Morongo Outdoor Entertainment Facility Air Quality Impact Study

Prepared By: Endo Engineering

April 2013

Endo Engineering *Traffic Engineering* *Air Quality Studies* *Noise Assessments*

April 3, 2013

Ms. Michelle Witherspoon
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SUBJECT: Morongo Outdoor Entertainment Facility Air Quality Impact Study

Dear Ms. Witherspoon;

Endo Engineering is pleased to submit this analysis of the air quality impacts associated with the Morongo Outdoor Entertainment Facility proposed within the Banning Pass within the Morongo Band of Mission Indians Reservation in southern California. The 310-acre project site is located within Riverside County, north of the Cabazon community. It is north of Interstate 10, between the interchanges at Apache Trail and Main Street. The site is strategically located between the Los Angeles metropolitan area and the Coachella Valley, adjacent to the Morongo Casino Resort and Spa.

The project proposes an outdoor entertainment venue for one-day and two-day music festivals, Friday night music concerts, and other recreational events. On-site facilities would include: an outdoor amphitheater, an 80,000 square foot tent venue, a rainforest, festival grounds, flex areas, a Beach Club, a retail concourse, VIP and general parking areas. The proposed project would include 242 acres of non-entertainment area for general and bus parking, entry roads, an RV/camping area (for use during two-day festivals) and landscape buffers. The facilities could be developed within three months in 2013 and open in 2014.

This report details in graphic and narrative form: (1) existing ambient air quality in the project vicinity; (2) air quality impacts associated with the development; and (3) mitigation measures that could reduce significant impacts. We trust that the information provided herein will be of value to the Morongo Band of Mission Indians and the Bureau of Indian Affairs in their review of the impacts associated with the project. Should questions or comments arise regarding the findings within this report, please do not hesitate to contact our offices.

Cordially,
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1.0 INTRODUCTION

This air quality impact analysis was prepared to comply with the National Environmental Policy Act[1] (NEPA) and the Bureau of Indian Affairs (BIA) NEPA Guidebook, 30 BIAM Supplement 1. The purpose of this study was to assess the air quality impacts associated with an outdoor entertainment facility proposed on a 310-acre site located within the Morongo Band of Mission Indians Reservation in Southern California. The project site is in the rural community of Cabazon, north of Interstate 10, within the Banning Pass which connects the metropolitan Los Angeles basin to the Coachella Valley in the neighboring Riverside County.

The existing air quality in the study area is described as well as the legislative setting in terms of applicable federal, tribal, state and local air quality regulations. Temporary short-term construction-related emissions are evaluated. Potential local and regional air quality impacts associated with the long-term operation of the proposed project are assessed. Mitigation measures that could minimize air pollutant emissions and reduce potential air quality impacts are identified. The focus of the analysis is the emissions of criteria pollutants (i.e. those pollutants for which ambient air quality standards have been established to protect human health and the environment).

Local impacts on air quality are evaluated by modeling carbon monoxide concentrations in the project vicinity. The analysis demonstrates how air pollutant concentrations in the immediate vicinity of the site access roadways are expected to change over a one-hour averaging period and over an eight-hour averaging period.

Potential future emissions of greenhouse gases are estimated based upon the projected combustion of fossil fuels during the construction and operation of the facility. The effects of greenhouse gas emissions on climate change are discussed briefly.

Project-related emissions of hazardous and toxic air contaminants are assessed. The potential impacts of toxic emissions on public health and sensitive receptors are discussed.

This report was prepared for use in the preparation of an Environmental Assessment required under NEPA. The Morongo Band of Mission Indians is the lead NEPA agency. The Bureau of Indian Affairs will review the analysis to ensure that it meets all applicable requirements including those established by the United States Environmental Protection Agency (U.S. EPA) General Conformity Rule.

[1] 40CFR § 1500-1508

2.0 PROJECT LOCATION AND DESCRIPTION

2.1 PROJECT LOCATION

The 310-acre undeveloped project site is located on the Morongo Indian Reservation, which is Federal land held in trust on behalf of the Morongo Band of Mission Indians (the Tribe) in Riverside County, California. The Reservation covers approximately 35,000 acres located both north and south of Interstate 10 in the Banning Pass, near the community of Cabazon. The project area is located immediately north of Interstate 10 and east of Apache Trail within Section 8 and Section 9, Township 3 South, Range 2 East, San Bernardino Meridian, as depicted on the Cabazon U.S.G.S. 7.5' Quad Map.

The project site is located north of Interstate 10 and the community of Cabazon, entirely within the Morongo Band of Mission Indians Sovereign Nation Land. It is, surrounded by the County of Riverside, and strategically located between the Coachella Valley (to the east) and the metropolitan areas of Los Angeles, Riverside, and San Bernardino County (to the west). The site is situated between the Interstate 10 interchanges at Morongo Trail/Apache Trail and at Main Street. Figure 2-1 (Regional Location) illustrates the project site in its regional context.

The project site is located east of the Morongo Casino Resort and Spa and north of the Canyon Lanes at Morongo Bowling Alley, as shown in Figure 2-2 (Vicinity Map). The site extends north of Seminole Drive on both sides of Millard Pass Road. Millard Pass Road is a north/south dirt road aligned between Section 8 and Section 9 that provides access for service vehicles to a five-acre parcel surrounded by the project site with a reservoir and water well operated by the Cabazon Water Company. The 5-acre parcel is not a part of the proposed project.

2.2 EXISTING LAND USE

Morongo's areas of Indian country encompass more than 35,000 acres where more than 1,500 tribal members live. The Morongo Reservation is primarily rural in character, with low-density residential and agricultural land uses. The Morongo Casino Resport and Spa, the Morongo Travel Center (a gasoline and diesel fuel dispensing facility with 36 pumps), the Cabazon Outlets, the Desert Hills Premium Outlets, and other commercial and Tribal enterprises are located adjacent to Interstate 10 along Seminole Drive, east of Banning, in the vicinity of the Cabazon community.

Existing sources of ozone precursor emissions within the tribal boundaries include the Morongo Casino Resort and Spa cogeneration facility. This facility has a Title V operating permit which limits the 8.4 megawatt facility's potential to emit from the four natural gas-fired engines and three diesel-fired backup generators to less than 18.7 tons per day of NOx emissions and less than 18.7 tons per day of VOC emissions.

