Appendix A
Air Quality and Greenhouse Gas Analysis February 16, 2011

DRAFT
Air Quality and Greenhouse Gas Analysis Report
Santa Ana River Trail
Riverside County, California

Prepared for:

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February 16, 2011

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ACRONYMS AND ABBREVIATIONS

µg/m3	micrograms per cubic meter
AB	Assembly Bill
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
CEQA	California Environmental Quality Act
CO	carbon monoxide
CO_2	carbon dioxide
DPM	diesel particulate matter
EPA	Environmental Protection Agency
LOS	Level of Service
$MTCO_2e$	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 analysis was prepared to evaluate whether the estimated criteria air pollutant 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 (SCAQMD 1993 and SCAQMD 2009a).

In 2006, Governor Arnold Schwarzenegger signed AB 32, which charged the California Air Resources Board (ARB) with developing regulations on how the State would address climate change (also known as "global warming"). This analysis also evaluates the potential impact of the project's greenhouse gas emissions.

1.2 - Project Summary

The Regional Santa Ana River Trail (project) has been planned and designed to provide a recreational and transportation corridor for bicyclists, equestrians and pedestrians. When completed, it will provide the only direct trail connection through Orange, Riverside, and San Bernardino Counties. It is part of the larger network of trails and bikeways in Southern California, connecting to local, regional and forest service trails, including the Pacific Crest Trail, a National Scenic riding/hiking trail that extends from Mexico to Canada. When completed, the project will directly connect to two National Forests, the Prado Basin Recreation Area, three state parks, six regional parks, and several other county and city parks. In addition, the Angels Stadium, the Honda Center, and several Metrolink stations are accessible from the trail.

The regional Santa Ana River Trail, when completed, will extend nearly one-hundred and ten miles from the Pacific Ocean in the City of Huntington Beach to the Pacific Crest Trail in the San Bernardino Mountains. With one small exception, the eighty-five mile stretch from Huntington Beach to the San Bernardino County line will be a dual track trail, consisting of a paved track for bicyclists and walkers, and a decomposed granite (DG) surfaced dirt trail for equestrians, mountain bicyclists and hikers. Where feasible the two trails will be adjacent, but will diverge when constrained by technical or biological conditions. This is consistent with other reaches of the Santa Ana River Trail in Orange and Riverside Counties. From the San Bernardino County line to Opal Avenue in Redlands the trail will be a single-track paved trail with dirt shoulders. Upstream of Opal Avenue to the Pacific Crest Trail the trail will be a single track with a DG surface. Most of the trail has been completed in Orange County, nearly 60 percent of the trail has been completed in Riverside County, and over 75 percent of the trail has been completed in San Bernardino County.

Reach I of the Riverside County Santa Ana River Trail, from the Orange County line to the downstream edge of State Route (SR) 71 is being developed as a separate project by Riverside County in order to meet specific funding requirements.

The Santa Ana River Trail Master Plan and Design project boundary for Reaches II through XII of the Santa Ana River Trail extends from the downstream edge of SR-71 (where it is anticipated to connect with Reach I through the Green River Golf Course to downstream reaches of the trail). On the upstream end it will connect to the existing reach of the Santa Ana River Trail in Hidden Valley Wildlife Center. The proposed final Riverside County reaches of the Santa Ana River Trail will be a dual-track trail. The Santa Ana River Trail is in fact two separate trails (a paved bicycle trail ranging with Class I and Class II segments) and an unpaved trail to be used by pedestrians and equestrians. In many places the trails are parallel; however, there are locations where the trails diverge.

1.3 - Summary of Analysis Results

This section contains a summary of the results of the impact analyses in this report.

- Construction and operation of the project would not exceed the SCAQMD regional significance emission thresholds.
- The construction emissions from the project would not exceed the SCAQMD localized significance thresholds.
- The project is consistent with the Air Quality Management Plan.
- The project would not result in an air quality violation.
- The project would not result in a cumulative impact.
- The project would not expose sensitive receptors to substantial pollutant concentrations.
- The project would not create objectionable odors that affect sensitive receptors near the project area.
- The project's greenhouse gas 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 to reduce the emissions of greenhouse gases.

1.4 - Mitigation Measures Applied to the Project

The measures below are required to reduce potentially significant impacts to less than significant.

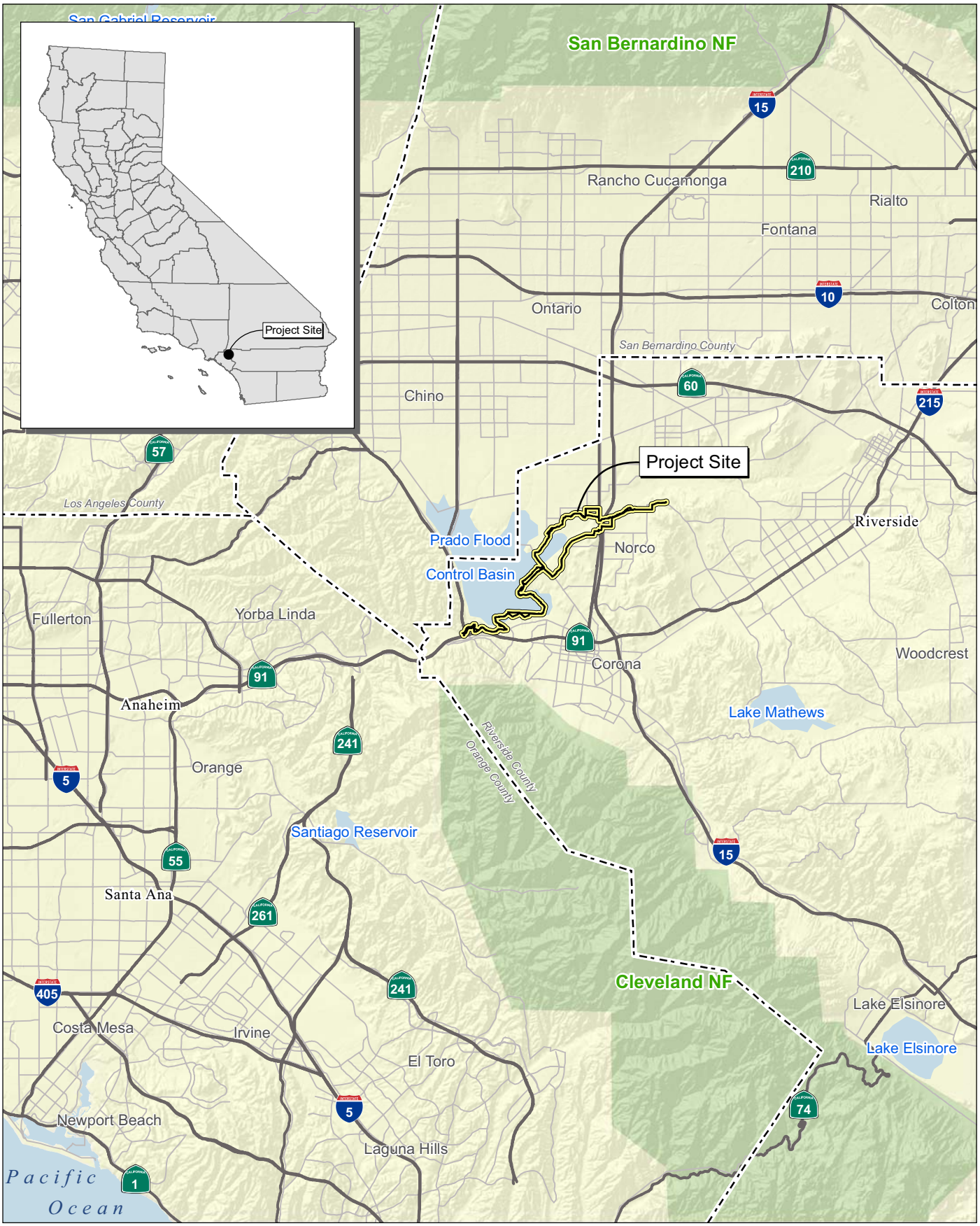
MM AIR-1 The trail shall be maintained at least once a month to remove any horse manure that may be on the trail.

MM GHG-1 To conserve water, the following measures shall be implemented to the satisfaction of the City of Corona:

- If a recycled or reclaimed water pipeline is available within one-fourth of a mile radius from the project site, recycled or reclaimed water shall be used to irrigate the Auto Center Drive staging area (if irrigation is to be required).
- Low flow toilets shall be used if installed as part of the project. The toilets shall not be automatic.
- Automatic sinks shall be installed if installed as part of the project, so that if someone were to leave the sink on accidentally, water would not be wasted.
- Any landscaping installed as part of the project shall be drought-tolerant (with the exception of any turf installed in the Auto Center Drive Staging Area).

MM GHG-2 To reduce solid waste generated by the project, the following measures shall be implemented:

- Recycle and/or salvage at least 50 percent of non-hazardous construction debris. Calculations can be done by weight or volume, but must be consistent throughout.
- Any waste receptacles installed as part of the project shall have an adjacent recycling receptacle installed as well.



Source: Census 2000 Data, The CaSIL, MBA GIS (2011).

Michael Brandman Associates

NORTH

5 2.5 0 5

Miles

Exhibit 1
Regional Location Map

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Source: NAIP for Riverside County (2009); NAIP for San Bernardino County (2009).

NORTH

2,000 1,000 0 2,000
Feet

Michael Brandman Associates

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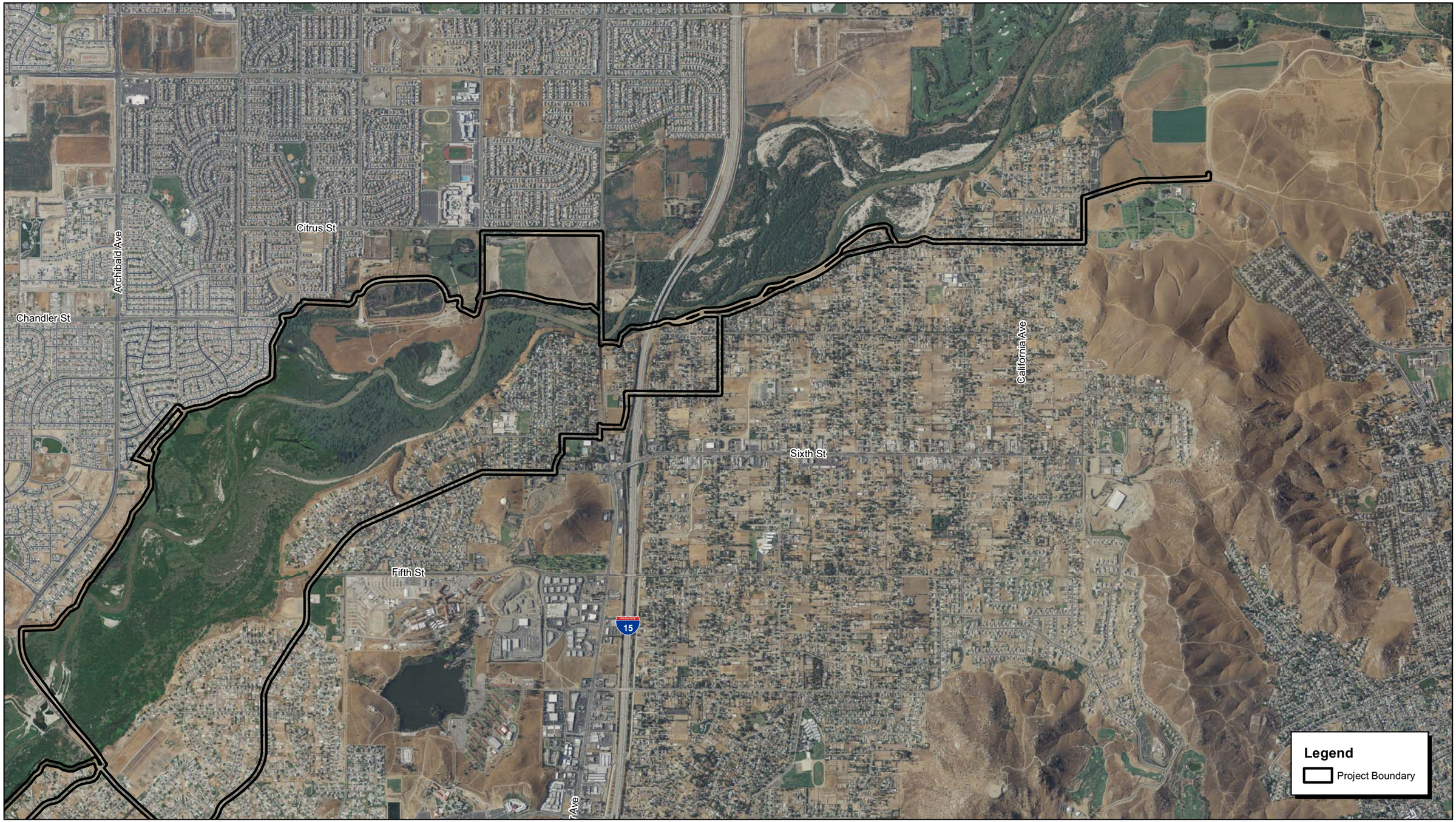
Exhibit 2a
South Portion
Local Vicinity Map - Aerial Base



Source: NAIP for Riverside County (2009); NAIP for San Bernardino County (2009).

