	6	755	AG	82	7.1	.0	13.7
T. WB Left	161	761	6	755	AG	117	7.1	.0	13.7

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-9	742	2.0
2. Receptor	20	742	2.0
3. Receptor	20	769	2.0
4. Receptor	-9	769	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	83.	1.3	.0	.0	.0	.0	.0	.0	.0	.0
2. Receptor	276.	1.4	.0	.1	.0	.0	.0	.0	.0	.0
3. Receptor	187.	1.1	.0	.4	.0	.0	.1	.0	.0	.0
4. Receptor	173.	1.2	.0	.1	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.2	.0	.0	.1	.6	.0	.0	.1	.0	.0	.0	.0
2. Receptor	.1	.0	.0	.7	.0	.0	.0	.0	.1	.0	.0	.0
3. Receptor	.2	.0	.0	.0	.2	.0	.0	.1	.0	.0	.0	.0
4. Receptor	.5	.0	.0	.2	.0	.0	.0	.0	.1	.0	.0	.0

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2013: 8
     RUN: Hour 1           (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM            ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	13	0	13	600	AG	1662	3.2	.0	16.1
B. NB Approach	13	600	13	756	AG	1440	5.4	.0	16.1
C. NB Depart	13	756	13	911	AG	1222	5.4	.0	16.1
D. NB External	13	911	13	1511	AG	1222	3.2	.0	16.1
E. NB Left	13	600	7	756	AG	222	5.4	.0	16.1
F. SB Left	0	911	7	756	AG	148	5.4	.0	16.1
G. SB External	0	1511	0	911	AG	915	3.2	.0	16.1
H. SB Approach	0	911	0	756	AG	767	5.4	.0	16.1
I. SB Depart	0	756	0	600	AG	1477	5.4	.0	16.1
J. SB External	0	600	0	0	AG	1477	3.2	.0	16.1
K. EB External	-750	750	-150	750	AG	571	3.2	.0	14.3
L. EB Approach	-150	750	7	750	AG	448	5.4	.0	14.3
M. EB Depart	7	750	163	750	AG	825	5.4	.0	14.3
N. EB External	163	750	763	750	AG	825	3.2	.0	14.3
O. WB External	763	761	163	761	AG	1053	3.2	.0	14.3
P. WB Approach	163	761	7	761	AG	508	5.4	.0	14.3
Q. WB Depart	7	761	-150	761	AG	677	5.4	.0	14.3
R. WB External	-150	761	-750	761	AG	677	3.2	.0	14.3
S. EB Left	-150	750	7	756	AG	123	5.4	.0	14.3
T. WB Left	163	761	7	756	AG	545	5.4	.0	14.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-10	741	2.0
2. Receptor	23	741	2.0
3. Receptor	23	770	2.0
4. Receptor	-10	770	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	82.	1.2	.0	.2	.0	.0	.0	.0	.0	.0
2. Receptor	352.	1.1	.0	.0	.5	.0	.0	.0	.0	.1
3. Receptor	187.	1.3	.0	.6	.0	.0	.0	.0	.0	.0
4. Receptor	172.	1.2	.1	.2	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.3	.0	.0	.0	.4	.0	.0	.0	.0	.0	.0	.1
2. Receptor	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
3. Receptor	.1	.1	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
4. Receptor	.6	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2013:  9
     RUN: Hour 1           (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM            ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	11	0	11	600	AG	1702	3.2	.0	14.3
B. NB Approach	11	600	11	753	AG	1363	5.4	.0	14.3
C. NB Depart	11	753	11	905	AG	1591	5.4	.0	14.3
D. NB External	11	905	11	1505	AG	1591	3.2	.0	14.3
E. NB Left	11	600	6	753	AG	339	5.4	.0	14.3
F. SB Left	0	905	6	753	AG	0	5.4	.0	14.3
G. SB External	0	1505	0	905	AG	1476	3.2	.0	14.3
H. SB Approach	0	905	0	753	AG	1476	5.4	.0	14.3
I. SB Depart	0	753	0	600	AG	1216	5.4	.0	14.3
J. SB External	0	600	0	0	AG	1216	3.2	.0	14.3
K. EB External	-750	750	-150	750	AG	941	3.2	.0	10.0
L. EB Approach	-150	750	6	750	AG	713	5.4	.0	10.0
M. EB Depart	6	750	161	750	AG	415	5.4	.0	10.0
N. EB External	161	750	761	750	AG	415	3.2	.0	10.0
O. WB External	761	755	161	755	AG	0	3.2	.0	10.0
P. WB Approach	161	755	6	755	AG	0	5.4	.0	10.0
Q. WB Depart	6	755	-150	755	AG	897	5.4	.0	10.0
R. WB External	-150	755	-750	755	AG	897	3.2	.0	10.0
S. EB Left	-150	750	6	753	AG	228	5.4	.0	10.0
T. WB Left	161	755	6	753	AG	0	5.4	.0	10.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-9	744	2.0
2. Receptor	20	744	2.0
3. Receptor	20	761	2.0
4. Receptor	-9	761	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	7.	1.3	.0	.0	.2	.1	.0	.0	.0	.6
2. Receptor	275.	1.3	.0	.2	.0	.0	.0	.0	.0	.0
3. Receptor	265.	1.3	.0	.0	.3	.0	.0	.0	.0	.2
4. Receptor	172.	1.3	.0	.2	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0
2. Receptor	.2	.0	.0	.4	.0	.0	.0	.0	.2	.0	.0	.0
3. Receptor	.0	.0	.0	.2	.0	.0	.0	.0	.5	.0	.1	.0
4. Receptor	.6	.0	.0	.1	.0	.0	.0	.0	.2	.0	.0	.0