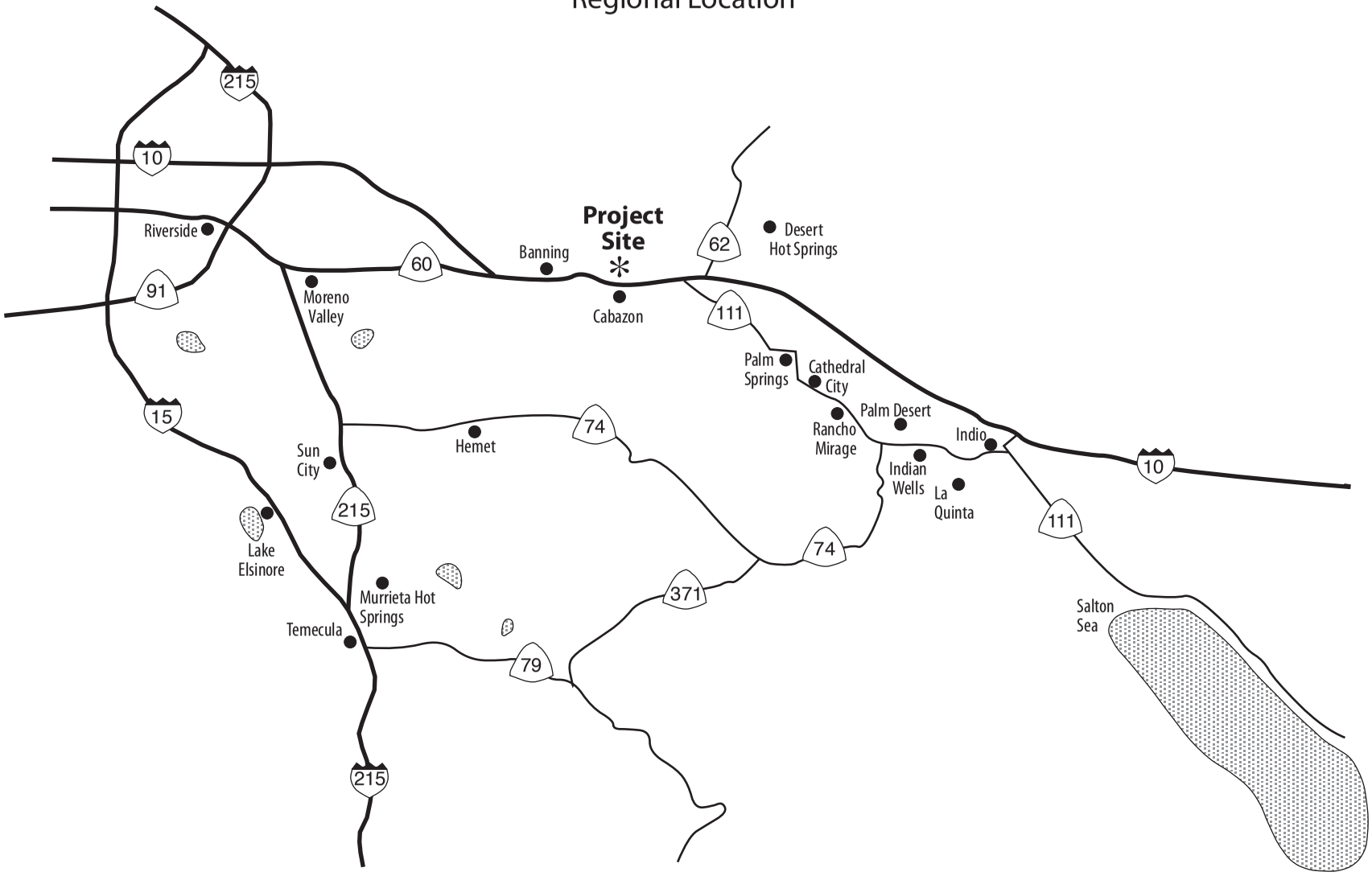
The project site is currently used for cattle grazing. It is bounded or crossed by utility corridors which include: (1) electrical transmission lines, (2) gas/oil lines to the north, (3) two gas lines that cross the southerly half of the site. The site surrounds a 5-acre parcel with a reservoir and well operated by the Cabazon Water Company that is not a part of the proposed development.

2.3 PROJECT DESCRIPTION

The proposed project is an outdoor entertainment venue for music festivals, concerts, and other recreational and cultural entertainment events. Figure 2-3 (Conceptual Site Plan) illustrates the proposed location of the various entertainment venues within the 68-acre outdoor entertainment area

Figure 2-1

Regional Location



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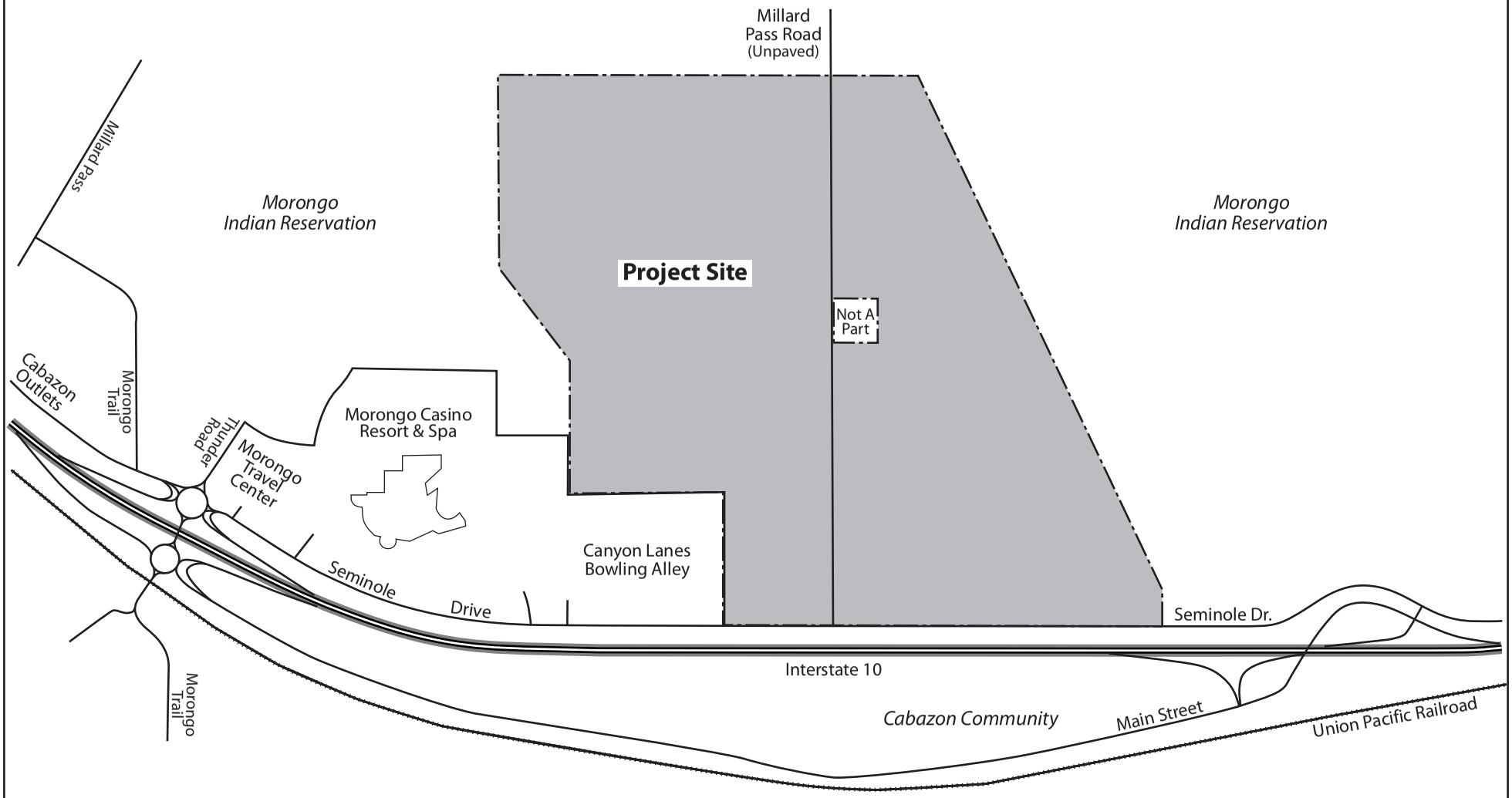
Scale: 1" = 13.3 Miles