NORTH

2,000 1,000 0 2,000
Feet

Michael Brandman Associates

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Exhibit 2b
North Portion
Local Vicinity Map - Aerial Base

SECTION 2: LOCAL AND REGIONAL POLLUTANT SETTING

2.1 - Existing Physical Setting

2.1.1 - Local Climate

The project is located in the County of Riverside 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.

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. 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. Year-to-year patterns in rainfall are unpredictable because of fluctuations in the weather.

Temperature inversions limit the vertical depth through which pollution can be mixed. Among the most common temperature inversions in the basin are radiation inversions, which form on clear winter nights when cold air off mountains sink to the valley floor while the air aloft over the valley remains warm. These inversions, in conjunction with calm winds, trap pollutants near the source. Other types of temperature inversions that affect the basin include marine, subsidence, and high-pressure inversions.

Summers are often periods of hazy visibility and occasionally unhealthful air, while air quality impacts in the winter tend to be highly localized and can consist of odors from agricultural operations.

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 runs through Source Receptor Area 22 in the Corona-Norco area and a small portion of Source Receptor Area 23.

Table 1 summarizes 2007 through 2009 published monitoring data in the project area, 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 1: Air Quality Monitoring Summary

Air Pollutant, Location	Averaging Time	Item	2007	2008	2009
Ozone, Riverside-Rubidoux	1 Hour	Max 1 Hour (ppm)	0.131	0.146	0.116
		Days > State Standard (0.09 ppm)	31	54	25
	8 Hour	Max 8 Hour (ppm)	0.111	0.116	0.100
		Days > State Standard (0.07 ppm)	69	89	57
		Days > National Standard (0.075 ppm)	46	64	36
Carbon monoxide, Riverside-Rubidoux	1 Hour*	Max 1 Hour (ppm)	4	7	3
		Days > State Standard (20 ppm)	0	0	0
		Days > National Standard (35 ppm)	0	0	0
	8 Hour	Max 8 Hour (ppm)	2.93	1.86	1.85
		Days > State Standard (9.0 ppm)	0	0	0
		Days > National Standard (9 ppm)	0	0	0
Nitrogen dioxide, Riverside-Rubidoux	Annual	Annual Average (ppm)	0.020	0.019	0.017
	1-Hour 98th percentile**	98th percentile	0.063	0.067	ND
	1 Hour	Max 1 Hour (ppm)	0.072	0.092	0.078
		Days > State Standard (0.18 ppm)	0	0	0
		Days > National Standard (0.10 ppm)	ID	ID	ID

Table 1 (cont.): Air Quality Monitoring Summary

Air Pollutant, Location	Averaging Time	Item	2007	2008	2009
Sulfur dioxide, Riverside-Rubidoux	Annual	Annual Average (ppm)	ID	<0.001	0.001
	24 Hour	Max 24 Hour (ppm)	0.004	0.003	0.003
		Days > State Standard (0.04 ppm)	0	0	0
	1 Hour	Max 1 Hour (ppm)*	0.02	0.01	0.01
		Days > State Standard (0.25 ppm)	0	0	0
		Days > National Standard (0.075 ppm)	0	0	0
Inhalable coarse particles (PM_{10}), Norco-Norconian	Annual	Annual Average ($\mu g/m^3$)	43.2	33.6	34.9
	24 hour	24 Hour ($\mu g/m^3$)	332	86	79
		Est. Days > State Standard (50 $\mu g/m^3$)	62	55	42
		Est. Days > National Standard (150 $\mu g/m^3$)	6	0	0
Fine particulate matter ($PM_{2.5}$)	Annual	Annual Average ($\mu g/m^3$)	19.8	16.3	17.1
	24 Hour	24 Hour ($\mu g/m^3$)	75.6	57.6	54.4
		Days > National Standard (35 $\mu g/m^3$)	33	14	13

Abbreviations:
> = exceed ppm = parts per million $\mu g/m^3$ = micrograms per cubic meter
ID = insufficient data ND = no data max = maximum Est. = estimated
Note that "days" refers to measured days unless otherwise specified.
State Standard = California Ambient Air Quality Standard
National Standard = National Ambient Air Quality Standard
Sources: California Air Resources Board (ARB 2010b).
* 1-Hour CO from South Coast Air Quality Management District (SCAQMD 2011).
** 98th Percentile nitrogen dioxide from South Coast Air Quality Management District (SCAQMD 2010a)

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 2. 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 standard.

Table 2: South Coast Air Basin Attainment Status

Pollutant	State Status	National Status
Ozone	Nonattainment	Nonattainment
Carbon monoxide	Attainment	Attainment
Nitrogen dioxide	Nonattainment	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 ARB 2010c; national status from EPA 2009a.

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
- Particulate matter (PM_{10} and $PM_{2.5}$)
- Nitrogen dioxide
- Carbon monoxide (CO)
- Lead
- 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 (ARB 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 3.

Several pollutants listed in Table 3 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 3: 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 NOx) 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 3 (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.				
Sulfates	24 Hour	25 µg/m^3	—	(a) Decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardio-	The sulfate ion is a polyatomic anion with the empirical formula SO_4^{2-}. Sulfates occur in combination with metal and/or	Sulfates are particulates formed through the photochemical oxidation of sulfur dioxide. In California, the main source of

Table 3 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
				pulmonary disease; (d) vegetation damage; (e) degradation of visibility; (f) property damage.	hydrogen ions. Many sulfates are soluble in water.	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.
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		Although health-based standards have not been established for	Reactive organic gases (ROGs), or VOCs, are defined as any	Indoor sources of VOCs include paints, solvents, aerosol sprays,

Table 3 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
		because they are not classified as criteria pollutants.		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.	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.	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.
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	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	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

Table 3 (cont.): Description of Air Pollutants

Air Pollutant	Averaging Time	California Standard	Federal Standard[a]	Most Relevant Effects from Pollutant Exposure	Properties	Sources
				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.	aromatic hydrocarbons and their derivatives. Fifteen polycyclic aromatic hydrocarbons are confirmed carcinogens, a number of which are found in diesel exhaust.	equipment.

Abbreviations:
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: SCAQMD 2007b; OEHHA 2002; ARB 2009b; EPA 2007; EPA 2000; NTP 2005a.
Source of standards: ARB 2010a.
Source of properties and sources: EPA 1999; EPA 2003; EPA 2009b; EPA 2009c; NTP 2005b.

Asbestos

Asbestos is listed as a toxic air contaminant by ARB and as a Hazardous Air Pollutant by the EPA. Asbestos is not of special concern in the project area. 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.

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 imposed limits on idling, buying older off-road diesel vehicles, and selling vehicles beginning in 2008; requires all vehicles to be reported to ARB and labeled in 2009; and then in 2010 begins gradual requirements for fleets to clean up their fleet by getting rid of older engines, using newer engines, and installing exhaust retrofits. The regulation requires equipment to be retrofitted or retired. The regulation takes effect in phases, requiring the largest fleets to comply by 2010, medium fleets by 2013, and smaller fleets by 2015.

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.

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.

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 (SCAQMD 2003). 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 current AQMP for the basin is the 2007 AQMP, which was adopted by the SCAQMD on June 1, 2007 (SCAQMD 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.

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 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.

SECTION 3: CLIMATE CHANGE SETTING

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 constructed several emission trajectories of greenhouse gases needed to stabilize global temperatures and climate change impacts. The Intergovernmental Panel on Climate Change predicted that 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 (IPCC 2007a).

In California, climate change may result in consequences such as the following (from CCCC 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

heat-trapping 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. In forests, climate change can cause an increase in wildfires, an enhanced insect population, and establishment of non-native species.

3.1 - 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, use is made of a metric called the carbon dioxide equivalent. 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 a 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 as defined by AB 32 include the following gases: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Select greenhouse gases are summarized in Table 4.

Table 4: 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, decay of organic matter, and cattle.
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. Because of this, 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.

Greenhouse Gas	Description and Physical Properties	Sources
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: Compiled from a variety of sources, primarily IPCC 2007a and IPCC 2007b.		

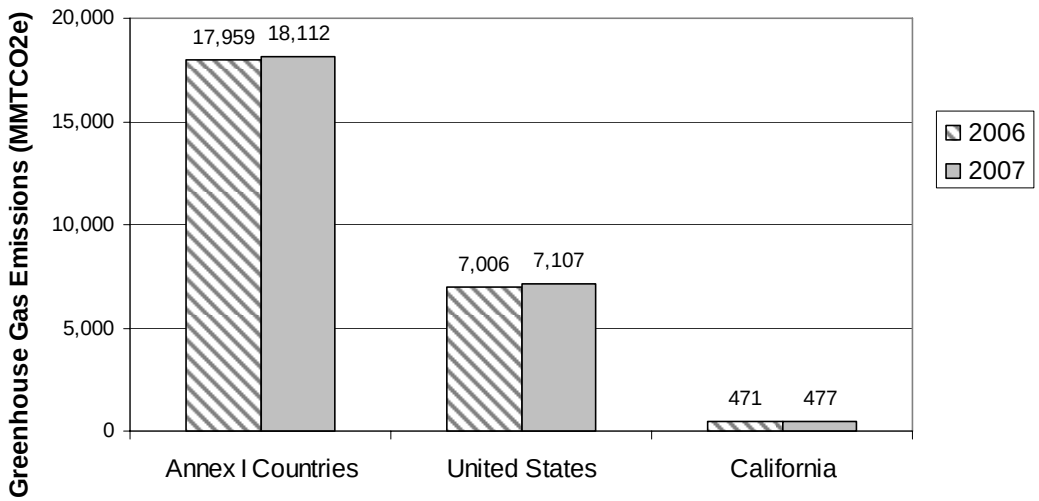
Other greenhouse gases include water vapor, ozone, and aerosols. Water vapor is an important component of our climate system and is not regulated. Ozone and aerosols are short-lived greenhouse gases; global warming potentials for short-lived greenhouse gases are not defined by the IPCC. Aerosols can 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.

There are no adverse health effects from the concentration of greenhouse gases in the atmosphere at the current levels, 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 concentrations, carbon dioxide, methane, sulfur hexafluoride, and some chlorofluorocarbons can cause suffocation as the gases can displace oxygen (NIOSH 2005, OSHA 2003).

Emissions Inventories

Emissions worldwide were approximately 49,000 million metric tons of carbon dioxide equivalents ($MMTCO_2e$) in 2004 (IPCC 2007b). Greenhouse gas emissions in 2006 and 2007 are shown in Figure 1. Annex I parties refer to countries that joined the United Nations Framework Convention on Climate Change. California emissions are approximately 6.7 percent of the emissions in the United States.

Figure 1: Greenhouse Gas Emissions Trends



Data sources: UNFCCC 2007, ARB 2009

3.2 - Regulatory Environment

3.2.1 - 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.

3.2.2 - National

Clean Vehicles. *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 held that petitioners have a standing to challenge the EPA and that the EPA has statutory authority to regulate greenhouse gases emissions from new motor vehicles.

Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light 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 EPA and the National Highway Safety Administration will now begin working on a second-phase joint rulemaking to establish national standards for light-duty vehicles for model years 2017 and beyond.

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.

Greenhouse Gas Endangerment. On December 7, 2009, the EPA Administrator signed two distinct findings regarding greenhouse gases under Section 202(a) of the Clean Air Act: 1) 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. 2) 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.

3.2.3 - California

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 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 (ARB 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 approved the Climate Change Scoping Plan in December 2008 (ARB 2008). The Scoping Plan contains measures designed to reduce the State's emissions to 1990 levels by the year 2020. 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. The measures in the Scoping Plan will be in place by 2012. 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.

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, in December 2009, the California Natural Resources Agency released its 2009 California Climate Adaptation Strategy (CNRA 2009). The Strategy 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.

3.2.4 - Regional

The project is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

South Coast Air Quality Management District

The SCAQMD is currently working on draft greenhouse gas significance thresholds for CEQA documents, which is discussed in more detail below.

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. All reductions will follow approved protocols in the rule. The reductions can be purchased for a variety of uses. Projects funded through this program may also reduce criteria or toxic pollutants that can help local and regional air quality.

3.2.5 - Local

The project is under the jurisdiction of the City of Corona, the City of Norco, the Jurupa Community Services District, County of Riverside Parks Department, and U.S. Army Corps of Engineers.

County of Riverside

The County of Riverside is in the process of preparing a Standard Operating Procedure for greenhouse gases and CEQA compliance. However, the final has not yet been released. Therefore, the procedure is not yet available for use for this project.

City of Corona

The City of Corona does not have a greenhouse gas reduction plan.

City of Norco

The City does not have a greenhouse gas reduction plan.

Jurupa Community Services District

The District does not have a greenhouse gas reduction plan.

SECTION 4: MODELING METHODOLOGY

4.1 - Model Selection

The California Emissions Estimator Model Version 2011.1 (CalEEMod) was released in February 2011. However, the SCAQMD indicated (February 8, 2011, personal communication with Ian McMillan) that URBEMIS could still be used prior to the release of the new version of EMFAC, a major component of both models The following features and functions that are included in CalEEMod, but not in the URBEMIS model are shown in Table 5. Considering the differences between the models, URBEMIS was used due to the complexity of the construction phasing and equipment of the project.

Table 5: Differences Between the URBEMIS and CalEEMod Models

About CalEEMod	Assessment of Model Differences
Calculates indirect criteria pollutant and greenhouse gas emissions from processes "downstream" of the project under evaluation such as greenhouse gas emissions from energy production, solid waste handling, vegetation planting and/or removal, and water conveyance	Included. Any greenhouse gas emissions from downstream processes are also estimated in this analysis.
Calculates the emission reduction benefits from implementing the same greenhouse gas mitigation measures identified and recently adopted by the California Air Pollution Control Officers Association	Not applicable. The greenhouse gas mitigation measures identified in the CalEEMod are not applicable to the project.
Calculates two additional pollutants: methane and nitrous oxides	Included. Other methods to estimate these pollutants are utilized.
Incorporates Pavley standards and Low Carbon Fuel standards into the mobile source emission factors	Not required. Greenhouse gas emissions during operation are below the SCAQMD's proposed significance threshold; therefore, determination of the percent reduction beyond business as usual is not required.
Includes more land use types, such as refrigerated warehouses, golf courses and swimming pools	Not required. The project does not contain these land uses.
Quantifies emissions from parking lots and/or structures as a separate land use type	Not required. Although the project site will have parking lots, this separation of emissions is not required.
Includes the usage of consumer products (i.e., air fresheners, automotive products, household cleaners, and personal care products) at non-residential facilities	Not required. The project would not generate VOC emissions from consumer products.
Updates warehouse trip rates	Not applicable. The project does not contain warehouse uses.
Modifies methods for calculating fugitive dust from grading and site preparation	Not required. The methods in URBEMIS have been used for the past several years without issue. The dust generated by the project will be minimal.
Allows for the user to select different vehicle classes for construction worker, vendor, and hauling trips	Not required. The project would have minimal construction workers.

About CalEEMod	Assessment of Model Differences
Uses ARB's BURDEN model (a component of the EMFAC model) emission factors to provide more accurate characteristics (fleet mix, vehicle miles traveled, etc.) of the affected area	Not required. The project would have minimal vehicle trips.
Uses weighted average trip rates to reflect accurate vehicle activity from a specific land use type	Not required. The project would have minimal vehicle activity.
Source: Information regarding CalEEMod is from the Frequently Asked Questions from the caleemod.com website and the User's Guide (ENVIRON 2011). Project Assessment is from Michael Brandman Associates.	

4.2 - 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 construction equipment, motor vehicle operation, and fugitive dust (mainly PM_{10}) from disturbed soil. Additionally, paving operations would release VOC emissions. Offsite emissions are caused by motor vehicle exhaust from delivery vehicles, worker traffic, and road dust (PM_{10} and $PM_{2.5}$).

Short-term construction traffic would be nominal and primarily include personnel commuting to and from the project site. Note that certain details regarding construction were not available for incorporation into this assessment. The significance of emissions is determined using the maximum daily emissions. Therefore, a worst-case scenario was developed to portray the maximum emissions on any one day during the various construction activities. Trail preparation could involve (depending on the trail location) clearing, grading, base preparation, paving and striping, surfacing of the horse trail, installing drainage structures, fencing, install road reflectors, and signage.

The areas would not need substantial grading; therefore, it is assumed that there would be 10 pounds of PM_{10} per acre per day generated. It is assumed that 1 grader, 1 tractor, and 1 water truck would be used for grading, clearing, trail preparation, and base preparation activities. For paving activities, it is assumed that there would be 1 paving equipment, 1 roller, 1 paver, and 1 cement/mortar mixer. For construction of the Auto Center Drive staging area facilities, it is assumed that 3 welders, 2 forklifts, 1 generator, and 1 tractor would be used.

Table 6 shows the construction schedule and the new trail segments. Existing trail segments that would not need major improvements are not shown.

Table 6: Construction Phase Assumptions

Date	Reach	New Trail Segments					
		Soft Width (feet)	Soft Length (feet)	Soft Area (acres)	Paved Width (feet)	Paved Length (feet)	Paved Area (acres)
Jan. to May 2012	VIII (Bluff St.)	—	—	—	10	11602	2.7
	IX	8	11856	2.2	8	18306	3.4
	IX-X (FPTA)	—	—	—	10	16229	3.7
	X X (DRA)	8	4965	0.9	10 10	22178 5453	5.1 1.3
	XI	8	11601	2.1	10	13254	3.0
	XII	8	2942	0.5	—	—	—
	Subtotal	—	—	*5.7*	—	—	*19.2*
June to Dec. 2012	VI*	10	7928	1.8	10	3141	0.7
	VII	10	3900	0.9	10	3900	0.9
	Subtotal	—	—	*2.7*	—	—	*1.6*
June to July 2013	Auto Center Dr. Staging	—	—	—	—	—	—
July to Dec. 2013	I	10	3697	0.8	12	3597	1.0
	II	10	2592	0.6	12	2592	0.7
	III	10	5537	1.3	12	5677	1.6
	Subtotal	—	—	*2.7*	—	—	*3.3*
Jan. to May 2014	IV	10	10475	2.4	10 12	10326 5926	2.4 1.6
	V*	See Reach VI					
	VIII (knoll)	10	6654	1.5	—	—	—
	Subtotal	—	—	*3.9*	—	—	*4.0*
By Dec. 2020	XI, XII	Area is included within the other phases.					
Total		—	—	**15.0**	—	—	**28.1**

Notes:
* VI and V are listed together
Existing unchanged segments are not listed as there would be no construction impacts
DRA = Deferred Recommended Alignment; FPTA = Future Parallel Trail Alignment
n/a = not applicable; soft = soft surface – compacted dirt with decomposed granite, suitable for equestrian use
Source: _____

To estimate fugitive dust emissions, it is assumed that the project would comply with SCAQMD Rule 403. SCAQMD Rule 403 requires a variety of best available control measures to reduce fugitive dust

emissions. These measures are accounted for in URBEMIS as "mitigation" because URBEMIS categorizes the measures as "mitigation," even though they are technically not mitigation. The best available control measures and the associated measure in URBEMIS are displayed in Table 7. The associated mitigation measures shown in Table 7 are incorporated by reference as standard operating requirements necessary to meet Rule 403.

Table 7: Best Available Control Measures

Best Available Control Measure[1]	Associated Measure in URBEMIS [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 two 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.	Equipment loading/unloading
Landscaping 10-1 Stabilize soils, materials, slopes	Replace ground cover in disturbed areas quickly
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.	Haul road dust watering 2 times per day
Sources: [1] SCAQMD Rule 403; [2] URBEMIS output in Appendix A.	

4.3 - Operation

The main sources of emissions from operation of the project include motor vehicle emissions and landscaping emissions.

Motor Vehicles. Long-term, the project involves development of a trail system for recreational and commuter use, so an incremental increase in traffic near the current and proposed staging areas should be expected; however, these increase are not anticipated to be substantial in relation to the existing traffic load and capacity of the street system. The majority of the existing staging areas are presently used by the public and already generate traffic that would not substantially increase as a result of the trail system. Additionally, the trail system would be accessible via numerous access points in the vicinity of residential areas, allowing the public to access the trail without vehicle trips. Those who choose to drive their vehicles to access the trail system have their choice of ten staging areas and numerous other access points, which would distribute project generated traffic throughout the project area. Moreover, the trail system would serve as an option for commuters on bicycle, horseback, and foot, and thus encouraging a decrease in vehicle trips on local roadways.

There will be one new parking area (Auto Center Drive), 5 existing staging/parking areas, and 3 parking areas to be constructed that have undergone or are in the process of separate CEQA review. The Auto Center Drive parking area would have 28 horse trailer parking and 40 automobile parking. To allocate a small number of additional trips to the other staging areas, the number of parking spaces at the Auto Center Drive is multiplied by four for the maximum number of automobiles and horse trailer vehicles that would visit the project in one day. Therefore, the number of trips would be 224 horse trailers and 320 automobiles/light duty trucks (total of 544). The horse trailers are split evenly between "light truck" and "medium truck." Assuming 43.1 acres of trail area the result would be 12.6 trips per acre. The emissions are estimated by URBEMIS.

Landscaping. There may be a minor amount of landscaping, such as at the Auto Center Drive staging area. These emissions are generated by URBEMIS.

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

5.2.1 - Construction Regional Analysis

Impact AIR-1: **The project would not exceed the regional significance thresholds during construction.**

Thresholds

Regional emissions include those generated from all onsite and offsite activities. The following regional significance thresholds have been established by SCAQMD to protect air resources within the basin as a whole, as project emissions 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 below are considered to have a significant regional air quality impact (SCAQMD 2009b):

- Nitrogen oxides (NO_x) 100 pounds per day
- Volatile organic compounds (VOC) 75 pounds per day
- Particulate matter (PM_{10}) 150 pounds per day
- Particulate matter ($PM_{2.5}$) 55 pounds per day
- Sulfur oxides (SO_x) 150 pounds per day
- Carbon monoxide (CO) 550 pounds per day

Effective April 12, 2010, EPA promulgated a new federal ambient air quality standard for the 1-hour 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 in late 2010; 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. As shown in Table 1, the maximum 1-hour nitrogen dioxide concentration in the Basin is 0.092 ppm. However, the average of the two most recent years of data for the 98th percentile of nitrogen dioxide is 0.065 ppm. The 98th percentile averaged over three years is below the national ambient air quality standard. Therefore, this analysis uses the current SCAQMD thresholds to determine significance for nitrogen dioxide and NOx.

Regional Short Term Construction Emissions

Table 8 summarizes these construction-related emissions (without mitigation). The information shown in Table 8 indicates that the SCAQMD regional emission thresholds would not be exceeded. Therefore, without mitigation, the short-term construction emissions are considered to have a less than significant regional impact.