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2013:  11
     RUN: Hour 1           (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM            ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	11	0	11	600	AG	860	3.2	.0	14.3
B. NB Approach	11	600	11	756	AG	745	5.4	.0	14.3
C. NB Depart	11	756	11	911	AG	1398	5.4	.0	14.3
D. NB External	11	911	11	1511	AG	1398	3.2	.0	14.3
E. NB Left	11	600	6	756	AG	115	5.4	.0	14.3
F. SB Left	0	911	6	756	AG	210	5.4	.0	14.3
G. SB External	0	1511	0	911	AG	1284	3.2	.0	14.3
H. SB Approach	0	911	0	756	AG	1074	5.4	.0	14.3
I. SB Depart	0	756	0	600	AG	965	5.4	.0	14.3
J. SB External	0	600	0	0	AG	965	3.2	.0	14.3
K. EB External	-750	750	-150	750	AG	1101	3.2	.0	14.3
L. EB Approach	-150	750	6	750	AG	630	5.4	.0	14.3
M. EB Depart	6	750	161	750	AG	849	5.4	.0	14.3
N. EB External	161	750	761	750	AG	849	3.2	.0	14.3
O. WB External	761	761	161	761	AG	903	3.2	.0	14.3
P. WB Approach	161	761	6	761	AG	727	5.4	.0	14.3
Q. WB Depart	6	761	-150	761	AG	936	5.4	.0	14.3
R. WB External	-150	761	-750	761	AG	936	3.2	.0	14.3
S. EB Left	-150	750	6	756	AG	471	5.4	.0	14.3
T. WB Left	161	761	6	756	AG	176	5.4	.0	14.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-9	741	2.0
2. Receptor	20	741	2.0
3. Receptor	20	770	2.0
4. Receptor	-9	770	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	7.	1.2	.0	.0	.2	.0	.0	.0	.0	.5
2. Receptor	353.	1.2	.0	.0	.6	.0	.0	.0	.0	.2
3. Receptor	262.	1.2	.0	.0	.3	.0	.0	.0	.0	.1
4. Receptor	97.	1.0	.0	.0	.2	.0	.0	.0	.0	.2

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.0	.0	.0	.1	.0	.0	.0	.0	.1	.0	.0	.0
2. Receptor	.0	.0	.0	.0	.2	.0	.0	.0	.0	.0	.0	.0
3. Receptor	.0	.0	.0	.1	.0	.0	.0	.0	.4	.0	.1	.0
4. Receptor	.0	.0	.0	.0	.1	.0	.0	.3	.0	.0	.0	.0