Figure 2-2
Vicinity Map



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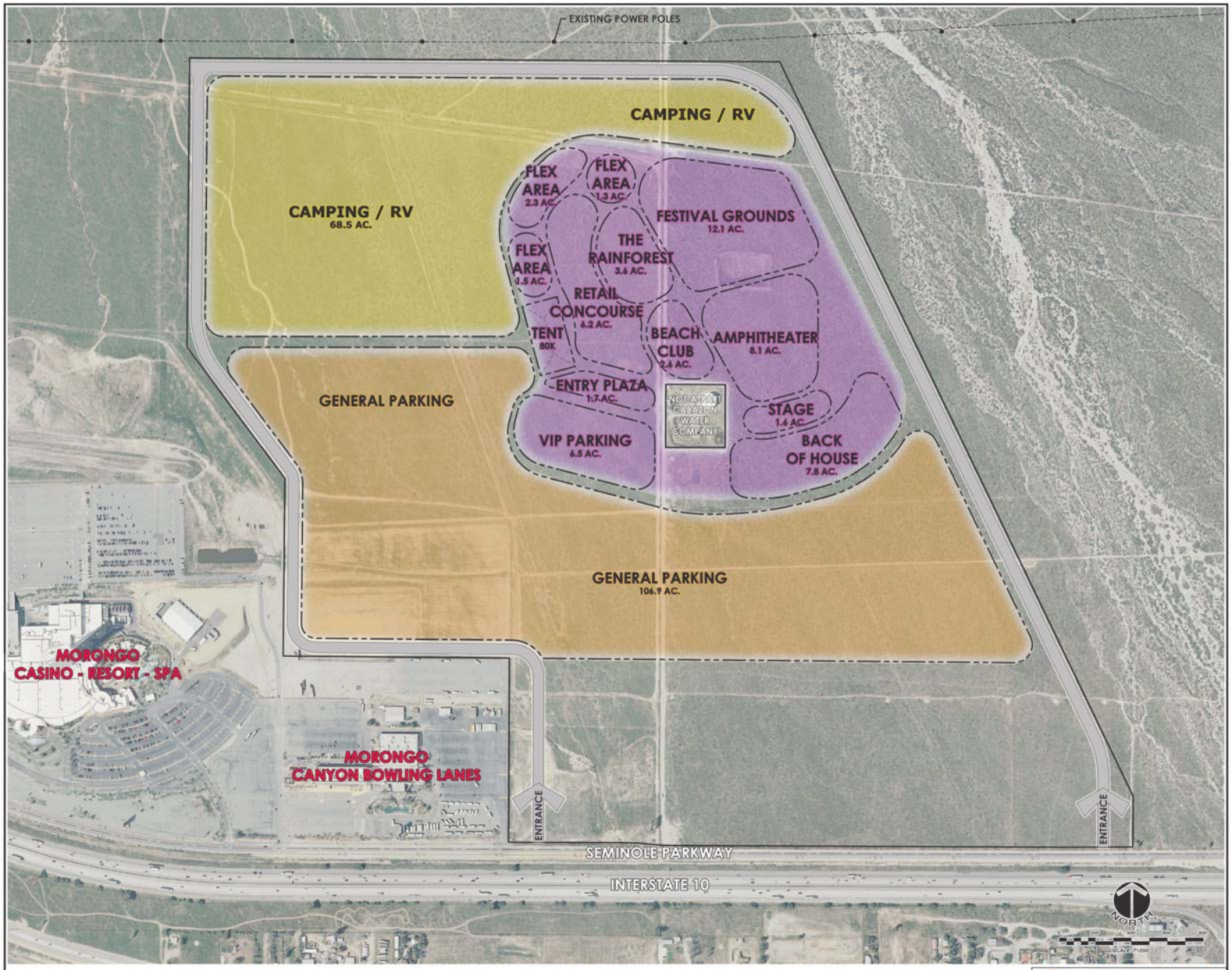
Scale: 1" = 0.22 Mile

Figure 2-3
Conceptual Site Development Plan



as well as the camping/RV and general parking areas to be provided within the remaining 242 acres. Table 2-1 summarizes the various project components.

Table 2-1
Summary of Proposed Project Components[a]

Project Component	Land Area	Proposed Land Use and Capacity[b]
Entertainment Areas		
- Main Outdoor Amphitheater	8.1 Acres	Seating For 15,000 - 18,000 Attendees
- Tent Venue (80,000 S.F.)	1.9 Acres	Capacity of 10,000 Attendees
- Beach Club	2.6 Acres	Capacity of 2,500 People (Open Daily)
- The Rain Forest	3.6 Acres	Capacity of 500 People
- Festival Grounds (Grass)	12.1 Acres	Support Festivals/Exhibits/Event Activities
- Flex Areas (Grass)	5.1 Acres	Support Festivals/Exhibits/Event Activities
- Event Retail Concourse Area	6.2 Acres	Retail Sales/Food/Activity
- Entry Plaza	1.7 Acres	Ancillary
- Back of House	7.8 Acres	Trailer/Truck Parking on Decomposed Granite
- Stage	1.6 Acres	Includes Small Concrete Area
- VIP Parking	6.5 Acres	Performers/Entourage/Employees/Vendors
- Landscape Buffers	10.8 Acres	63.9 Acres/2,000 Trees/100 Acres of Turf
Subtotal[c]	68.0 Acres	40,000 Attendees/533 Employees/175 Vendors
Non-Entertainment Areas		
- General Parking	106.9 Acres	11,000 Autos+200 Buses
- Camping/RV Area	68.5 Acres	3,200 Campers/RVs
- Entry Roads	13.5 Acres	Paved
- Landscape Buffer (Between Entries)	53.1 Acres	—
Subtotal	242.0 Acres	11,000 autos/200 Buses/3,200 RV-Campers
Total Area	310 Acres	Outdoor Entertainment Venue

a. Source: MSA Consulting, Inc. Conceptual Site Plan dated October 16, 2012.
b. Paved areas would include18 on-site acres and two off-site acres. Paved areas would include the main site access roads and the VIP parking areas. The 128.1-acre general parking area would be covered by decomposed granite or aggregate to reduce fugitive dust emissions. The total graded area would include 310 acres within the site plus two acres for off-site roadway widening. The camping/RV Area could accommodate 6,000 parked passenger vehicles when not being used during two-day festivals for camping/RV parking. A total of 63.9 acres would be landscaped with 2,000 trees and 100 acres of turf would be hydro seeded within the site.
c. Crain & Associates assumed one employee per 75 attendees and one vendor per 500 attendees.

The project site would initially be improved with temporary facilities that would eventually transition to more permanent facilities over time. The main site entry roadways and the VIP parking areas would be paved initially. The project would provide surface parking areas and other improvements necessary to accommodate approximately 60 outdoor music festival or concert events per year. The daily attendance would range from a low of 1,200 attendees per day (approximately 25 times per year) to a high of 40,000 persons per day (up to seventeen times per year).

Twelve large music festivals are planned per year with a daily attendance of 30,000 to 40,000 persons per day. The music festivals would last one or two days for a total of seventeen festival days per year (five two-day festivals and seven one-day festivals). On-site camping would be permitted during the large music festivals to reduce the number of trips generated. On-site camping would not be permitted during Friday night concerts or other smaller miscellaneous entertainment

events. The Beach Club would be open year round with a capacity of 2,500 persons and an average occupancy of 1,500 persons.

SURFACE PARKING PROPOSED

A general surface parking lot proposed would accommodate 11,000 passenger vehicles and 200 charter buses. In addition, there would be 3,200 camping/recreational vehicle spaces available for use during the large two-day music festivals. The general parking areas would be finished with compacted decomposed granite or similar aggregate material to allow the percolation of rain water and reduce fugitive dust emissions. During events without camping, the 3,200 camping and RV parking spaces could accommodate up to 6,000 parked passenger vehicles. Camping would not be permitted in this area except during the large music festivals.

MUSIC FESTIVALS AND OTHER EVENTS PLANNED

The traffic impacts associated with the Morongo Outdoor Entertainment Project were evaluated in the *Draft Traffic Impact Analysis for the Proposed Morongo Outdoor Entertainment Project* (Crain & Associates; February, 2013). In addition, Crain & Associates developed a temporal trip-generation forecast by day of the week and hour of the day for a two-day (Saturday and Sunday) music festival with 30,000 to 40,000 attendees as well as a Friday night concert with 20,000 attendees. Table 2-2 summarizes the project-related trip generation by event type. The base assumptions utilized to develop that forecast are discussed below.

A crew would be required on-site for load-in activities prior to music festivals, concerts, and other large events. Approximately ten truck loads per day over a period of five days were assumed to deliver equipment for stage lighting, sound, etc. A crew of workers would also be required to strike the stage, lights, sound equipment, etc. following festivals and concerts. Ten truck loads per day over a period of five days were assumed to remove this equipment.

Large Music Festivals

Large music festivals, during which all of the facilities within the site would be active, are expected to be held twelve times per year. Some of these festivals would last a single day while others would last two days with space on-site made available for Recreational Vehicle (RV) parking and camping for up to 3,200 attendee vehicles. Large music festivals with all areas on-site active are projected to occur on a total of seventeen days per year. The daily attendance during large music festival days is projected to include approximately 30,000 to 40,000 attendees. These events are expected to occur on a combined total of seventeen days per year. Crain & Associates has estimated that the average trip length would be 75 miles per trip for attendees and 37 miles per trip for employees and vendors.

Other Events

Many of the events anticipated would use only the main amphitheater, the Beach Club, or the tent venue. Minor events are expected to occur approximately 25 times per year with approximately 1,200 attendees. No overnight on-site camping would be permitted during these events. The Beach Club would be open daily with a maximum capacity of 2,500 patrons and an annual average occupancy of 1,500 patrons per day. After the days when the Beach Club is used for Music Festivals and Friday night concerts are removed, 307 days per year would remain when the Beach Club could accommodate an average of 1,500 patrons per day.