Table 8: Construction Air Pollutant Emissions

Source	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Trail grading and paving (various phases)	3.8	23.6	14.4	<0.1	4.8	2.2
Auto Center Drive grading	2.6	20.6	11.9	<0.1	9.7	2.7
Auto Center Drive facility installation	4.4	13.5	75.3	0.1	1.5	1.1
Auto Center Drive paving	2.3	11.7	8.9	<0.1	0.9	0.8
Maximum Daily Emissions	3.8	23.6	75.3	0.1	9.7	2.7
Significance Threshold	75	100	550	150	150	55
Significant Impact?	No	No	No	No	No	No

Note:
The maximum daily emissions refer to the maximum emissions that would occur in one day; it was assumed that the grading activities do not occur at the same time as the other construction activities; therefore, their emissions are not summed.
VOC = volatile organic compounds NO_x = nitrogen oxides CO = carbon monoxide
SO_x = sulfur oxides PM_{10} and $PM_{2.5}$ = particulate matter
Source: Appendix A of this report.

Level of Significance Before Mitigation

Less than significant.

5.2.2 - Construction Localized Analysis

Impact AIR-2: The project would not exceed the localized significance thresholds during construction.

The SCAQMD Governing Board adopted a methodology for calculating localized air quality impacts through localized significance thresholds, which is consistent with SCAQMD's Environmental Justice Enhancement Initiative I-4. Localized significance thresholds represent the maximum emissions from a project that would not cause or contribute to an exceedance of the most stringent applicable state or federal ambient air quality standard. Localized significance thresholds were developed in recognition of the fact that criteria pollutants such as CO, NO_x, and PM_{10} and $PM_{2.5}$ in particular, can have local impacts at nearby sensitive receptors as well as regional impacts. The localized significance thresholds are developed for each source receptor area and are applicable to NO_x, CO, PM_{10}, and $PM_{2.5}$.

Thresholds

To facilitate the localized assessment process, the SCAQMD provides a series of look-up tables that contain localized significance thresholds each Source Receptor Area within the basin (SCAQMD 2008). If onsite construction emissions exceed the localized significance thresholds, then the project would be considered to have a significant air quality impact. This methodology applies to projects up

to 5 acres in area. The current look-up tables are estimated by the SCAQMD based on air quality data from the years 2006 through 2008. The localized significance thresholds appropriate to the project area were obtained from the look-up tables in the SCAQMD Final Localized Significance Threshold Methodology in Source Receptor Area 22 or 23 (the lowest threshold within the two areas was selected).

In addition to their dependence on geographic location within the SCAQMD (e.g., the Source Receptor Area), the localized thresholds also depend on the distance to the impacted receptor from the source of emissions. The thresholds for nitrogen dioxide and CO are based on the distance to the nearest worker because those pollutants have an averaging time for 8 hours or less and workers would be onsite for 8 hours. The thresholds for PM_{10} and $PM_{2.5}$ are based on the distance to the nearest sensitive receptor (residence, school, hospital, and other locations where sensitive receptors would reside for 24 hours or more). There are residences located within 25 meters of the proposed new trail. In regard to the Auto Center Drive Staging area, the nearest sensitive receptors are located more than 1,000 feet south. Therefore, two thresholds are used for the construction activities.

The look up tables are based on acreage disturbed per day in a certain location. There would be approximately 15 acres of soft trail and 28.1 acres of paved trail to be constructed. However, the area disturbed is spread out over 24 months. , It is assumed for this analysis that there would be one set of grading equipment that would be used for the entire project; therefore, the project would only disturb a small area each day. The acreage assumed to be disturbed is 2 acres for the trails and 2.75 acres for the parking areas.

The localized significance thresholds are summarized in Table 9.

Table 9: SCAQMD Localized Significance Thresholds

Pollutant	Localized Significance Threshold (pounds per day)	
	Auto Center Drive Staging	Other Trail Locations
Nitrogen dioxide	170	170
Carbon monoxide	883	883
PM_{10}	75	6
$PM_{2.5}$	23	4

Notes: Auto Center Drive Staging is located more than 200 meters from the nearest occupied sensitive receptor and within 25 meters of the nearest worker (applicable to the nitrogen dioxide and carbon monoxide thresholds). The other trail locations could be within 25 meters of the nearest sensitive receptor.
Source: SCAQMD 2009c

Localized Analysis

The localized assessment methodology limits the emissions in the analysis to those generated from onsite activities. The onsite emissions during construction of Auto Center Drive staging area are

compared with the localized significance thresholds are summarized in Table 10. The onsite emissions from construction of the trail segments is shown in Table 11. Note that both grading and paving operations are added together. This is a worst-case scenario, as it is likely that in one particular area, grading would occur and then paving would occur afterwards, so they would not be occurring at the same time. The onsite emissions were generated by URBEMIS, as discussed in the regional analysis. Onsite emissions are from fugitive dust during grading and off-road diesel emissions. As shown in the tables, unmitigated emissions during construction do not exceed the localized significance thresholds.

Table 10: Localized Significance Analysis (Auto Center Drive Staging)

Activity	Onsite Emissions (pounds per day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Grading: Auto Center Drive Staging	20.6	11.1	9.7	2.7
Building: Auto Center Drive Staging	9.8	8.8	0.8	0.7
Paving: Auto Center Drive Staging	10.1	6.8	0.8	0.8
Maximum Daily Emissions	20.6	11.1	9.7	2.7
Localized Significance Threshold	170	883	75	23
Exceed Threshold?	No	No	No	No

Note:
Each of the above activities does not occur at the same time; therefore, the maximum daily emissions represent the maximum emissions that would occur in one day.
Source: URBEMIS output located in Appendix A.

Table 11: Localized Significance Analysis (Trail Construction)

Activity	Onsite Emissions (pounds per day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Grading and trail preparation and paving	22.0	12.1	4.7	2.1
Localized Significance Threshold	170	883	6	4
Exceed Threshold?	No	No	No	No

Note:
Each of the above activities does not occur at the same time; therefore, the maximum daily emissions represent the maximum emissions that would occur in one day.
Source: URBEMIS output located in Appendix A.

5.2.3 - Operational Regional Analysis

Impact AIR-3: The project would not exceed the regional significance thresholds during operation.

Thresholds

Regional emissions include those generated from all onsite and offsite activities and occur once the project commences operations. The following regional significance thresholds have been established by SCAQMD to protect air resources within the basin as a whole, as project emissions 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 below are considered to have a significant regional air quality impact (SCAQMD 2009b):

- Nitrogen oxides (NO_x) 55 pounds per day
- Volatile organic compounds (VOC) 55 pounds per day
- Particulate matter (PM_{10}) 150 pounds per day
- Particulate matter ($PM_{2.5}$) 55 pounds per day
- Sulfur oxides (SO_x) 150 pounds per day
- Carbon monoxide (CO) 550 pounds per day

As of April 12, 2010, there is a new federal standard for 1-hour nitrogen dioxide. The current SCAQMD significance thresholds do not take into account this change. The SCAQMD may update its significance thresholds for NOx and nitrogen dioxide in late 2010; 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. As shown in Table 1, the maximum 1-hour nitrogen dioxide concentration in the Basin is 0.092 ppm. However, the average of the two most recent years of data for the 98th percentile of nitrogen dioxide is 0.065 ppm. The 98th percentile averaged over three years is below the national ambient air quality standard. Therefore, this analysis uses the current SCAQMD thresholds to determine significance for nitrogen dioxide and NOx.

Impact Analysis

Operational emissions from emission sources generated both onsite and offsite as derived from the URBEMIS 2007 model are shown in Table 12 for the summer season. As shown in Table 12, the project's operational emissions do not exceed the SCAQMD's regional thresholds and are considered less than significant. Emissions in the winter season are contained in Appendix A and are also less than the significance thresholds.

Table 12: Operational Emissions

Source	Summer Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Landscaping	0.1	<0.1	1.6	<0.1	<0.1	<0.1
Motor vehicles and horse trailers	2.7	3.1	38.6	0.1	8.5	1.6
Total	2.8	3.1	40.2	0.1	8.5	1.6
Significance Threshold	55	55	550	150	150	55
Significant Impact?	No	No	No	No	No	No

Notes:
VOC = volatile organic compounds NOx = nitrogen oxides CO = carbon monoxide
SOx = sulfur oxides PM10 and $PM_{2.5}$ = particulate matter <0.1 = less than 0.1
Source: Appendix A of this report.

Although there are localized significance thresholds for operations, the project would not result in substantial onsite emissions. There may be some onsite emissions from vehicles traveling in the parking lot in the Auto Center Drive staging area or other lots; however, these emissions would be minor. Onsite localized emissions are less than significant.

Level of Significance before Mitigation

Less than significant.

5.2.4 - Consistency with Air Quality Management Plan

Impact AIR-4:	**The project would not conflict with or obstruct implementation of the applicable air quality plan.**

Impact Analysis

According to the 1993 SCAQMD Handbook, there are two criteria to use to determine if a project would conflict with the AQMP. One criterion is that 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. Therefore, this indicator is not applicable.

The following criteria are used to address the significance of this impact.

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 (SCAQMD 1993, page 12-3). As shown in Impact AIR-5, the project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Control Measures

The next criterion is compliance with the control measures in the 2003 and the 2007 AQMPs. The 2007 AQMP has been adopted by the SCAQMD and ARB, but the EPA has not adopted it. Therefore, the two plans are discussed separately herein.

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 project inhabitants 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. The inhabitants of the project who will use the transportation system may experience less congestion due to the implementation of the Transportation Control Measures.

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

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant.

5.2.5 - Potential for Air Quality Standard Violation

Impact AIR-5:	**The project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.**

Impact Analysis

The localized construction analysis uses thresholds that represent the maximum project emissions that would not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard (SCAQMD 2008). If the project results in emissions that do not exceed the localized significance thresholds, it follows that those emissions would not cause or contribute to a local exceedance of the appropriate ambient air quality standard. The localized construction analysis contained in the discussion of Impact AIR-2 demonstrates that the project would not exceed the localized significance thresholds for CO, nitrogen dioxide, PM_{10}, or $PM_{2.5}$. Therefore, the project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation during construction.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant.

5.2.6 - Cumulative Impacts

Impact AIR-6:	**The project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).**

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-4, 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 below the regional significance thresholds.
2. Plan approach: project consistency with current air quality attainment plans including control measures and regulations.
3. Cumulative health impacts: less than significant cumulative health effects of the nonattainment pollutants.

The SCAQMD 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 are not used.

Criterion 1: Regional Analysis

If an area is in nonattainment for a criteria pollutant, then the background concentration of that pollutant has historically exceeded 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 South Coast Air Basin is in nonattainment for PM_{10}, $PM_{2.5}$, nitrogen dioxide, 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. If the project exceeds the regional threshold for NO_x or VOC, then it follows that the project would contribute to a cumulatively considerable impact for ozone. If the project exceeds the NOx threshold, it could contribute cumulatively to nitrogen dioxide concentrations and particulate matter (PM_{10} and $PM_{2.5}$).

The regional significance analysis of construction and operational emissions demonstrated that emissions are below the SCAQMD regional significance thresholds. Therefore, the project does not contribute to a cumulative impact according to this criterion.

Criterion 2: Plan Approach

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 is 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-4, the project is consistent with the most recent AQMP. Therefore, the project presents a less than 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 (such as the 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 would experience health effects that were described in Table 3. 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.

The regional analysis of construction and operational emissions indicates that the project would not exceed the SCAQMD regional significance thresholds. The project would not result in cumulative health impacts.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant.

5.2.7 - Sensitive Receptors

Impact AIR-7:	**The project would not expose sensitive receptors to substantial pollutant concentrations.**

Impact Analysis

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 (SCAQMD 2008). The thresholds are based on the ambient concentrations of that pollutant for each source receptor area and on the location of the sensitive receptors. If the project results in emissions under those thresholds, it follows that the project would not cause or contribute to an exceedance of the standard. The standards are set to protect the health of sensitive individuals. If the standards are not exceeded at the sensitive receptor locations, it follows that the receptors would not be exposed to substantial pollutant concentrations.

As identified in Impact AIR-2, the localized construction analysis demonstrated that the project would not exceed the localized thresholds for CO, nitrogen dioxide, PM_{10}, or $PM_{2.5}$. Therefore, during construction, the project would not expose sensitive receptors to substantial pollutant concentrations of CO, nitrogen dioxide, PM_{10}, or $PM_{2.5}$.