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2013:  14
     RUN: Hour 1           (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM            ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	12	0	12	600	AG	794	3.2	.0	15.2
B. NB Approach	12	600	12	755	AG	700	5.4	.0	15.2
C. NB Depart	12	755	12	910	AG	1591	5.4	.0	15.2
D. NB External	12	910	12	1510	AG	1591	3.2	.0	15.2
E. NB Left	12	600	6	755	AG	94	5.4	.0	15.2
F. SB Left	0	910	6	755	AG	187	5.4	.0	15.2
G. SB External	0	1510	0	910	AG	611	3.2	.0	15.2
H. SB Approach	0	910	0	755	AG	424	5.4	.0	15.2
I. SB Depart	0	755	0	600	AG	580	5.4	.0	15.2
J. SB External	0	600	0	0	AG	580	3.2	.0	15.2
K. EB External	-750	750	-150	750	AG	1692	3.2	.0	12.6
L. EB Approach	-150	750	6	750	AG	1095	5.4	.0	12.6
M. EB Depart	6	750	162	750	AG	1183	5.4	.0	12.6
N. EB External	162	750	762	750	AG	1183	3.2	.0	12.6
O. WB External	762	760	162	760	AG	1135	3.2	.0	12.6
P. WB Approach	162	760	6	760	AG	1081	5.4	.0	12.6
Q. WB Depart	6	760	-150	760	AG	878	5.4	.0	12.6
R. WB External	-150	760	-750	760	AG	878	3.2	.0	12.6
S. EB Left	-150	750	6	755	AG	597	5.4	.0	12.6
T. WB Left	162	760	6	755	AG	54	5.4	.0	12.6

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-9	742	2.0
2. Receptor	21	742	2.0
3. Receptor	21	767	2.0
4. Receptor	-9	767	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	83.	1.1	.0	.0	.0	.0	.0	.0	.0	.0
2. Receptor	354.	1.3	.0	.0	.7	.0	.0	.0	.0	.0
3. Receptor	262.	1.4	.0	.0	.3	.0	.0	.0	.0	.0
4. Receptor	95.	1.3	.0	.0	.2	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.1	.0	.0	.0	.5	.0	.0	.2	.0	.0	.0	.0
2. Receptor	.0	.0	.0	.0	.2	.0	.0	.1	.0	.0	.0	.0
3. Receptor	.0	.0	.0	.2	.0	.0	.0	.1	.4	.0	.2	.0
4. Receptor	.0	.0	.0	.0	.1	.1	.0	.5	.0	.0	.0	.0

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2013:  17
     RUN: Hour 1           (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM            ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	11	0	11	600	AG	906	3.2	.0	14.3
B. NB Approach	11	600	11	755	AG	529	5.4	.0	14.3
C. NB Depart	11	755	11	911	AG	728	5.4	.0	14.3
D. NB External	11	911	11	1511	AG	728	3.2	.0	14.3
E. NB Left	11	600	6	755	AG	377	5.4	.0	14.3
F. SB Left	0	911	6	755	AG	151	5.4	.0	14.3
G. SB External	0	1511	0	911	AG	460	3.2	.0	14.3
H. SB Approach	0	911	0	755	AG	309	5.4	.0	14.3
I. SB Depart	0	755	0	600	AG	1056	5.4	.0	14.3
J. SB External	0	600	0	0	AG	1056	3.2	.0	14.3
K. EB External	-750	750	-150	750	AG	1339	3.2	.0	13.7
L. EB Approach	-150	750	6	750	AG	1229	5.4	.0	13.7
M. EB Depart	6	750	161	750	AG	1022	5.4	.0	13.7
N. EB External	161	750	761	750	AG	1022	3.2	.0	13.7
O. WB External	761	761	161	761	AG	1091	3.2	.0	13.7
P. WB Approach	161	761	6	761	AG	837	5.4	.0	13.7
Q. WB Depart	6	761	-150	761	AG	990	5.4	.0	13.7
R. WB External	-150	761	-750	761	AG	990	3.2	.0	13.7
S. EB Left	-150	750	6	755	AG	110	5.4	.0	13.7
T. WB Left	161	761	6	755	AG	254	5.4	.0	13.7