Table 2-2
Project-Related Daily Trip Generation By Event Type[a]

Project Component (Vehicle Occupancy Assumed)[b]	Two-Way Trips (External)	Site Use and Capacity Proposed[c]
Two-Day Music Festivals		
Weekend Music Festival		40,000 Attendees /Day
- Non-Campers (2.5/Vehicle)	48,000 Total	60,000 Attendees (24,000 Vehicles)
- RV/Camping Usage (2.5/Vehicle)	8,000 Total	10,000 Attendees (4,000 Vehicles)
- Employees (1.15/Vehicle)	3,440 Total	533 Employees/Shift (4.79 Shifts)
- Vendors (1.15/Vehicle)	350 Total	160 Vendors/Shift (1.25 Shifts)
- Two-Day Festival (5 Times/Year)	59,790 Total	40,000 Saturday + 40,000 Sunday
One Day Music Festivals		
Saturday or Sunday Music Festival		40,000 Attendees/Day
- Non-Campers (2.5/Vehicle)	24,000 Total	30,000 Persons (12,000 Vehicles)
- RV/Camping Usage (2.5/Vehicle)	8,000 Total	10,000 Attendees (4,000 Vehicles)
- Employees (1.15/Vehicle)	2,460 Total	533 Employees (3 Shifts)
- Vendors (1.15/Vehicle)	280 Total	160 Vendors (1 Shift)
- One-Day Festival (7 Times/Year)	34,740 Total	Capacity Crowd (40,000 Attendees)
Friday Evening Concerts		
- Non-Campers (2.5/Vehicle)	16,000 Total	20,000 Persons (8,000 Vehicles)
- Camping/RV Area	Not Allowed	Not Allowed
- Employees (1.15/Vehicle)	464 Total	267 Employees (One Shift)
- Vendors (1.15/Vehicle)	70 Total	40 Vendors (One Shift)
Friday & Saturday (16 Times/Year)	16,534 Total	4:00 PM Friday-4:00 AM Saturday
Minor Events		
- Beach Club (Open 307 Days/Year)	2,050 Daily 1,250 Daily	2,500 Capacity (2.5/Vehicle) + Employees 1,500 Average (2.5/Vehicle) + Employees
- Miscellaneous Events (25/Year)	1,000 Daily	1,200 Attendees (2.5/Vehicle) + Employees

a. Crain & Associates. *Draft Traffic Impact Analysis for the Proposed Morongo Outdoor Entertainment Project*. February, 2013.
b. Crain & Associates assumed vehicle occupancy factors of 1.15 employees and vendors per vehicle and 2.5 attendees per vehicle.
c. The Camping/RV Area could accommodate 6,000 parked passenger vehicles when not being used for camping/RV parking during two-day festivals. On-site camping would be permitted only during festival events and not open for public use at other times.

2.4 CONSISTENCY WITH GENERAL PLAN

The undeveloped project site is not included in The Pass Area Plan or the County of Riverside General Plan. However, the Cabazon Policy Area was based on the Cabazon Community Plan adopted in 1998 for 7,490 acres of unincorporated land located north and south of Interstate 10 surrounding the project site. This area includes the Cabazon community, which was home to approximately 2,535 residents at the 2010 census.

2.5 SURROUNDING LAND USES

The site is currently undeveloped with sparse vegetation. Seminole Drive and Interstate 10 border the project site to the south. Undeveloped Morongo Reservation land is located east of the project site. The Canyon Lanes at Morongo Bowling Alley is located adjacent to the southwest corner of the project site in the former Casino Morongo building. The Morongo Casino, Resort and Spa is located west of the project site, north of Seminole Drive, and east of Thunder Road. This development includes a 310-room 27-story hotel as well as a landscaped pool and spa complex, a five-story parking structure and surface parking lots. Several rural single-family detached homes are located northwest of Section 8 within Section 6.

The Morongo Travel Center is located west of the site, on the northeast corner of the intersection of Seminole Drive and Thunder Road. This facility is a 24-hour facility for travelers providing food, gasoline and diesel fuel, and a car wash. A Ruby's Diner, and Hadley Fruit Orchards retail store are located on the northwest corner of the intersection of Thunder Road and Seminole Drive. The Cabazon Outlets are located north of Seminole Drive, between Morongo Trail and Millard Pass. There are approximately fifty-five single-family detached residences located north of the Cabazon Outlets, between Morongo Trail and Millard Pass. The closest developed residential lot is located approximately one-half mile west of the western site boundary. The Desert Hills Premium Outlets include 130 retail stores located north of Seminole Drive and west of Millard Pass.

2.6 CUMULATIVE PROJECTS

Three cumulative developments were identified and evaluated in the traffic impact study. The first of these projects would include the construction of 93 single-family detached residential dwelling units. This development would generate approximately 890 weekday trip-ends and 937 daily trip-ends on a typical Saturday.

A 78,000 square foot factory outlet development will be constructed along the north side of Seminole Drive, west of Apache Trail. This cumulative development would generate 1,867 daily two-way trip-ends on a typical weekday and 2,876 daily two-way trip-ends on a typical Saturday.

The third cumulative development is the 158,754 square-foot Desert Hills Premium Outlet Expansion Project. This development would generate 3,799 daily two-way trip-ends on a typical weekday and 5,854 daily two-way trip-ends on a typical Saturday.

3.0 AFFECTED ENVIRONMENT

Various air quality fundamentals are discussed below including: criteria pollutants, ambient air quality standards, episode criteria, and demonstrated effects of air pollutants on sensitive receptors. This basic information is followed by a discussion of: (1) regional air quality; (2) local ambient air quality; (3) existing sensitive receptor locations in the project vicinity; (4) local sources of air contaminants; and (5) the regulatory setting. Appendix A includes a list of acronyms and a glossary of technical terms used throughout the air quality analysis.

3.1 AIR POLLUTION FUNDAMENTALS

Air pollution is comprised of many substances generated from a variety of sources, both man-made and natural. Since the rapid industrialization of the twentieth century, almost every human endeavor, especially those relying on the burning of fossil fuels, creates air pollution. Most contaminants are actually wasted energy in the form of unburned fuels or by-products of the combustion process.

As more people worldwide enjoy modern energy intensive lifestyles, satellites are observing the continuous movement of polluted air masses in the form of dusty plumes that cross oceans above the marine layer and impact countries other than those that are the source of the polluted air mass. The transport of air pollutants from Asia (and China in particular) may cause or contribute to violations of health-based ambient air quality standards for particulate matter in California in the future. Recent studies indicate that the Asian plume (which is 50% carbonatious, 25% dust and 25% sulfate) is already a significant component of the background particulate matter over California.[1]

Motor vehicles are by far the most significant source of air pollutants in urban areas, emitting photochemically reactive hydrocarbons (unburned fuel), carbon monoxide (CO), and oxides of nitrogen (NOx). These primary pollutants chemically react in the atmosphere with sunlight and the passage of time to form secondary pollutants such as ozone.

Significant air quality improvements have been made in California as a result of a progression of standards that require increasingly cleaner air and improved technology and emission control programs. Despite growth in the economy, the population, and vehicle miles traveled, improvements in ambient air quality have occurred in the South Coast Air Basin (SCAB) since the late 1990s. Ozone and suspended particulate matter with a mean aerodynamic diameter of less than 10 micrometers (PM_{10}) represent the major air quality problems in the desert regions of Southern California.

The SCAB is the area bounded to the west by the Pacific Ocean, and bounded to the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains. This area includes Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The South Coast Air Quality Management District (SCAQMD) has jurisdiction over the SCAB as well as the desert portion of Riverside County, where the Coachella Valley is located in the neighboring Salton Sea Air Basin (SSAB). As shown in Figure 3-1, the project site is located in the Banning Pass, which connects the SCAB (to the west) to the Coachella Valley (to the east). The Coachella Valley Planning Area is impacted by pollutant transport from the SCAB. The polluted air mass flows from the SCAB through the Banning Pass into the Coachella Valley.