The construction equipment would emit diesel particulate matter, which is a carcinogen. However, the diesel particulate matter emissions are short-term in nature. Determination of risk from diesel particulate matter is considered over a 70-year exposure time. The construction activities would only remain in a specific location for a short period of time (six months or less). Therefore, considering the dispersion of the emissions and the short time frame, exposure to diesel particulate matter is anticipated to be less than significant.

The trail goes past some industrial and warehouse locations. However, those using the trail would not be remaining in that location for a long time and would just be passing through. Therefore, any sensitive receptors using the trail would not be exposed to substantial pollutant concentrations.

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant.

5.2.8 - Objectionable Odors

Impact AIR-8:	**The project would not create objectionable odors affecting a substantial number of people.**

Impact Analysis

Background Information

Odors can cause a variety of responses. The impact of an odor results from interacting factors such as frequency (how often), intensity (strength), duration (in time), offensiveness (unpleasantness), location, and sensory perception.

Odor is typically a warning system that prevents animals and humans from consuming spoiled food or toxic materials. Odor-related symptoms reported in a number of studies include nervousness, headache, sleeplessness, fatigue, dizziness, nausea, loss of appetite, stomach ache, sinus congestion, eye irritation, nose irritation, runny nose, sore throat, cough, and asthma exacerbation (SCAQMD 2007a).

The SCAQMD's role is to protect the public's health from air pollution by overseeing and enforcing regulations (SCAQMD 2007a). The SCAQMD's resolution activity for odor compliance is mandated under California Health & Safety Code Section 41700, and falls under SCAQMD Rule 402. This rule on Public Nuisance Regulation states: "A person shall not discharge 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. The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals."

The SCAQMD indicates that the number of overall complaints has declined over the last five years. Over the last four years, odor complaints make up 50 to 55 percent of the total nuisance complaints. Over the past decade, odors from paint and coating operations have decreased from 27 to 7 percent and odors from refuse collection stations have increased from 9 to 34 percent (SCAQMD 2007a).

Project Analysis

The SCAQMD recommends that odor impacts be addressed in a qualitative manner. Such an analysis shall determine whether the project would result in excessive nuisance odors, as defined under the California Code of Regulations and Section 41700 of the California Health and Safety Code, and thus would constitute a public nuisance related to air quality.

Land uses typically considered associated with odors include wastewater treatment facilities, waste-disposal facilities, or agricultural operations. The project does not contain land uses typically

associated with emitting objectionable odors. Horses may use the trail. Horse manure can be odorous. The quantity of manure anticipated on the trail would not be substantial and would quickly dry out in the arid conditions that exist in Riverside County. Nevertheless, to ensure that odors from horse manure do not negatively impact the nearby sensitive receptors, mitigation is recommended.

Diesel exhaust and VOCs would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not reach an objectionable level at the nearest sensitive receptors.

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

MM AIR-1 The trail shall be maintained at least once a month to remove any horse manure that may be on the trail.

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

6.2.1 - 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.**

Threshold of Significance

The SCAQMD is in the process of developing thresholds of significance for greenhouse gases (SCAQMD 2010b). The threshold is in a series of tiers:

- Tier 1: Applicable CEQA Exemptions
- Tier 2: Consistent with greenhouse gas reduction plan
- Tier 3: Screening Values:
    - Industrial: 10,000 metric tons of carbon dioxide equivalents ($MTCO_2e$) per year
    - Residential: 3500 $MTCO_2e$ per year
    - Commercial: 1400 $MTCO_2e$ per year
    - Mixed use: 3000 $MTCO_2e$ per year
- Tier 4: Performance Standards
    - Option 1: Percent Emission Reduction Target
    - Option 2: Early Implementation of Applicable AB 32 Scoping Plan Measures
    - Option 3: Efficiency Target
- Tier 5: Mitigation Offsets

The project does not meet tier 1 or 2, since the project is not exempt from CEQA and there is no applicable greenhouse gas reduction plan. Therefore, tier 3 is used. The project does not directly fit into one of the categories, as the project is considered a recreational land use. Therefore, the lowest threshold of 1400 $MTCO_2e$ is used for this project. The SCAQMD recommends adding the construction emissions (averaged over 30 years) to the operational emissions to derive total project emissions and comparing the threshold to the total.

Greenhouse Gases Considered

This analysis is restricted to greenhouse gases identified by AB 32, 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 such as carbon dioxide, methane, and nitrous oxide.

The project may also emit greenhouse gases that are not defined by AB 32. For example, the project may generate aerosols. Aerosols are short-lived particles, as they remain in the atmosphere for about one week. Black carbon is a component of aerosol. 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 (IPCC 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.

An inventory of greenhouse gas emissions generated by the project is presented below. The emissions are converted to metric tons of carbon equivalents ($MTCO_2e$) using the formula:

$$MTCO_2e = (\text{tons of gas}) \times (\text{global warming potential}) \times (0.9072 \text{ metric tons of gas})$$

Construction

The project would emit greenhouse gases from upstream emission sources and direct sources (combustion of fuels from worker vehicles and construction equipment).

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 the paving and granite materials, and the materials to

construct the facilities at the Auto Center Drive location. 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" (CAPCOA 2008). Therefore, pursuant to CEQA Guidelines Sections 15144 and 15145, upstream /life cycle emissions are speculative and no further discussion is necessary.

Carbon dioxide emissions from construction were estimated using URBEMIS 2007. URBEMIS does not estimate methane or nitrous oxide emissions. Methane and nitrous oxide emissions associated with construction emissions were determined by scaling the construction carbon dioxide emissions estimated by URBEMIS by the ratio of emissions expected per gallon of diesel fuel. There is 10.15 kilograms of carbon dioxide, 0.58 grams of methane, and 0.26 grams of nitrous oxide per gallon of diesel fuel used (CCAR 2009). Therefore, the ratios of methane and nitrous oxide to carbon dioxide per gallon of diesel fuel are 0.00006 and 0.00003, respectively. Carbon dioxide emissions were multiplied by these ratios to estimate methane and nitrous oxide emissions. These emissions were then converted to $MTCO_2e$ using the global warming potentials of each gas.

Greenhouse gas emissions from project construction equipment and worker vehicles are shown in Table 13. The emissions are from all phases of construction.

Table 13: Construction Greenhouse Gas Emissions

Dates	Phase	Carbon Dioxide (tons)	Methane (tons)	Nitrous Oxide (tons)	Total ($MTCO_2e$)
Jan. – May 2012	Paving – trail	67	0.04	0.002	62
	Grading – trail	77	0.05	0.002	71
June – Dec. 2012	Paving – trail	80	0.05	0.002	74
	Grading – trail	106	0.06	0.003	98
June 2013	Grading – auto	6	0.00	<0.001	6
	Building – auto	55	0.03	0.002	51
	Paving – auto	4	<0.01	<0.001	4
July – Dec. 2013	Paving – trail	65	0.04	0.002	60
	Grading – trail	91	0.05	0.003	84
Jan. – May 2014	Paving – trail	55	0.03	0.002	51
	Grading – trail	75	0.05	0.002	70
Total		**681**	**0.40**	**0.020**	**631**
Average over 30 years		**--**	**--**	**--**	**21**

Dates	Phase	Carbon Dioxide (tons)	Methane (tons)	Nitrous Oxide (tons)	Total ($MTCO_2e$)
Notes: "trail" refers to the trail construction; "auto" refers to the Auto Center Drive staging area. $MTCO_2e$ = metric tons of carbon dioxide equivalent, converted from tons by multiplying by 0.9072 and the pollutant's global warming potential. Source of carbon dioxide emissions: URBEMIS 2007 output in Appendix A.					

Operation

Operational or long-term emissions occur over the life of the project.

Motor vehicles. Motor vehicle emissions refer to greenhouse gas emissions contained in the exhaust from the cars and trucks that would travel to and from the project site. Carbon dioxide emissions were estimated using URBEMIS as discussed above. Methane and nitrous oxide emissions were estimated using emission factors as discussed in Appendix A. The emissions presented in the business as usual scenario do not take into account reductions from regulations passed pursuant to AB 32. Therefore, the greenhouse gas emissions from motor vehicles remain the same over time.

Indirect Electricity. Indirect electricity refers to the emissions generated by offsite power plants to supply the electricity required for the project. Electricity may be used for lighting in the Auto Center Drive staging area. Electricity usage was converted to greenhouse gas emissions using emission factors as shown in Appendix A.

Water Transport. There would be greenhouse gas emissions generated from the electricity required to transport and treat the water to be used on the project site. There would be a small amount of water used.

Emissions. The operational emissions for the project are shown in Table 14. As shown in the table, the emissions are under the SCAQMD draft significance threshold. Therefore, emissions are less than significant.

Table 14: Project Greenhouse Gases

Source	Emissions ($MTCO_2e$ per year)
Motor vehicles	864
Landscaping	1
Electricity	7
Water transport	1
Waste	NG
Subtotal: Operational	872
Construction (averaged over 30 years)	21
Total	**893**
SCAQMD Draft Threshold	1,400

Source	Emissions ($MTCO_2e$ per year)
Significant Impact?	No
$MTCO_2e$ = metric tons of carbon dioxide equivalents (includes carbon dioxide, methane, and nitrous oxide). NG = negligible. Source: Appendix A.	

Level of Significance Before Mitigation

Less than significant.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant.

6.2.2 - 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

The project area does not have an applicable greenhouse gas reduction plan. Therefore, consistency with the AB 32 Scoping Plan is assessed.

Scoping Plan

Emission reductions in California alone would not be able to stabilize the concentration of greenhouse gases in the earth's atmosphere. However, California's actions set an example and drive progress towards a reduction in greenhouse gases elsewhere. If other states and countries were to follow California's emission reduction targets, this could avoid medium or higher ranges of global temperature increases. Thus, severe consequences of climate change could also be avoided.

The ARB Board approved a Climate Change Scoping Plan in December 2008. The Scoping Plan outlines the State's strategy to achieve the 2020 greenhouse gas emissions limit. The Scoping Plan "proposes a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (ARB 2008). The measures in the Scoping Plan will be developed over the next two years and be in place by 2012.

This Scoping Plan calls for an "ambitious but achievable" reduction in California's greenhouse gas emissions, cutting approximately 30 percent from business-as-usual emission levels projected for 2020, or about 10 percent from today's levels. On a per-capita basis, that means reducing annual emissions of 14 tons of carbon dioxide for every man, woman and child in California down to about 10 tons per person by 2020.

Project consistency with applicable strategies in the Plan is assessed in Table 15. The strategies that are not applicable to the project are shown in Table 16. As shown, the project is consistent with the applicable strategies after implementation of mitigation measures.

Table 15: Consistency with Applicable Scoping Plan Reduction Measures

Scoping Plan Reduction Measure	Project Consistency
15. Recycling and Waste. Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.	Consistent. Mitigation measure GHG-2 requires waste reduction.
17. Water. Continue efficiency programs and use cleaner energy sources to move and treat water.	Consistent. Mitigation measure GHG-1 requires water conservation.
Source of ARB Scoping Plan Reduction Measure: ARB 2008. Source of Project Consistency or Applicability: Michael Brandman Associates.	

Table 16: 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.	Not applicable. 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.	Not applicable. 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.	Not applicable. The project would not use a substantial amount of energy; therefore, it is not cost effective to increase the energy efficiency of the project.

Scoping Plan Reduction Measure	Reason Why Not Applicable
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.	Not applicable. This measure is directed towards electricity companies.
5. Low Carbon Fuel Standard. Develop and adopt the Low Carbon Fuel Standard.	Not applicable. 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.
6. Regional Transportation-Related Greenhouse Gas Targets. Develop regional greenhouse gas emissions reduction targets for passenger vehicles. This measure refers to SB 375.	Not applicable.
7. Vehicle Efficiency Measures. Implement light-duty vehicle efficiency measures.	Not applicable. 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.	Not applicable. The proposed 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.	Not applicable. The project would not use a substantial amount of energy. In addition, the only location that may be feasible for a solar panel is on the restroom in the Auto Center Drive staging area; however, expensive solar panels located in a public, unguarded place would be susceptible to theft.
10. Medium/Heavy-Duty Vehicles. Adopt medium and heavy-duty vehicle efficiency measures.	Not applicable. 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.	Not applicable. The proposed project is not an industrial use.
12. High Speed Rail. Support implementation of a high-speed rail system.	Not applicable. This is a statewide measure that cannot be implemented by a project applicant or lead agency.