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-9	742	2.0
2. Receptor	20	742	2.0
3. Receptor	20	769	2.0
4. Receptor	-9	769	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	82.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
2. Receptor	276.	1.2	.0	.0	.0	.0	.0	.0	.0	.0
3. Receptor	264.	1.1	.0	.0	.1	.0	.0	.0	.0	.0
4. Receptor	173.	1.1	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.2	.0	.0	.1	.5	.0	.0	.2	.0	.0	.0	.0
2. Receptor	.1	.0	.0	.6	.0	.0	.0	.0	.1	.0	.0	.0
3. Receptor	.0	.0	.1	.2	.0	.0	.0	.0	.5	.0	.0	.0
4. Receptor	.5	.0	.0	.2	.0	.0	.0	.0	.2	.0	.0	.0

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2030:  8
     RUN: Hour 1          (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM           ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	13	0	13	600	AG	2129	1.2	.0	16.1
B. NB Approach	13	600	13	756	AG	1852	1.9	.0	16.1
C. NB Depart	13	756	13	911	AG	1674	1.9	.0	16.1
D. NB External	13	911	13	1511	AG	1674	1.2	.0	16.1
E. NB Left	13	600	7	756	AG	277	1.9	.0	16.1
F. SB Left	0	911	7	756	AG	201	1.9	.0	16.1
G. SB External	0	1511	0	911	AG	1374	1.2	.0	16.1
H. SB Approach	0	911	0	756	AG	1173	1.9	.0	16.1
I. SB Depart	0	756	0	600	AG	1955	1.9	.0	16.1
J. SB External	0	600	0	0	AG	1955	1.2	.0	16.1
K. EB External	-750	750	-150	750	AG	643	1.2	.0	14.3
L. EB Approach	-150	750	7	750	AG	500	1.9	.0	14.3
M. EB Depart	7	750	163	750	AG	948	1.9	.0	14.3
N. EB External	163	750	763	750	AG	948	1.2	.0	14.3
O. WB External	763	761	163	761	AG	1241	1.2	.0	14.3
P. WB Approach	163	761	7	761	AG	640	1.9	.0	14.3
Q. WB Depart	7	761	-150	761	AG	810	1.9	.0	14.3
R. WB External	-150	761	-750	761	AG	810	1.2	.0	14.3
S. EB Left	-150	750	7	756	AG	143	1.9	.0	14.3
T. WB Left	163	761	7	756	AG	601	1.9	.0	14.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-10	741	2.0
2. Receptor	23	741	2.0
3. Receptor	23	770	2.0
4. Receptor	-10	770	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	83.	.5	.0	.0	.0	.0	.0	.0	.0	.0
2. Receptor	352.	.5	.0	.0	.2	.0	.0	.0	.0	.0
3. Receptor	187.	.6	.0	.3	.0	.0	.0	.0	.0	.0
4. Receptor	173.	.5	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.1	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
2. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. Receptor	.3	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2030:  9
     RUN: Hour 1          (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM           ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	11	0	11	600	AG	2240	1.2	.0	14.3
B. NB Approach	11	600	11	753	AG	1855	1.9	.0	14.3
C. NB Depart	11	753	11	905	AG	2226	1.9	.0	14.3
D. NB External	11	905	11	1505	AG	2226	1.2	.0	14.3
E. NB Left	11	600	6	753	AG	385	1.9	.0	14.3
F. SB Left	0	905	6	753	AG	0	1.9	.0	14.3
G. SB External	0	1505	0	905	AG	1859	1.2	.0	14.3
H. SB Approach	0	905	0	753	AG	1859	1.9	.0	14.3
I. SB Depart	0	753	0	600	AG	1430	1.9	.0	14.3
J. SB External	0	600	0	0	AG	1430	1.2	.0	14.3
K. EB External	-750	750	-150	750	AG	0	1.2	.0	10.0
L. EB Approach	-150	750	6	750	AG	0	1.9	.0	10.0
M. EB Depart	6	750	161	750	AG	0	1.9	.0	10.0
N. EB External	161	750	761	750	AG	0	1.2	.0	10.0
O. WB External	761	755	161	755	AG	1094	1.2	.0	10.0
P. WB Approach	161	755	6	755	AG	843	1.9	.0	10.0
Q. WB Depart	6	755	-150	755	AG	1537	1.9	.0	10.0
R. WB External	-150	755	-750	755	AG	1537	1.2	.0	10.0
S. EB Left	-150	750	6	753	AG	0	1.9	.0	10.0
T. WB Left	161	755	6	753	AG	251	1.9	.0	10.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-9	744	2.0
2. Receptor	20	744	2.0
3. Receptor	20	761	2.0
4. Receptor	-9	761	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	7.	.5	.0	.0	.0	.0	.0	.0	.0	.3
2. Receptor	353.	.5	.0	.0	.3	.0	.0	.0	.0	.0
3. Receptor	187.	.5	.0	.3	.0	.0	.0	.0	.0	.0
4. Receptor	172.	.5	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
4. Receptor	.2	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2030:  11
     RUN: Hour 1           (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM            ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	11	0	11	600	AG	1043	1.2	.0	14.3
B. NB Approach	11	600	11	756	AG	893	1.9	.0	14.3
C. NB Depart	11	756	11	911	AG	1664	1.9	.0	14.3
D. NB External	11	911	11	1511	AG	1664	1.2	.0	14.3
E. NB Left	11	600	6	756	AG	150	1.9	.0	14.3
F. SB Left	0	911	6	756	AG	287	1.9	.0	14.3
G. SB External	0	1511	0	911	AG	1511	1.2	.0	14.3
H. SB Approach	0	911	0	756	AG	1224	1.9	.0	14.3
I. SB Depart	0	756	0	600	AG	1140	1.9	.0	14.3
J. SB External	0	600	0	0	AG	1140	1.2	.0	14.3
K. EB External	-750	750	-150	750	AG	1264	1.2	.0	14.3
L. EB Approach	-150	750	6	750	AG	730	1.9	.0	14.3
M. EB Depart	6	750	161	750	AG	1040	1.9	.0	14.3
N. EB External	161	750	761	750	AG	1040	1.2	.0	14.3
O. WB External	761	761	161	761	AG	1115	1.2	.0	14.3
P. WB Approach	161	761	6	761	AG	889	1.9	.0	14.3
Q. WB Depart	6	761	-150	761	AG	1089	1.9	.0	14.3
R. WB External	-150	761	-750	761	AG	1089	1.2	.0	14.3
S. EB Left	-150	750	6	756	AG	534	1.9	.0	14.3
T. WB Left	161	761	6	756	AG	226	1.9	.0	14.3