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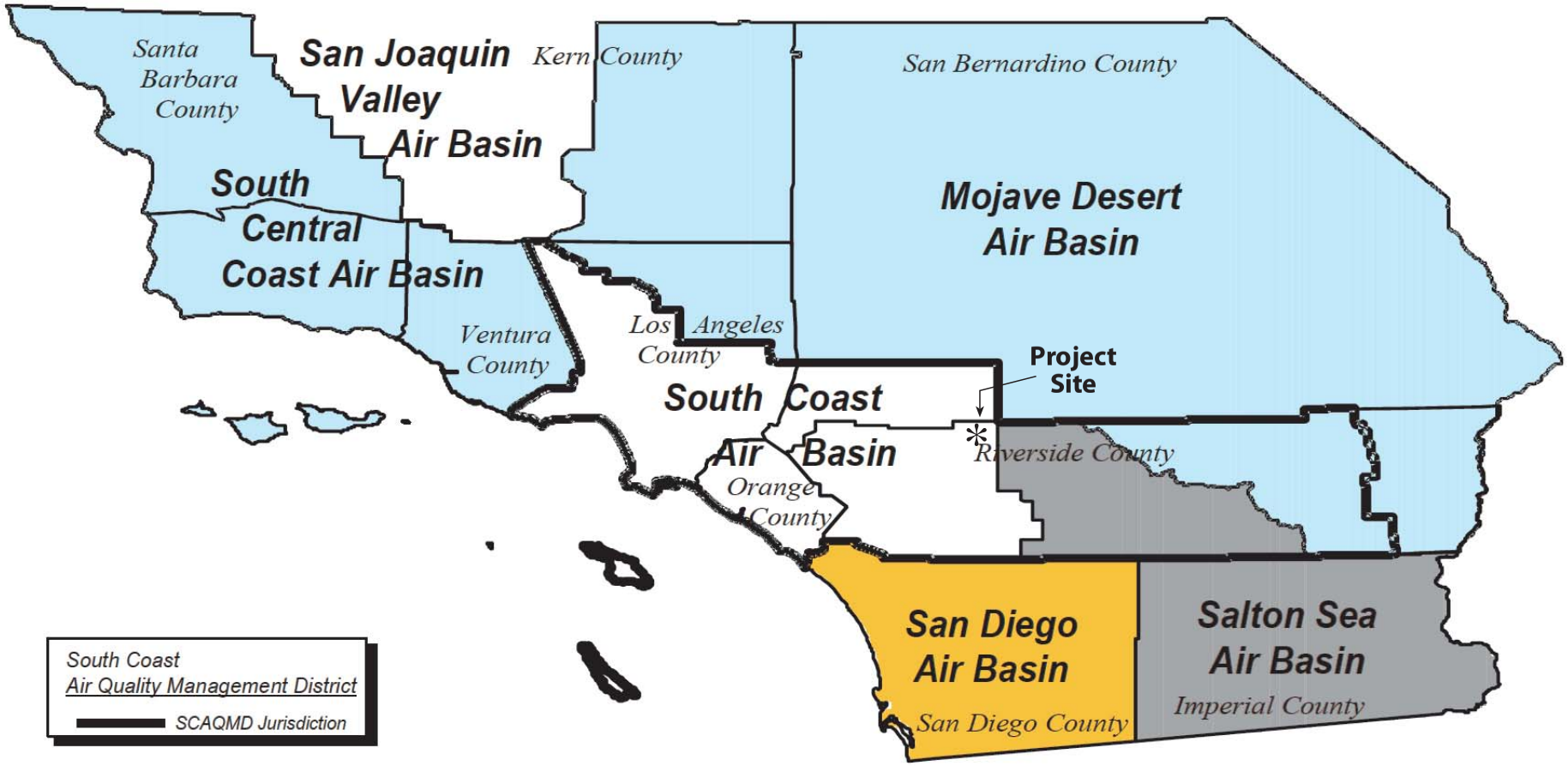
[1] Presentation of January 22, 2004 by Dr. Vancuren before the California Air Resources Board and *Journal of Geophysical Research;* October 2003.

Figure 3-1

Southern California Air Basins
and Federal Planning Areas



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Source: SCQAMD; *Revised Draft 2012 Air Quality Management Plan*; September 2012.

Scale: 1" = 44 Miles

The air quality of the Banning Pass and the neighboring Coachella Valley is determined by the primary pollutant emissions added locally each day and by the primary and secondary pollutants already present in the air mass. Primary pollutants are emitted directly from a source. They include: carbon monoxide, nitric oxide (NO), sulfur dioxide (SO_2), particulate matter (PM), and various hydrocarbons and other volatile organic compounds (VOC). Secondary pollutants form within the air mass through chemical reactions. They include: photochemical oxidants (90% of which are ozone), photochemical aerosols, peroxyacetylnitrate, nitrogen dioxide (NO_2), and particulate matter.

CRITERIA AIR POLLUTANTS

Criteria air pollutants are air contaminants for which ambient air quality standards currently exist. State and federal ambient air quality standards currently exist for: ozone (O_3), nitrogen dioxide, sulfur dioxide, carbon monoxide, suspended particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). California has also set standards for visibility reducing particles, sulfates, hydrogen sulfide and vinyl chloride, none of which are criteria pollutants. Lead and vinyl chloride are toxic air contaminants with no threshold level determined for adverse health effects.

Carbon Monoxide (CO)

Carbon monoxide is a criteria pollutant that results from the incomplete combustion of fossil fuels. It is a colorless, odorless, toxic gas that interferes with the ability of the blood to carry oxygen to the tissues. Various industrial processes emit carbon monoxide but mobile sources generate 80 percent of the carbon monoxide emitted in urban areas. Gasoline powered automobiles are the most significant source of CO as a result of inefficient fuel usage by their internal combustion engines. Carbon monoxide concentrations are generally higher in the winter, when meteorological conditions favor the build-up of directly emitted contaminants. Carbon monoxide health warnings and emergency episodes occur almost entirely during the winter.

Oxides of Nitrogen (NO_x)

Oxides of nitrogen are the primary receptors of ultraviolet light initiating the photochemical reactions that produce smog. Nitric oxide combines with oxygen in the presence of reactive hydrocarbons and sunlight to form NO_2 and ozone. Oxides of nitrogen are contributors to other air pollution problems including: high levels of fine particulate matter ($PM_{2.5}$), poor visibility and acid deposition. The primary sources of NOx in the basin are incomplete combustion in motor vehicle engines, power plants, refineries and other industrial operations. Ships, railroads and aircraft are other significant emission sources.

Seven oxides of nitrogen and two hydrated oxides can exist in the atmosphere, but only four are present in noticeable amounts. Two of these are classified as pollutants including: nitric oxide (NO) which is a colorless and odorless gas and NO_2 (a reddish-brown gas formed by the combination of NO with oxygen). Nitric oxide is far less toxic than NO_2 in humans. NO_2 absorbs blue light, thereby lending a brown cast to the atmosphere over the SCAB on days when inversions reduce dispersion and trap pollutants near the ground.

Sulfur Dioxide (SO_2) and Sulfates (SO_4^{2-})

Sulfur dioxide a criteria pollutant. It is pungent, colorless, and results from the combustion of fossil fuels with high sulfur content. Fuel combustion is the major source of SO_2, while chemical plants, sulfur recovery plants, and metal processing are minor contributors. Sulfates result from a reaction of SO_2 and oxygen in the presence of sunlight. When sunlight is plentiful, sulfate is formed more readily. Therefore, SO_2 levels are generally lower in the summer and higher in the

winter. Recent reductions in SO_2 levels reflect the use of natural gas in power plants and boilers (since natural gas is very low in sulfur) and low sulfur fuel oil. SO_2 and other sulfur oxides contribute to ambient $PM_{2.5}$. Individuals affected by asthma are particularly sensitive to the effects of SO_2 which has been found to irritate and constrict airways in some exercising asthmatics after only a few minutes of exposure at relatively low concentrations.