Scoping Plan Reduction Measure	Reason Why Not Applicable
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.	Not applicable. The project would not use a substantial amount of energy; therefore, it is not cost effective to increase the energy efficiency of the project.
14. High Global Warming Potential Gases. Adopt measures to reduce high global warming potential gases.	Not applicable. 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).
16. Sustainable Forests. Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.	Not applicable. The project site is in an urban, built-up condition. No forested lands exist onsite.
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.	Not applicable. 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: ARB 2008. Source of Project Consistency or Applicability: Michael Brandman Associates	

Level of Significance Before Mitigation

Potentially significant.

Mitigation Measures

MM GHG-1 To conserve water, the following measures shall be implemented to the satisfaction of the City of Corona:

- If a recycled or reclaimed water pipeline is available within one-fourth of a mile radius from the project site, recycled or reclaimed water shall be used to irrigate the Auto Center Drive staging area (if irrigation is to be required).
- Low flow toilets shall be used if installed as part of the project. The toilets shall not be automatic.
- Automatic sinks shall be installed if installed as part of the project, so that if someone were to leave the sink on accidentally, water would not be wasted.
- Any landscaping installed as part of the project shall be drought-tolerant (with the exception of any turf installed in the Auto Center Drive Staging Area).

MM GHG-2 To reduce solid waste generated by the project, the following measures shall be implemented:

- Recycle and/or salvage at least 50 percent of non-hazardous construction debris. Calculations can be done by weight or volume, but must be consistent throughout.
- Any waste receptacles installed as part of the project shall have an adjacent recycling receptacle installed as well.

Level of Significance After Mitigation

Less than significant.

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Appendix A:
URBEMIS Output and Spreadsheets

2/16/2011 11:05:39 AM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\MBA\Client\34800002 Santa Ana River Trail\SART.urb924

Project Name: Santa Ana River Trail

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/2/2012-5/31/2012 Active Days: 109	3.84	23.64	14.34	0.00	3.17	1.63	4.80	0.66	1.49	2.16	2,627.57
Asphalt 01/02/2012-05/31/2012	2.30	11.82	7.52	0.00	0.01	0.97	0.98	0.01	0.89	0.90	1,221.19
Paving Off-Gas	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.69	10.19	6.00	0.00	0.00	0.90	0.90	0.00	0.83	0.83	828.85
Paving On Road Diesel	0.13	1.58	0.61	0.00	0.01	0.06	0.07	0.00	0.06	0.06	268.00
Paving Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.35
Fine Grading 01/02/2012-05/31/2012	1.54	11.82	6.82	0.00	3.16	0.66	3.81	0.66	0.60	1.26	1,406.38
Fine Grading Dust	0.00	0.00	0.00	0.00	3.15	0.00	3.15	0.66	0.00	0.66	0.00
Fine Grading Off Road Diesel	1.52	11.78	6.14	0.00	0.00	0.65	0.65	0.00	0.60	0.60	1,313.12
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.04	0.68	0.00	0.00	0.00	0.01	0.00	0.00	0.00	93.26

Time Slice 6/1/2012-12/28/2012 Active Days: 151	3.44	23.07	14.35	0.00	1.59	1.64	3.23	0.33	1.51	1.84	2,461.64
Asphalt 06/01/2012-12/28/2012	1.90	11.24	7.53	0.00	0.01	0.98	0.99	0.00	0.90	0.91	1,055.26
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.83	11.10	6.59	0.00	0.00	0.98	0.98	0.00	0.90	0.90	914.79
Paving On Road Diesel	0.01	0.09	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.12
Paving Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.35
Fine Grading 06/01/2012-12/28/2012	1.54	11.82	6.82	0.00	1.58	0.66	2.24	0.33	0.60	0.94	1,406.38
Fine Grading Dust	0.00	0.00	0.00	0.00	1.58	0.00	1.58	0.33	0.00	0.33	0.00
Fine Grading Off Road Diesel	1.52	11.78	6.14	0.00	0.00	0.65	0.65	0.00	0.60	0.60	1,313.12
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.04	0.68	0.00	0.00	0.00	0.01	0.00	0.00	0.00	93.26
Time Slice 6/3/2013-6/7/2013 Active Days: 5	2.58	20.61	11.94	0.00	8.67	0.99	9.66	1.81	0.91	2.72	2,371.65
Fine Grading 06/03/2013-06/07/2013	2.58	20.61	11.94	0.00	8.67	0.99	9.66	1.81	0.91	2.72	2,371.65
Fine Grading Dust	0.00	0.00	0.00	0.00	8.67	0.00	8.67	1.81	0.00	1.81	0.00
Fine Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.33
Time Slice 6/10/2013-6/21/2013 Active Days: 10	**4.40**	13.51	**75.28**	**0.10**	0.46	1.05	1.52	0.17	0.95	1.11	**10,903.11**
Building 06/10/2013-06/21/2013	4.40	13.51	75.28	0.10	0.46	1.05	1.52	0.17	0.95	1.11	10,903.11
Building Off Road Diesel	2.43	9.78	8.76	0.00	0.00	0.79	0.79	0.00	0.72	0.72	1,099.30
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	1.97	3.73	66.51	0.10	0.46	0.27	0.73	0.17	0.23	0.39	9,803.81

Time Slice 6/24/2013-6/28/2013 Active Days: 5	2.31	11.74	8.88	0.01	0.02	0.90	0.92	0.01	0.83	0.84	1,501.09
Asphalt 06/24/2013-06/28/2013	2.31	11.74	8.88	0.01	0.02	0.90	0.92	0.01	0.83	0.84	1,501.09
Paving Off-Gas	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.61	10.07	6.79	0.00	0.00	0.83	0.83	0.00	0.77	0.77	979.23
Paving On Road Diesel	0.13	1.58	0.61	0.00	0.01	0.06	0.07	0.00	0.06	0.06	304.29
Paving Worker Trips	0.04	0.08	1.48	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.58
Time Slice 7/1/2013-12/27/2013 Active Days: 130	3.11	20.88	13.64	0.00	3.16	1.44	4.61	0.66	1.33	1.99	2,410.91
Asphalt 07/01/2013-12/27/2013	1.69	9.91	6.92	0.00	0.01	0.84	0.85	0.00	0.78	0.78	1,004.54
Paving Off-Gas	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.58	9.66	6.00	0.00	0.00	0.83	0.83	0.00	0.77	0.77	841.59
Paving On Road Diesel	0.02	0.20	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	38.62
Paving Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.33
Fine Grading 07/01/2013-12/27/2013	1.43	10.97	6.72	0.00	3.16	0.60	3.76	0.66	0.55	1.21	1,406.37
Fine Grading Dust	0.00	0.00	0.00	0.00	3.15	0.00	3.15	0.66	0.00	0.66	0.00
Fine Grading Off Road Diesel	1.41	10.93	6.09	0.00	0.00	0.60	0.60	0.00	0.55	0.55	1,313.12
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.04	0.63	0.00	0.00	0.00	0.01	0.00	0.00	0.00	93.25

Time Slice 1/2/2014-5/30/2014 Active Days: 107	2.98	19.57	13.46	0.00	3.16	1.32	4.49	0.66	1.22	1.88	2,429.14
Asphalt 01/02/2014-05/30/2014	1.64	9.48	6.84	0.00	0.01	0.80	0.80	0.00	0.73	0.73	1,022.78
Paving Off-Gas	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	1.49	9.18	5.95	0.00	0.00	0.78	0.78	0.00	0.72	0.72	841.59
Paving On Road Diesel	0.02	0.26	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	56.88
Paving Worker Trips	0.02	0.04	0.79	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.32
Fine Grading 01/02/2014-05/30/2014	1.35	10.09	6.62	0.00	3.16	0.53	3.68	0.66	0.48	1.14	1,406.36
Fine Grading Dust	0.00	0.00	0.00	0.00	3.15	0.00	3.15	0.66	0.00	0.66	0.00
Fine Grading Off Road Diesel	1.33	10.06	6.03	0.00	0.00	0.52	0.52	0.00	0.48	0.48	1,313.12
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.03	0.59	0.00	0.00	0.00	0.01	0.00	0.00	0.00	93.24

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 1/2/2012 - 5/31/2012 - Reach VIII, IX, X, XI, XII

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

PM10: 5% PM25: 5%

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

PM10: 55% PM25: 55%

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

PM10: 69% PM25: 69%

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

PM10: 44% PM25: 44%

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

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Fine Grading 6/1/2012 - 12/28/2012 - Reach VI, VII

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

PM10: 5% PM25: 5%

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

PM10: 55% PM25: 55%

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

PM10: 69% PM25: 69%

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

PM10: 44% PM25: 44%

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

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Fine Grading 6/3/2013 - 6/7/2013 - Auto Center Dr. Staging

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

PM10: 5% PM25: 5%

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

PM10: 55% PM25: 55%

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

PM10: 69% PM25: 69%

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

PM10: 44% PM25: 44%

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

PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Fine Grading 1/2/2014 - 5/30/2014 - Reach IV, V, VIII

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

PM10: 5% PM25: 5%

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

PM10: 55% PM25: 55%

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

PM10: 69% PM25: 69%

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

PM10: 44% PM25: 44%

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

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PM10: 55% PM25: 55%

The following mitigation measures apply to Phase: Fine Grading 7/1/2013 - 12/27/2013 - Reach I, II, III

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

PM10: 5% PM25: 5%

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

PM10: 55% PM25: 55%

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

PM10: 69% PM25: 69%

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

PM10: 44% PM25: 44%

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

PM10: 55% PM25: 55%

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas							
Hearth							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products							
Architectural Coatings	0.00						
TOTALS (lbs/day, unmitigated)	0.12	0.02	1.55	0.00	0.01	0.01	2.81

Area Source Changes to Defaults

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
City park	2.68	3.05	38.56	0.05	8.48	1.62	5,332.21
TOTALS (lbs/day, unmitigated)	2.68	3.05	38.56	0.05	8.48	1.62	5,332.21

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2013 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
City park		12.60	acres	43.10	543.06	4,932.34
					543.06	4,932.34

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	29.5	0.4	99.4	0.2
Light Truck < 3750 lbs	29.5	1.4	95.9	2.7
Light Truck 3751-5750 lbs	20.5	0.4	99.6	0.0
Med Truck 5751-8500 lbs	20.5	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	53.6	46.4	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: C:\MBA\Client\34800002 Santa Ana River Trail\SART.urb924

Project Name: Santa Ana River Trail

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas							
Hearth							
Landscaping - No Winter Emissions							
Consumer Products							
Architectural Coatings	0.00						
TOTALS (lbs/day, unmitigated)	0.00						

Area Source Changes to Defaults

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
City park	2.93	3.81	36.00	0.05	8.48	1.62	4,772.49
TOTALS (lbs/day, unmitigated)	2.93	3.81	36.00	0.05	8.48	1.62	4,772.49

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2013 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
City park		12.60	acres	43.10	543.06	4,932.34
					543.06	4,932.34

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	29.5	0.4	99.4	0.2
Light Truck < 3750 lbs	29.5	1.4	95.9	2.7
Light Truck 3751-5750 lbs	20.5	0.4	99.6	0.0
Med Truck 5751-8500 lbs	20.5	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	53.6	46.4	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\MBA\Client\34800002 Santa Ana River Trail\SART.urb924