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-9	741	2.0
2. Receptor	20	741	2.0
3. Receptor	20	770	2.0
4. Receptor	-9	770	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	7.	.5	.0	.0	.0	.0	.0	.0	.0	.2
2. Receptor	353.	.5	.0	.0	.2	.0	.0	.0	.0	.0
3. Receptor	262.	.5	.0	.0	.1	.0	.0	.0	.0	.0
4. Receptor	97.	.4	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
4. Receptor	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2030:  12
     RUN: Hour 1           (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM            ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	10	0	10	600	AG	442	1.2	.0	12.8
B. NB Approach	10	600	10	755	AG	422	1.9	.0	12.8
C. NB Depart	10	755	10	911	AG	581	1.9	.0	12.8
D. NB External	10	911	10	1511	AG	581	1.2	.0	12.8
E. NB Left	10	600	5	755	AG	20	1.9	.0	12.8
F. SB Left	0	911	5	755	AG	651	1.9	.0	12.8
G. SB External	0	1511	0	911	AG	1852	1.2	.0	12.8
H. SB Approach	0	911	0	755	AG	1201	1.9	.0	12.8
I. SB Depart	0	755	0	600	AG	884	1.9	.0	12.8
J. SB External	0	600	0	0	AG	884	1.2	.0	12.8
K. EB External	-750	750	-150	750	AG	1103	1.2	.0	13.7
L. EB Approach	-150	750	5	750	AG	1005	1.9	.0	13.7
M. EB Depart	5	750	160	750	AG	2013	1.9	.0	13.7
N. EB External	160	750	760	750	AG	2013	1.2	.0	13.7
O. WB External	760	761	160	761	AG	1413	1.2	.0	13.7
P. WB Approach	160	761	5	761	AG	1226	1.9	.0	13.7
Q. WB Depart	5	761	-150	761	AG	1332	1.9	.0	13.7
R. WB External	-150	761	-750	761	AG	1332	1.2	.0	13.7
S. EB Left	-150	750	5	755	AG	98	1.9	.0	13.7
T. WB Left	160	761	5	755	AG	187	1.9	.0	13.7