Suspended Particulate Matter (PM_{10} and $PM_{2.5}$)

Suspended PM is a mixture of solid or liquid particles of soot, dust, smoke, fumes and aerosols found in the air. Particulate matter consists of particles in the atmosphere as a by-product of fuel combustion, through abrasion such as tire wear, and through soil erosion by the wind. Particulates can also be formed through photochemical reactions in the atmosphere. PM_{10} refers to fine divided solids or liquids which are 10 microns or less in diameter and can enter the lungs. PM_{10} includes both coarse and fine particles ($PM_{2.5}$). Particulate concentrations are generally higher in the winter near major sources, when more fuel is burned and meteorological conditions favor the build-up of directly-emitted contaminants. PM_{10} can be reduced by controlling dust generated at construction and industrial sites. This is accomplished by applying soil stabilizers, sweeping paved roads, and wetting or paving frequently used unpaved roads.

The size of the particles is directly linked to their potential for causing health problems. Larger particles can irritate eyes, noses, and throats and reduce visibility. Coarse particles (such as those found in wind-blown dust) have diameters between 2.5 and 10 micrometers and can be deposited within the lungs and result in adverse health effects. Coarse particles are produced primarily by motor vehicle tire wear, industrial cutting and grinding processes, and the re-suspension of particles from the ground or road surfaces by wind and human activities (construction, agriculture, etc.). About 90 percent of total particulates are less than 5 microns in diameter, while the aerosols formed within the atmosphere (primarily sulfate and nitrate) are usually smaller than 1 micron.

Fine particulate matter (2.5 micrometers in diameter or less) includes a mixture of microscopic solid or liquid particles suspended in air which are generally soot and aerosols. Fine particles can be emitted directly from combustion sources such as vehicle exhaust, stationary sources (including industrial processes and power plants), and smoke from fires. They can also be formed in the atmosphere from power plant, industrial, and mobile source emissions of gases such as SO_2 and NO_x. Components may include organic chemicals, metals, soil or dust particles, and allergens (such as fragments or pollen or mold spores).

Fine particulate matter ($PM_{2.5}$) poses the greatest health risk because it can penetrate deep into the lungs and may even get into the bloodstream. Exposure to such particles can affect both the lungs and the heart. People with heart or lung disease, asthmatics, older adults, and children are especially at risk. Fine particulates are unhealthy to breathe and have been associated with serious health effects including premature mortality. $PM_{2.5}$ particles may contain toxic substances and are a major cause of reduced visibility (haze).

Lead (Pb)

Lead is found in old paints and coatings, plumbing and a variety of other materials. Once in the blood stream, lead can cause damage to the brain, nervous system, and other body systems. Children are highly susceptible to the effects of lead.

Ozone (O_3)

Photochemical oxidant can include several different pollutants, but consists primarily of ozone (90%) and a group of chemicals called organic peroxynitrates. Ozone is a pungent, colorless reactive toxic gas produced near the earth's surface through photochemical reactions. Photo-

chemical oxidant is created by complex atmospheric reactions involving CO, NOx and VOC in the presence of ultraviolet energy from sunlight. The reactions that form ozone begin at sunrise and require sunlight to proceed. At the Earth's surface, ground level ozone is a criteria pollutant and a major component of smog that causes numerous adverse health effects.

In the upper atmosphere (approximately 12 to 25 miles above the surface of the Earth) ozone is found at concentrations below 10 parts per million (ppm). This ozone layer is transparent to UV-A radiation but absorbs harmful ultraviolet radiation (UV-C and UV-B) coming from the sun that can cause skin cancer.

Mobile sources (automobiles, motorcycles, trucks, off-road vehicles, boats, trains and airplanes) are the major source of ozone precursors (CO, NOx and VOC) in the SCAB. Peak ozone concentrations tend to occur in the SCAB between 1:00 and 2:00 p.m. during the summer and early fall, when the solar radiation exposure of the air mass is the greatest. Ozone and ozone precursors are transported downwind as the photochemical reactions continue to occur. In areas downwind of the source region like Palm Springs, peak ozone concentrations occur in the late afternoon and early evening (between 5:00 and 6:00 p.m.). If the ozone in Palm Springs were locally generated, the peak concentrations would be found during the middle of the day.

The prevailing marine air currents throughout the South Coast Air Basin typically carry polluted air inland as ozone-forming photochemical reactions proceed. The highest ozone concentrations are found miles downwind of the largest concentrations of precursor emissions sources. Peak ozone concentrations within the SCAB are found in the inland valleys and adjacent mountains between the San Fernando Valley and the Riverside-San Bernardino area.

Just as oxidant precursors from Los Angeles and the adjacent coastal areas aggravate oxidant problems inland in Riverside, precursor emissions from the central and eastern areas of the SCAB (including Anaheim) contribute to locally produced oxidant in the Coachella Valley.[2] A comprehensive study confirmed the transport pathways to the Coachella Valley in 1983.[3] Although the extent to which the intrusion of ozone contributes to Coachella Valley ozone exceedances has not been quantified, "...it is ARB's judgment that oxidant problems in the Southeast Desert would be minimal if oxidants and oxidant precursors were effectively controlled in the South Coast Air Basin."[4]

The role of local emissions in the formation of oxidants in the Coachella Valley is difficult to quantify. Locally produced oxidant undoubtedly accounts for some standard exceedances. However, tracer studies and studies of ozone levels by location, hour of day, day of week, etc. indicate that an oxidant cloud caused directly by transport from the SCAB causes exceedances in Palm Springs as late as 8 p.m., when local photochemical activity has slowed. In addition, transported NOx and VOC that was emitted the previous day have been identified as major contributors to ozone concentrations at downwind desert locations.[5]

OZONE PRECURSORS AND PARTICULATE MATTER PRECURSORS

Ozone precursors are chemicals such as carbon monoxide, hydrocarbons, and oxides of nitrogen, which occur either naturally or as a result of human activities and contribute through photochemical reactions to the formation of ground level ozone. The U.S. EPA defines mobile source ozone

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[2] Drivas, P. J. and F. H. Shair; "A Tracer Study of Pollutant Transport in the Los Angeles Area;" Atmospheric *Environment* 8: 1155-1163; 1974

[3] Smith, T.B. et al.; *The Impact of Transport from the South Coast Air Basin on Ozone Levels in the Southeast Desert Air Basin*; CARB Research Library Report No. ARB-R-83-183.

[4] SCAQMD and SCAG; *AQMP - Southeast Desert Air Basin, Riverside County;* October 1979.

[5] Ibid.

precursors as CO, NOx, and volatile organic compounds (VOCs). The California Air Resources Board (CARB) defines ozone precursors as CO, NOx and reactive organic gases (ROGs). Sulfur oxides (SOx) are precursors to particulate matter. VOCs and ROGs are hydrocarbons and ozone precursors.

Volatile Organic Compounds (VOC)

Volatile organic compounds are not criteria pollutants but are ozone precursors and may be toxic. VOCs are defined by the U.S. EPA as any compound of carbon which participates in atmospheric photochemical reactions (excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, ammonium carbonate, and carbonate). Hydrocarbon and other volatile organic compounds are formed from the combustion of fuels and the evaporation of organic solvents (such as gasoline, alcohol, and the solvents used in paints and other coatings). Many hydrocarbon compounds are major air pollutants and those classified as aromatics are highly photochemically reactive with NOx, forming photochemical smog.

Hydrocarbon concentrations are generally higher in winter, when sunlight is limited and photochemical reactions occur more slowly. During the winter, meteorological conditions are more favorable to the accumulation of volatile organic compounds in the atmosphere which, in the presence of NOx, play a major role in the formation of ozone.

Reactive Organic Gases (ROG)

Reactive organic gas is composed of hydrocarbons and non-methane organic compounds. ROG is not a criteria pollutant but is an ozone precursor in that it contributes to the formation of smog. The CARB defines reactive organic gases as non-methane hydrocarbons. Motor vehicles are the major source of reactive organic gases in the SCAB.

NATIONAL AND CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Ambient air quality is determined from data collected at air quality monitoring stations located throughout the South Coast Air Basin and the Salton Sea Air Basin. The ambient air quality data is given in terms of California and national standards which represent air pollutant concentrations which are considered safe to protect the public health and welfare with a reasonable margin of safety. As such, they represent objectives for acceptable concentrations of specified pollutants in outdoor air.

Ambient air quality standards are designed to protect public health and that segment of the population most sensitive and susceptible to respiratory distress or infection such as: asthmatics, the very young, the elderly, people weak with illness or disease, and people engaged in heavy work or exercise (i.e. sensitive receptors). Healthy adults can tolerate periodic exposures to air pollutant levels well above these standards before adverse health effects are observed.