Project Name: Santa Ana River Trail

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

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

2012	0.47	3.03	1.87	0.00	1.85	0.21	2.06	0.39	0.20	0.58	329.06
Asphalt 01/02/2012-05/31/2012	0.13	0.64	0.41	0.00	0.00	0.05	0.05	0.00	0.05	0.05	66.55
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.09	0.56	0.33	0.00	0.00	0.05	0.05	0.00	0.05	0.05	45.17
Paving On Road Diesel	0.01	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.61
Paving Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.78
Fine Grading 01/02/2012-05/31/2012	0.08	0.64	0.37	0.00	1.09	0.04	1.13	0.23	0.03	0.26	76.65
Fine Grading Dust	0.00	0.00	0.00	0.00	1.09	0.00	1.09	0.23	0.00	0.23	0.00
Fine Grading Off Road Diesel	0.08	0.64	0.33	0.00	0.00	0.04	0.04	0.00	0.03	0.03	71.57
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.08
Asphalt 06/01/2012-12/28/2012	0.14	0.85	0.57	0.00	0.00	0.07	0.07	0.00	0.07	0.07	79.67
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.14	0.84	0.50	0.00	0.00	0.07	0.07	0.00	0.07	0.07	69.07
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22
Paving Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.39
Fine Grading 06/01/2012-12/28/2012	0.12	0.89	0.52	0.00	0.76	0.05	0.80	0.16	0.05	0.20	106.18
Fine Grading Dust	0.00	0.00	0.00	0.00	0.76	0.00	0.76	0.16	0.00	0.16	0.00
Fine Grading Off Road Diesel	0.11	0.89	0.46	0.00	0.00	0.05	0.05	0.00	0.05	0.05	99.14
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.04
2013	0.24	1.51	1.32	0.00	1.44	0.10	1.54	0.30	0.10	0.40	220.91

Fine Grading 06/03/2013-06/07/2013	0.01	0.05	0.03	0.00	0.14	0.00	0.14	0.03	0.00	0.03	5.93
Fine Grading Dust	0.00	0.00	0.00	0.00	0.14	0.00	0.14	0.03	0.00	0.03	0.00
Fine Grading Off Road Diesel	0.01	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.62
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31
Building 06/10/2013-06/21/2013	0.02	0.07	0.38	0.00	0.00	0.01	0.01	0.00	0.00	0.01	54.52
Building Off Road Diesel	0.01	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.50
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.01	0.02	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.02
Asphalt 06/24/2013-06/28/2013	0.01	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.75
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.45
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76
Paving Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54
Asphalt 07/01/2013-12/27/2013	0.11	0.64	0.45	0.00	0.00	0.05	0.06	0.00	0.05	0.05	65.29
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.10	0.63	0.39	0.00	0.00	0.05	0.05	0.00	0.05	0.05	54.70
Paving On Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.51
Paving Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.08

Fine Grading 07/01/2013-12/27/2013	0.09	0.71	0.44	0.00	1.30	0.04	1.34	0.27	0.04	0.31	91.41
Fine Grading Dust	0.00	0.00	0.00	0.00	1.30	0.00	1.30	0.27	0.00	0.27	0.00
Fine Grading Off Road Diesel	0.09	0.71	0.40	0.00	0.00	0.04	0.04	0.00	0.04	0.04	85.35
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.06
2014	0.16	1.05	0.72	0.00	1.07	0.07	1.14	0.22	0.07	0.29	129.96
Asphalt 01/02/2014-05/30/2014	0.09	0.51	0.37	0.00	0.00	0.04	0.04	0.00	0.04	0.04	54.72
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.08	0.49	0.32	0.00	0.00	0.04	0.04	0.00	0.04	0.04	45.02
Paving On Road Diesel	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.04
Paving Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.65
Fine Grading 01/02/2014-05/30/2014	0.07	0.54	0.35	0.00	1.07	0.03	1.10	0.22	0.03	0.25	75.24
Fine Grading Dust	0.00	0.00	0.00	0.00	1.07	0.00	1.07	0.22	0.00	0.22	0.00
Fine Grading Off Road Diesel	0.07	0.54	0.32	0.00	0.00	0.03	0.03	0.00	0.03	0.03	70.25
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.99

Phase Assumptions

Phase: Fine Grading 1/2/2012 - 5/31/2012 - Reach VIII, IX, X, XI, XII

Total Acres Disturbed: 25

Maximum Daily Acreage Disturbed: 2

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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

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

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

Phase: Fine Grading 6/1/2012 - 12/28/2012 - Reach VI, VII

Total Acres Disturbed: 5

Maximum Daily Acreage Disturbed: 1

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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

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

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

Phase: Fine Grading 6/3/2013 - 6/7/2013 - Auto Center Dr. Staging

Total Acres Disturbed: 2.75

Maximum Daily Acreage Disturbed: 2.75

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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

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

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

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

Phase: Fine Grading 1/2/2014 - 5/30/2014 - Reach IV, V, VIII

Total Acres Disturbed: 7.9

Maximum Daily Acreage Disturbed: 2

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Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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

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

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

Phase: Fine Grading 7/1/2013 - 12/27/2013 - Reach I, II, III

Total Acres Disturbed: 6

Maximum Daily Acreage Disturbed: 2

Fugitive Dust Level of Detail: Default

10 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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

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

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

Phase: Paving 1/2/2012 - 5/31/2012 - Reach VIII, IX, X, XI, XII

Acres to be Paved: 19.2

Off-Road Equipment:

1 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 0 hours per day

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

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

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

Phase: Paving 6/1/2012 - 12/28/2012 - Reach VI, VII

Acres to be Paved: 1.6

Off-Road Equipment:

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

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

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

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

Phase: Paving 6/24/2013 - 6/28/2013 - Auto Center Dr. Staging

Acres to be Paved: 1

Off-Road Equipment:

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

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

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

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

Phase: Paving 7/1/2013 - 12/27/2013 - Reach I, II, III

Acres to be Paved: 3.3

Off-Road Equipment:

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

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

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

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

Phase: Paving 1/2/2014 - 5/30/2014 - Reach IV, V, VIII

Acres to be Paved: 4

Off-Road Equipment:

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

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

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

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

Phase: Building Construction 6/10/2013 - 6/21/2013 - Construct facilities at Auto Center Dr. Staging

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Off-Road Equipment:

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

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

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

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

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas							
Hearth							
Landscape	0.02	0.00	0.28	0.00	0.00	0.00	0.51
Consumer Products							
Architectural Coatings	0.00						
TOTALS (tons/year, unmitigated)	0.02	0.00	0.28	0.00	0.00	0.00	0.51

Area Source Changes to Defaults

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
City park	0.50	0.60	6.88	0.01	1.55	0.30	939.08
TOTALS (tons/year, unmitigated)	0.50	0.60	6.88	0.01	1.55	0.30	939.08

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Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2013 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
City park		12.60	acres	43.10	543.06	4,932.34
					543.06	4,932.34

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	29.5	0.4	99.4	0.2
Light Truck < 3750 lbs	29.5	1.4	95.9	2.7
Light Truck 3751-5750 lbs	20.5	0.4	99.6	0.0
Med Truck 5751-8500 lbs	20.5	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	53.6	46.4	0.0
School Bus	0.0	0.0	0.0	100.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Motor Home	0.0	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
City park				5.0	2.5	92.5

Operational Changes to Defaults

Summary of Operational Greenhouse Gases

Project: Santa Ana River Trail
Prepared by: Michael Brandman Associates
Prepared on: 16-Feb-11
Year of analysis: 2013

	Emissions (tons per year)				
Source	**Carbon Dioxide**	**Nitrous Oxide**	**Methane**	**Other**	**Metric Tons CO2e**
Motor vehicles	939	0.04	0.07		864
Landscaping	1	0.00	0.00		1
Indirect electricity	7	0.00	0.00	0.00	7
Water transport	1	0.00	0.00		1
Total	948	0.04	0.07	0.00	872
Total	860	0.03	0.07	0.00	metric tons per year
GWP	1	310	21	varies	
Total	860	11	1	0	MTCO2E per year
Total	0.0009	0.0000	0.0000	0.0000	MMTCO2E per year

Total - all gases 872 MTCO2e per year
0.0009 MMTCO2e per year

Notes:

Emissions converted from tons per year to metric tons of carbon dioxide equivalents (MTCO2e) per year by using the formula: (tons of gas) x (global warming potential) x (0.9072 metric tons)

Emissions converted to million metric tons of carbon dioxide equivalents (MMTCO2E) using the formula: MMTCO2e = (metric tons of gas) / (1,000,000).

Mobile Emissions - Methane
Santa Ana River Trail 16-Feb-11
Prepared by Michael Brandman Associates **Vehicle Miles Traveled** 4,932
Vehicle Trips 543

	Pounds/day	Tons/day	Tons/year
Starting Emissions	0.05	0.0000	0.01
Running Emissions	0.36	0.0002	0.07
Total	0.41	0.0002	0.07

Vehicle Percentages

Vehicle Type	Percent	Non-Catalyst	Catalyst	Diesel
Light Auto	29.5	0.6	99.2	0.2
Light Truck < 3,750 lbs	29.5	1.4	95.9	2.7
Light Truck 3,751- 5,750	20.5	0.4	99.6	0.0
Med Truck 5,751- 8,500	20.5	0.9	99.1	0.0
Lite-Heavy 8,501-10,000	0.0	0.0	81.2	18.8
Lite-Heavy 10,001-14,000	0.0	0.0	60.0	40.0
Med-Heavy 14,001-33,000	0.0	0.0	22.2	77.8
Heavy-Heavy 33,001-60,000	0.0	0.0	0.0	100.0
Line Haul > 60,000 lbs	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	60.7	39.3	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	88.9	11.1

Running Emission Factors (g/mile)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.3250	0.0250	0.0080
Light Truck < 3,750 lbs	LDT1	0.3310	0.0330	0.0040
Light Truck 3,751- 5,750	LDT2	0.3300	0.0300	0.0060
Med Truck 5,751- 8,500	MDV	0.3910	0.0370	0.0030
Lite-Heavy 8,501-10,000	LHDT1	0.2500	0.0280	0.0070
Lite-Heavy 10,001-14,000	LHDT2	0.2500	0.0330	0.0100
Med-Heavy 14,001-33,000	MHDT	0.3210	0.0720	0.0100
Heavy-Heavy 33,001-60,000	HHDT	0.7950	0.2250	0.0480
Line Haul > 60,000 lbs	LHV	0.7950	0.2250	0.0480
Urban Bus	UB	0.3680	0.0920	0.0280
Motorcycle	MCY	0.2230	0.1620	0.0000
School Bus	SBUS	0.3210	0.1260	0.0130
Motor Home	MH	0.3210	0.0560	0.0050

Running Emissions (pounds per day)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.01	0.08	0.00
Light Truck < 3,750 lbs	0.01	0.10	0.00
Light Truck 3,751- 5,750	0.00	0.07	0.00
Med Truck 5,751- 8,500	0.01	0.08	0.00
Lite-Heavy 8,501-10,000	0.00	0.00	0.00
Lite-Heavy 10,001-14,000	0.00	0.00	0.00
Med-Heavy 14,001-33,000	0.00	0.00	0.00
Heavy-Heavy 33,001-60,000	0.00	0.00	0.00
Line Haul > 60,000 lbs	0.00	0.00	0.00
Urban Bus	0.00	0.00	0.00
Motorcycle	0.00	0.00	0.00
School Bus	0.00	0.00	0.00
Motor Home	0.00	0.00	0.00
Total	0.03	0.33	0.00

Santa Ana River Trail
Prepared by Michael Brandman Associates

Total Trips 543

Starting Emission Factors (g/start)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.384	0.032	0
Light Truck < 3,750 lbs	LDT1	0.381	0.038	0.000
Light Truck 3,751- 5,750	LDT2	0.377	0.034	0.000
Med Truck 5,751- 8,500	MDV	0.463	0.044	0.000
Lite-Heavy 8,501-10,000	LHDT1	0.615	0.106	0.000
Lite-Heavy 10,001-14,000	LHDT2	0.615	0.123	0.000
Med-Heavy 14,001-33,000	MHDT	0.923	0.277	0.000
Heavy-Heavy 33,001-60,000	HHDT	1.756	0.829	0.000
Line Haul > 60,000 lbs	LHV	1.756	0.829	0.000
Urban Bus	UB	1.127	0.314	0.000
Motorcycle	MCY	0.183	0.155	0.000
School Bus	SBUS	0.923	0.313	0.000
Motor Home	MH	0.923	0.200	0.000