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-8	742	2.0
2. Receptor	18	742	2.0
3. Receptor	18	769	2.0
4. Receptor	-8	769	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	84.	.5	.0	.0	.0	.0	.0	.0	.0	.0
2. Receptor	351.	.5	.0	.0	.0	.0	.0	.0	.0	.0
3. Receptor	264.	.5	.0	.0	.0	.0	.0	.0	.0	.0
4. Receptor	96.	.5	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.0	.0	.0	.0	.3	.0	.0	.0	.0	.0	.0	.0
2. Receptor	.0	.0	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0
3. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
4. Receptor	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0

```
CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
         JUNE 1989 VERSION
         PAGE   1

     JOB: 2030:  14
     RUN: Hour 1           (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
      U=   1.0 M/S            Z0= 100. CM            ALT=   366. (M)
    BRG= WORST CASE           VD=   .0 CM/S
   CLAS=     7 (G)            VS=   .0 CM/S
   MIXH= 1000. M             AMB=   .0 PPM
  SIGTH=    5. DEGREES       TEMP=  4.4 DEGREE (C)
```

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NB External	12	0	12	600	AG	873	1.2	.0	15.2
B. NB Approach	12	600	12	755	AG	770	1.9	.0	15.2
C. NB Depart	12	755	12	910	AG	1885	1.9	.0	15.2
D. NB External	12	910	12	1510	AG	1885	1.2	.0	15.2
E. NB Left	12	600	6	755	AG	103	1.9	.0	15.2
F. SB Left	0	910	6	755	AG	350	1.9	.0	15.2
G. SB External	0	1510	0	910	AG	1117	1.2	.0	15.2
H. SB Approach	0	910	0	755	AG	767	1.9	.0	15.2
I. SB Depart	0	755	0	600	AG	638	1.9	.0	15.2
J. SB External	0	600	0	0	AG	638	1.2	.0	15.2
K. EB External	-750	750	-150	750	AG	2013	1.2	.0	12.6
L. EB Approach	-150	750	6	750	AG	1233	1.9	.0	12.6
M. EB Depart	6	750	162	750	AG	1474	1.9	.0	12.6
N. EB External	162	750	762	750	AG	1474	1.2	.0	12.6
O. WB External	762	760	162	760	AG	1407	1.2	.0	12.6
P. WB Approach	162	760	6	760	AG	1348	1.9	.0	12.6
Q. WB Depart	6	760	-150	760	AG	1413	1.9	.0	12.6
R. WB External	-150	760	-750	760	AG	1413	1.2	.0	12.6
S. EB Left	-150	750	6	755	AG	780	1.9	.0	12.6
T. WB Left	162	760	6	755	AG	59	1.9	.0	12.6

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Receptor	-9	742	2.0
2. Receptor	21	742	2.0
3. Receptor	21	767	2.0
4. Receptor	-9	767	2.0

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Receptor	7.	.5	.0	.0	.0	.0	.0	.0	.0	.1
2. Receptor	354.	.6	.0	.0	.3	.0	.0	.0	.0	.0
3. Receptor	263.	.7	.0	.0	.1	.0	.0	.0	.0	.0
4. Receptor	96.	.6	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
2. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
3. Receptor	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0
4. Receptor	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.0	.0

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Appendix E:
SCAQMD Interim Modeling Procedures
New Federal 1-hour NO_2 Standard

Interim Modeling Procedures – New Federal 1-hour NO_2 Standard

Background

On January 22, 2010, the U.S. Environmental Protection Agency (EPA) strengthened the health-based National Ambient Air Quality Standard (NAAQS) for nitrogen dioxide (NO_2) by adopting a new 1-hour standard at the level of 100 parts per billion (ppb) or 188 $\mu g/m^3$. The form for this new 1-hour NO_2 standard is the 3-year average of the 98th percentile of the annual distribution of the daily maximum 1-hour average concentrations. EPA retained, with no change, the current annual average NO_2 standard of 53 ppb or 100 $\mu g/m^3$. The new standard was effective April 12, 2010.