Two types of national ambient air quality standards (NAAQS) have been established by the U.S. EPA, as required by the Federal Clean Air Act. Primary standards are designed to safeguard the health of people considered to be sensitive receptors while outdoors. Secondary standards are designed to safeguard public welfare by minimizing damage to plants and animals, buildings, the oxidation of rubber and paint, and protecting against decreased visibility.

The Federal Clean Air Act permits individual states to adopt more protective air quality standards if needed. California has set standards which are more protective of public health than the respective NAAQS. In addition, California has established standards for some pollutants not addressed by the national standards. As shown in Appendix B, California and NAAQS currently exist for the

following criteria pollutants: ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), suspended particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb).

Changes to the NAAQS have occurred since the 2007 *Air Quality Management Plan* (2007 AQMP) was prepared and approved by the U.S. EPA. Effective June 15, 2005, the U.S. EPA revoked the federal one-hour ozone standard and replaced it with an 8-hour average ozone standard. Since the one-hour federal ozone standard was not attained in the SCAB or the neighboring Coachella Valley by the attainment date, continuing obligations exist with respect to the former one-hour federal ozone standard. On May 27, 2008, the 8-hour ozone NAAQS was reduced from 0.08 to 0.075 ppm. The 2008 national health-based 8-hour surface-level ozone standard ($\leq$ 0.075 ppm) and the 2006 national fine particulate matter ($PM_{2.5}$) standard are more stringent than the previous standards. The SIP submittal for the 2008 national 8-hour ozone standard in due in 2015. In 2010, the U.S. EPA proposed that the 8-hour ozone NAAQS be lowered again. To date, no final action has been taken on that proposal.

On October 15, 2008, the national standard for lead was revised to a rolling 3-month average of 0.15 ug/m3 from a quarterly average of 1.5 ug/m3. On April 7, 2010, the U.S. EPA established a new one-hour NO_2 standard of 0.100 ppm. On August 2, 2010 the U.S. EPA revised the SO_2 standard. A new one-hour standard of 0.075 ppm was established for SO_2 and the annual and 24-hour standards were revoked. On December 14, 2012, the U.S. EPA lowered the federal primary $PM_{2.5}$ annual standard from 15.0 to 12.0 micrograms per cubic meter ($\mu g/m^3$).

Unlike national standards, there are no attainment deadlines for state standards. State law requires that they be attained as expeditiously as possible. California has also adopted health advisory levels called episode criteria for ozone, carbon monoxide, sulfur dioxide, and ozone in combination with sulfates. Episode criteria represent short-term exposures at concentrations which actually threaten public health. SCAQMD Rule 701 identifies specific steps that must be taken when health advisory levels are exceeded.

SOUTH COAST AIR BASIN ATTAINMENT STATUS

The U.S. EPA periodically reviews recent ambient air quality data that forms the basis for designating areas with respect to the NAAQS as: nonattainment, unclassifiable/attainment or attainment (maintenance). The "nonattainment" designation applies to areas that do not meet the primary standards. The unclassifiable/attainment designation applies to areas found to be better than the national standards that cannot be classified for some reason (such as the requisite data is not available).

The current attainment status of the NAAQS for each of the criteria pollutants is summarized in Table 3-1 for the South Coast Air Basin and Table 3-2 for the Riverside County portion of the Salton Sea Air Basin (the Coachella Valley). The SCAB is currently designated "extreme" nonattainment for ozone, based upon the former one-hour standard and both the former and the current federal 8-hour standards. The SCAB is designated "serious" nonattainment for PM_{10} based upon the federal 24-hour standard. However, a redesignation request to attainment was submitted on December 31, 2006 and is currently pending with the U.S. EPA. The SCAB is designated nonattainment for both the 24-hour and the annual $PM_{2.5}$ NAAQS. The attainment deadline for the 2006 24-hour $PM_{2.5}$ NAAQS is December 14, 2014. The attainment deadline for the annual $PM_{2.5}$ NAAQS is April 5, 2015. The Los Angeles County portion of the SCAB is designated nonattainment for lead with an attainment date of December 31, 2015. The SCAB is designated attainment (maintenance) for the one-hour and eight-hour carbon monoxide NAAQS. Attainment for carbon monoxide was achieved on June 11, 2007. The SCAB is designated attainment (maintenance) for the annual NO_2 standard and unclassifiable/attainment for the one-hour NO_2 NAAQS and both the 24-hour and the annual SO_2 federal standards.

Table 3-1
NAAQS Attainment Status
South Coast Air Basin

Criteria Pollutant	Averaging Time	U.S. EPA Designation	Attainment Date
1979 1-Hour Ozone[a]	1-Hour (0.12 ppm)	Nonattainment (Extreme)	11/15/2010 (Not Attained)[a]
1997 8-Hour Ozone[b]	8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024
2008 8-Hour Ozone	8-Hour (0.075 ppm)	Nonattainment (Extreme)	12/31/2032
CO	1-Hour (35 ppm) 8-Hour (9 ppm)	Attainment (Maintenance)	6/11/2007 (Attained)
NO_2[c]	1-Hour (100 ppb)	Unclassifiable/Attainment	Attained
NO_2[c]	Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998
SO_2[d]	1-Hour (75 ppb)	Designations Pending	Pending
SO_2[d]	24-Hour (0.14 ppm) Annual (0.03 ppm)	Unclassifiable/Attainment	3/19/1979 (Attained)
PM_{10}	24-Hour (150 $\mu g/m^3$)	Nonattainment (Serious)[e]	12/31/2006 (Redesignation Request Submitted)[e]
$PM_{2.5}$	24-Hour (35 $\mu g/m^3$)	Nonattainment	12/14/2014[f]
$PM_{2.5}$	Annual (15.0 $\mu g/m^3$)	Nonattainment	4/5/2015
Lead	3-Months Rolling (0.15 $\mu g/m^3$)	Nonattainment (Partial)[g]	12/31/2015

a. 1-hour O_3 standard (> 0.12 ppm) was revoked, effective June 15, 2005; however, the SCAB has not attained this standard based on 2008-2010 data and has some continuing obligations under the former standard.
b. 1997 8-hour O_3 standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the 1997 O_3 standard and most related implementation rules remain in place until the 1997 standard is revoked by U.S. EPA.
c. New NO_2 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO_2 standard retained.
d. The 1971 annual and 24-hour SO_2 standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO_2 1-hour standard. Area designations expected in 2012 with SCAB designated Unclassifiable/Attainment.
e. Annual PM_{10} standard was revoked, effective December 18, 2006; A redesignation request to Attainment of the 24-hour PM_{10} standard was submitted to EPA. The EPA proposed approval of the request and the maintenance plan on March 22, 2013.
f. Attainment deadline for the 2006 24-Hour $PM_{2.5}$ NAAQS is December 14, 2014.
g. Partial Nonattainment designation – Los Angeles County portion of SCAB only.

Table 3-2
NAAQS Attainment Status
Coachella Valley Portion of the Salton Sea Air Basin

Criteria Pollutant	Averaging Time	U.S. EPA Designation	Attainment Date
1979 1-Hour Ozone[a]	1-Hour (0.12 ppm)	Nonattainment (Severe-17)	11/15/2007 (Not timely attained)
1997 8-Hour Ozone[b]	8-Hour (0.08 ppm)	Nonattainment (Severe-15)	6/15/2019
2008 8-Hour Ozone	8-Hour (0.075 ppm)	Nonattainment (Severe-15)	12/31/2027
CO	1-Hour (35 ppm) 8-Hour (9 ppm)	Unclassifiable/Attainment 2nd Highest Non-Overlapping 8-Hour Average	Attained
NO_2[c]	1-Hour (100 ppb)	Unclassifiable/Attainment	Attained
NO_2[c]	Annual (0.053 ppm)	Unclassifiable/Attainment	Attained
SO_2[d]	1-Hour (75 ppb)	Designations Pending	Pending
SO_2[d]	24-Hour (0.14 ppm) Annual (0.03 ppm)	Unclassifiable/Attainment	Attained
PM10	24-Hour (150 $\mu g/m^3$)	Nonattainment (Serious)[e]	12/31/2006 (redesignation request submitted)
PM2.5	24-Hour (35 $\mu g/m^3$) Annual (15.0 $\mu g/m^3$)	Unclassifiable/Attainment	Attained
Lead	3-Months Rolling (0.15 $\mu g/m^3$)	Unclassifiable/Attainment	Attained

a. 1-hour O_3 standard (> 0.12 ppm) was revoked, effective June 15, 2005; the Southeast Desert Modified Air Quality Management Area, including the Coachella Valley, has not attained this standard based on 2005-2007 data and has some continuing obligations under the former standard (latest 2009-2011 data shows attainment).
b. 1997 8-hour O_3 standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the 1997 O_3 standard and most related implementation rules remain in place until the 1997 standard is revoked by U.S. EPA.
c. New NO_2 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO_2 standard retained.
d. The 1971 Annual and 24-hour SO_2 standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO_2 1-hour standard. Area designations expected in 2012 with SSAB designated Unclassifiable/Attainment.
e. Annual PM10 standard was revoked, effective December 18, 2006; redesignation request to Attainment of the 24-hour PM10 standard is pending with U.S. EPA.