Trip Distribution

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	1.0	158.9	0.3
Light Truck < 3,750 lbs	LDT1	2.2	153.6	4.3
Light Truck 3,751- 5,750	LDT2	0.4	110.9	0.0
Med Truck 5,751- 8,500	MDV	1.0	110.3	0.0
Lite-Heavy 8,501-10,000	LHDT1	0.0	0.0	0.0
Lite-Heavy 10,001-14,000	LHDT2	0.0	0.0	0.0
Med-Heavy 14,001-33,000	MHDT	0.0	0.0	0.0
Heavy-Heavy 33,001-60,000	HHDT	0.0	0.0	0.0
Line Haul > 60,000 lbs	LHV	0.0	0.0	0.0
Urban Bus	UB	0.0	0.0	0.0
Motorcycle	MCY	0.0	0.0	0.0
School Bus	SBUS	0.0	0.0	0.0
Motor Home	MH	0.0	0.0	0.0
Total		4.7	533.7	4.6

Starting Emissions (pounds per day)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0008	0.0112	0.0000
Light Truck < 3,750 lbs	LDT1	0.0019	0.0128	0.0000
Light Truck 3,751- 5,750	LDT2	0.0004	0.0083	0.0000
Med Truck 5,751- 8,500	MDV	0.0010	0.0107	0.0000
Lite-Heavy 8,501-10,000	LHDT1	0.0000	0.0000	0.0000
Lite-Heavy 10,001-14,000	LHDT2	0.0000	0.0000	0.0000
Med-Heavy 14,001-33,000	MHDT	0.0000	0.0000	0.0000
Heavy-Heavy 33,001-60,000	HHDT	0.0000	0.0000	0.0000
Line Haul > 60,000 lbs	LHV	0.0000	0.0000	0.0000
Urban Bus	UB	0.0000	0.0000	0.0000
Motorcycle	MCY	0.0000	0.0000	0.0000
School Bus	SBUS	0.0000	0.0000	0.0000
Motor Home	MH	0.0000	0.0000	0.0000
Total		0.0041	0.0430	0.0000

- Source of vehicle percentages: URBEMIS.
- Source of emission factors: EMFAC2007, Statewide average, year 2010, temperature 60F, relative humidity 50%

Mobile Emissions - Nitrous Oxide

Project: Santa Ana Riv **Vehicle Miles Traveled** 4,932

Prepared by: Michael Brandman Associates

	Pounds/day	Tons/day	Tons/year
Starting Emissions	0.05	0.0000	0.01
Running Emissions	0.16	0.0001	0.03
Total	0.21	0.0001	0.04

Vehicle Percentages

Vehicle Type	Percent	Non-Catalyst	Catalyst	Diesel
Light Auto	29.5	0.6	99.2	0.2
Light Truck < 3,750 lbs	29.5	1.4	95.9	2.7
Light Truck 3,751- 5,750	20.5	0.4	99.6	0.0
Med Truck 5,751- 8,500	20.5	0.9	99.1	0.0
Lite-Heavy 8,501-10,000	0.0	0.0	81.2	18.8
Lite-Heavy 10,001-14,000	0.0	0.0	60.0	40.0
Med-Heavy 14,001-33,000	0.0	0.0	22.2	77.8
Heavy-Heavy 33,001-60,000	0.0	0.0	0.0	100.0
Line Haul > 60,000 lbs	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	60.7	39.3	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	88.9	11.1

Running Emission Factors (mg/km)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Automobile	8	20	1
Light duty truck	9	26	1
Heavy duty trucks and buses	20	55	3
Motorcycle	3	3	3

Running Emission Factors (g/mile)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0050	0.0124	0.0006
Light Truck < 3,750 lbs	LDT1	0.0056	0.0162	0.0006
Light Truck 3,751- 5,750	LDT2	0.0056	0.0162	0.0006
Med Truck 5,751- 8,500	MDV	0.0056	0.0162	0.0006
Lite-Heavy 8,501-10,000	LHDT1	0.0124	0.0342	0.0019
Lite-Heavy 10,001-14,000	LHDT2	0.0124	0.0342	0.0019
Med-Heavy 14,001-33,000	MHDT	0.0124	0.0342	0.0019
Heavy-Heavy 33,001-60,000	HHDT	0.0124	0.0342	0.0019
Line Haul > 60,000 lbs	LHV	0.0124	0.0342	0.0019
Urban Bus	UB	0.0124	0.0342	0.0019
Motorcycle	MCY	0.0019	0.0019	0.0019
School Bus	SBUS	0.0124	0.0342	0.0019
Motor Home	MH	0.0124	0.0342	0.0019

Running Emissions (pounds per day)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.00	0.04	0.00
Light Truck < 3,750 lbs	0.00	0.05	0.00
Light Truck 3,751- 5,750	0.00	0.04	0.00
Med Truck 5,751- 8,500	0.00	0.04	0.00
Lite-Heavy 8,501-10,000	0.00	0.00	0.00
Lite-Heavy 10,001-14,000	0.00	0.00	0.00
Med-Heavy 14,001-33,000	0.00	0.00	0.00
Heavy-Heavy 33,001-60,000	0.00	0.00	0.00
Line Haul > 60,000 lbs	0.00	0.00	0.00
Urban Bus	0.00	0.00	0.00
Motorcycle	0.00	0.00	0.00
School Bus	0.00	0.00	0.00
Motor Home	0.00	0.00	0.00
Total	0.00	0.16	0.00

Mobile Emissions - Nitrous Oxide

Total Trips 543

Starting Emission Factors (mg/start)

Vehicle Type	Non-Catalyst	Catalyst	Diesel
Automobile	**28**	72	0
Light duty truck	**9**	26	-1
Heavy duty trucks and buses	**70**	194	-2
Motorcycle	**12**	12	0

Starting Emission Factors (g/start)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.028	0.072	0
Light Truck < 3,750 lbs	LDT1	0.009	0.026	-0.001
Light Truck 3,751- 5,750	LDT2	0.009	0.026	-0.001
Med Truck 5,751- 8,500	MDV	0.009	0.026	-0.001
Lite-Heavy 8,501-10,000	LHDT1	0.070	0.194	-0.002
Lite-Heavy 10,001-14,000	LHDT2	0.070	0.194	-0.002
Med-Heavy 14,001-33,000	MHDT	0.070	0.194	-0.002
Heavy-Heavy 33,001-60,000	HHDT	0.070	0.194	-0.002
Line Haul > 60,000 lbs	LHV	0.070	0.194	-0.002
Urban Bus	UB	0.070	0.194	-0.002
Motorcycle	MCY	0.012	0.012	0.000
School Bus	SBUS	0.070	0.194	-0.002
Motor Home	MH	0.070	0.194	-0.002

Trip Distribution

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	1.0	158.9	0.3
Light Truck < 3,750 lbs	LDT1	2.2	153.6	4.3
Light Truck 3,751- 5,750	LDT2	0.4	110.9	0.0
Med Truck 5,751- 8,500	MDV	1.0	110.3	0.0
Lite-Heavy 8,501-10,000	LHDT1	0.0	0.0	0.0
Lite-Heavy 10,001-14,000	LHDT2	0.0	0.0	0.0
Med-Heavy 14,001-33,000	MHDT	0.0	0.0	0.0
Heavy-Heavy 33,001-60,000	HHDT	0.0	0.0	0.0
Line Haul > 60,000 lbs	LHV	0.0	0.0	0.0
Urban Bus	UB	0.0	0.0	0.0
Motorcycle	MCY	0.0	0.0	0.0
School Bus	SBUS	0.0	0.0	0.0
Motor Home	MH	0.0	0.0	0.0
Total		4.7	533.7	4.6

Starting Emissions (pounds per day)

Vehicle Type	Type	Non-Catalyst	Catalyst	Diesel
Light Auto	LDA	0.0001	0.0252	0.0000
Light Truck < 3,750 lbs	LDT1	0.0000	0.0088	0.0000
Light Truck 3,751- 5,750	LDT2	0.0000	0.0063	0.0000
Med Truck 5,751- 8,500	MDV	0.0000	0.0063	0.0000
Lite-Heavy 8,501-10,000	LHDT1	0.0000	0.0000	0.0000
Lite-Heavy 10,001-14,000	LHDT2	0.0000	0.0000	0.0000
Med-Heavy 14,001-33,000	MHDT	0.0000	0.0000	0.0000
Heavy-Heavy 33,001-60,000	HHDT	0.0000	0.0000	0.0000
Line Haul > 60,000 lbs	LHV	0.0000	0.0000	0.0000
Urban Bus	UB	0.0000	0.0000	0.0000
Motorcycle	MCY	0.0000	0.0000	0.0000
School Bus	SBUS	0.0000	0.0000	0.0000
Motor Home	MH	0.0000	0.0000	0.0000
Total		0.0001	0.0466	0.0000

Sources: Vehicle percentages: URBEMIS2007.
Emission Factors (mg/km and mg/start): 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2: Energy, Table 3.2.3, www.ipcc-nggip.iges.or.jp/EFDB/find_ef_main.php

Electricity - Indirect Emissions

Project: Santa Ana River Trail
Prepared by: Michael Brandman Associates
Prepared on: 2/16/2011

Land Use	square feet (sf)	Electricity Use (kWh/sf-year)	Electricity Use (kWh/year)
Auto Center Drive	2000	9.84	19680
			0
Total (kWh/year)			**19680**
Total (MWh/year)			**20**

Greenhouse Gas	Emission Factor (pounds per MWh)	Emissions (pounds/year)	Emissions (tons/year)	Global Warming Potential	Emissions (MTCO2e)
Carbon dioxide	724.12	14,251	7	1	6
Methane	0.0302	1	0.00	21	0
Nitrous oxide	0.0081	0	0.00	310	0
SF6	0.00031	0	0.000	23900	0

Emission factor source: California Climate Action Registry. General Reporting Protocol. Reporting Entity-Wide Greenhouse Gas Emissions. Version 3.1, January 2009. Table C.2 www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf

SF6 emissions refer to sulfur hexafluoride emissions, which are released over electricity transmission lines. The emission factor was calculated by dividing California SF6 emissions from transmission lines (ARB 2010) by the total electricity generated in California in 2008 (CEC 2010), 0.96 MMTCO2e divided by 287782 millions of kWh * 2205 pounds/MT * 23900 global warming potential *1000.
- ARB 2010: California Air Resources Board. May 12, 2010. California Greenhouse Gas Inventory for 2000-2008 by Category as Defined in the Scoping Plan.
- CEC 2010: California Energy Commission. Energy Consumption Data Management System. Electricity Consumption by County. http://www.ecdms.energy.ca.gov/elecbycounty.aspx

Electricity use estimated based on an assumed 2000 square foot restroom using the "miscellaneous" electricity use from: Table E-1 from California Energy Commission. California Commercial End-Use Survey. Consultant Report. March 2006. CEC-400-2006-005

Water Conveyance, Treatment, Distribution

Project: Santa Ana River Trail
Prepared by: Michael Brandman Associates
Prepared on: 2/16/2011

	kWh per million gallons	
Electricity Requirements	**Northern California**	**Southern California**
Water Supply, Conveyance	2,117	9,727
Water Treatment	111	111
Water Distribution	1,272	1,272
Wastewater Treatment	1,911	1,911
Total	*5,411*	*13,021*

Project

Water Usage	460	gallons per day
Water Usage	0.1679	million gallons per year
Energy Usage	2,186	kWh
Energy Usage	2	MWh

Greenhouse Gas	Electricity Emission Factor (pounds per MWh)	Emissions (pounds/year)	Emissions (tons/year)
Carbon dioxide	724.12	1,583	0.792
Methane	0.0302	0.07	0.000
Nitrous oxide	0.0081	0.02	0.000

Source for electricity emission factor:
California Climate Action Registry. General Reporting Protocol. Reporting Entity-Wide Greenhouse Gas Emissions. Version 3.1, January 2009. Table C.2.
www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf

Source for electricity requirements:
Navigant Consulting, Inc. 2006. Refining Estimates of Water-Related Energy Use in California. California Energy Commission, PIER Industrial/Agricultural/Water End Use Energy Efficiency Program. CEC-500-2006-118. www.energy.ca.gov/pier/project_reports/CEC-500-2006-118.html

Source for water usage:
This was estimated based on the number of flushes and water to be used for drinking fountains and sinks. If there are 100 people per day that would use the restroom, each flush would be about 1.6 gallons, hand washing would use 2 gallons, and drinking fountain would be 1 gallon.