It should be noted that the both the level and form of the 1-hour NO_2 NAAQS are different than that of the California Ambient Air Quality Standard (CAAQS). The 1-hour NO_2 CAAQS is 180 ppb (or 338 $\mu g/m^3$) versus 100 ppb (or 188 $\mu g/m^3$) for the federal standard. The California standard represents a peak value which cannot be exceeded, whereas the new federal 1-hour NO_2 standard is a three-year average of the eighth highest hourly NO_2 concentration for each year.

Applicability

These procedures are currently only applicable to impact analyses contained in environmental documents. District Counsel's Office has determined that, until the South Coast Air Basin is designated as non-attainment, compliance with the new 1-hour NO_2 NAAQS is <u>not</u> required for permit issuance. Therefore, permit applicants need only consider the state 1-hr NO_2 standard when assessing compliance with Rules 1303 and 2005.

Procedures

The overall procedure is as follows:

- Estimate the 1-hour NO_2 impacts from the <u>total project</u> using AERMOD-OLM or AERMOD-PVMRM;
- Post-process the predicted hourly concentrations at each receptor to determine the 98th percentile 1-hour NO_2 concentration; and
- Add the 98th percentile increment to the 98th percentile background concentration and compare to the 1-hour NO_2 NAAQS of 188 $\mu g/m^3$.

Each of these steps is covered in more detail next.

1. *Calculate 1-hour NO_2 Impacts from the Proposed Project*

   Conduct dispersion modeling using AERMOD and the AQMD's AERMOD-ready meteorological data. AQMD's AERMOD modeling guidance and the meteorological data are available at http://www.aqmd.gov/smog/metdata/AERMOD.html. Do not make the conservative assumption that 100 percent of the NO_X emissions from the project are converted NO_2. Instead use one the two available options to simulate the conversion of NO_X to NO_2 given the ambient ozone concentrations: (1) ozone limiting method (OLM) or (2) plume volume molar ratio method (PVMRM). The required hourly ambient ozone concentrations are available at the above website in AERMOD-ready format along with modeling guidance on the proper execution of OLM and PVMRM. Do not use a unitized NO_X emission rate when executing AERMOD-OLM or AERMOD-PVMRM; the actual NO_X emission rates must be used.

   NO_2 impacts from commissioning do not need to be addressed when evaluating the 1-hour NO_2 NAAQS since commissioning is a once-in-a-lifetime event and the standard is a 98th percentile concentration. However, commissioning must be addressed when evaluating the 1-hour NO_2 CAAQS.

2. *Calculate the 98th Percentile Hourly NO_2 Concentration*

   Lakes, Trinity, and BEE-Line Software have developed post-processors to calculate the 98th percentile hourly NO_2 concentration. The AQMD accepts the results from those post-processors.

   In addition, AQMD developed a post-processor called, AQMDPOST, to perform the 98th percentile calculation for annual POSTFILEs generated in step #1 above. AQMD's software is available for download at ?????. Be aware that the AQMD post-processor has limits on the number of receptors. Instructions for the use of AQMDPOST are contained in the download package along with a discussion of the algorithm and the program's limitations.

3. *Add Project Increment to 98th Percentile Background Concentrations*

   Combine the 98th percentile hourly NO_2 concentration calculated in step #2 above with the 98th percentile background concentration provided in Table 1 below. Table 1 contains the 98th percentile background concentrations for the latest three-year period (i.e., 2006 to 2008) for the AQMD's monitoring network. Choose the site closest to the proposed project. The combined impacts must be less than 188 $\mu g/m^3$.

Table 1. 98th Percentile Background NO_2 Concentrations for the 3-year period, 2006-2008.

Station	**($\mu g/m^3$)**	**Station**	**($\mu g/m^3$)**
Anaheim	127	Lynwood	149
Azusa	159	Mira Loma	137
Banning Airport	118	Palm Springs	91
Burbank	144	Pasadena	137
Central Los Angeles	158	Pico Rivera	163
Costa Mesa	117	Pomona	156
Fontana	145	Reseda	112
Glendora	144	Riverside	122
Hawthorne	136	San Bernardino	129
La Habra	138	Santa Clarita	115
Lake Elsinore	97	Upland	145
Long Beach	147	West Los Angeles	120