The California Clean Air Act requires the CARB to establish and periodically review criteria that provide the basis for designating areas each year as: attainment, nonattainment, nonattainment-transitional or unclassified. A "nonattainment-transitional" designation means that pollutant concentrations violate the state standard but air quality is nearing attainment. An "unclassified" designation means there is insufficient data. The 2011 CARB designations for the South Coast Air Basin and the Riverside County Portion of the Salton Sea Air Basin are shown in Table 3-3.

Table 3-3
CARB 2011 Attainment Classifications [e]

Criteria Pollutant	South Coast Air Basin Designation	Riverside County Portion of the Salton Sea Air Basin Designation
Carbon Monoxide	Attainment	Attainment
Lead (Particulate)	Nonattainment (Los Angeles County Only)	Attainment
NO_2	Nonattainment	Attainment
Ozone	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Nonattainment
$PM_{2.5}$	Nonattainment	Unclassified
SO_2 and Sulfates	Attainment	Attainment
Hydrogen Sulfide	Unclassified	Unclassified
Visibility Reducing Particles	Unclassified	Unclassified

a. Source: CARB March, 2013.

COACHELLA VALLEY ATTAINMENT STATUS

The Coachella Valley portion of the Salton Sea Air Basin has been designated by the U.S. EPA for criteria pollutants as shown in Table 3-2. The 2007 AQMP and the subsequent SIP submittal requested a redesignation of the Riverside County portion of the Salton Sea Air Basin from "Serious" nonattainment to "Severe-15" nonattainment. The Riverside County portion of the Salton Sea Air Basin was subsequently redesignated by the U.S. EPA as a "Severe-15" ozone nonattainment area for the 8-hour federal ozone standards for 1997 (0.08 ppm) and the lower 2008 standard (0.075 ppm). This extended the attainment deadline to 2019 for the 1997 8-hour ozone standard and established a new attainment date for the 2008 8-hour ozone standard of December 31, 2027. In 2015, a new Ozone SIP attainment demonstration for the 2008 ozone standard will need to be submitted to the U.S. EPA.

The *Revised Draft 2012 AQMP* ozone modeling indicates that with no additional emissions controls, the 1997 8-hour standard will be attained in the Coachella Valley in 2019. With future emissions controls in place in the SCAB, the current (2008) 8-hour standard will be attained in the Coachella Valley by the year 2024, three years before the 2007 attainment deadline.

Nonattainment areas are subject to a number of requirements to improve their air quality including the preparation of plans specifying the control requirements that will be employed to meet the national air quality standards by reducing air pollutant emissions. Nonattainment areas are subject to a measure known as transportation conformity which requires local transportation and air quality officials to coordinate planning to ensure that transportation projects (such as road construction) do not affect an area's ability to reach its clean air goals. Transportation conformity requirements become effective one year after an area is designated as nonattainment.

Nonattainment areas are also subject to New Source Review (NSR) requirements. NSR is a permitting program for new or modified industrial facilities in nonattainment areas which emit nonattainment criteria pollutants to ensure that these sources of pollution do not impede progress toward cleaner air. The two primary requirements of NSR are: reductions in emissions through the use of Best Available Control Technology (BACT) and Emission Offsets. BACT is the most up-to-date methods, systems, techniques, and production processes available to achieve the greatest feasible emission reductions for regulated air pollutants. Emission Offsets require approval of new or modified stationary sources of pollution to be conditional, based on the reduction of emissions from banked reductions or other existing stationary sources.

EFFECTS OF POLLUTANTS ON SENSITIVE RECEPTORS

The California Air Resources Board has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65; children under 14; athletes; and people with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. These sensitive groups represent over 50% of the total California population.[6] Demonstrated effects of specific air contaminants on health and vegetation are discussed in Appendix B and summarized in Table 3-4.

The elderly are most sensitive, since loss of lung tissue is a natural process of aging. Inhalation of air pollution accelerates this loss by reducing lung volume and functional lung tissue. Damaged and irritated lung tissue becomes susceptible to bacterial infection. This increases the likelihood of chronic respiratory disease by reducing the ability of the immune system to fight infection and resist disease.

PM_{10} can accumulate in the respiratory system and enter the blood stream through the lungs, creating or aggravating cardiovascular and respiratory problems including asthma. EPA's scientific review concluded that fine particles ($PM_{2.5}$), which penetrate deeply into the lungs, are more likely than PM_{10} particles to contribute to adverse health effects. Elevated ozone concentrations result in reduced lung function, particularly during vigorous physical activity. Carbon monoxide can cause dizziness, fatigue, and impairments to central nervous system functions. Lead can cause damage to the brain, nervous system, and other systems in the human body.

The health effects associated with exposure to fine particles ($PM_{2.5}$) are significant. Studies have shown significant associations between elevated fine particles and premature mortality. Adverse effects include: aggravation of respiratory and cardiovascular disease (as indicated by increased hospital admissions, emergency room visits, absences from school or work, and restricted activity days), lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and cardiac arrhythmia.

Exposure to elevated ozone levels can cause irritated airways, coughing, pain when breathing deeply, wheezing, and inflammation. It can cause headaches, dizziness, memory impairment, aggravate asthma, and cause an increase in susceptibility to respiratory illnesses like bronchitis and pneumonia. Adverse effects vary with the level of exposure and the length of time exposed.

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[6] CARB; *Facts About How Air Pollution Damages Health;* 1983.

Table 3-4
Health Effects of Air Pollutants [a]

Pollutant	Most Relevant Effects
Ozone	Short-Term Exposures: Decline in pulmonary function in healthy individuals including breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue and immunological changes. Increased frequency of asthma attacks, cough, chest discomfort and headache. Long-Term Exposures: Risk to public health implied by altered connective tissue metabolism and host defense in animals. A correlation has been reported between elevated ambient ozone levels and increases in daily hospital admission rates and mortality.
Carbon Monoxide	A consistent association between increased ambient CO levels and excess admissions for heart diseases (such as congestive heart failure) has been observed. Can cause decreased exercise capacity in patients with angina pectoris. Adversely affects conditions with an increased demand for oxygen supply (fetal development, chronic hypoxemia, anemia, and diseases involving the heart and blood vessels). Can cause impairment of time interval estimation and visual function.
Nitrogen Dioxide	Sensory responses may be elicited or altered. May cause some impairment of pulmonary function and increased incidence of acute respiratory disease including infections and respiratory symptoms in children. Can cause difficulty in breathing in healthy as well as bronchitic groups.
Lead	Increase in blood lead levels which may impair or decrease hemoglobin synthesis. Adversely affects the development and function of the central nervous system, leading to learning disorders, distractibility, lower I.Q. and increased blood pressure. Lead poisoning can cause anemia, lethargy, seizures and death.
Sulfur Dioxide	May cause higher frequencies of acute respiratory symptoms (including airway constriction in some asthmatics and reduction in breathing capacity leading to severe difficulties) and diminished ventilatory function in children. Very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract.
Particulates	May cause higher frequencies of acute respiratory symptoms and diminished ventilatory function in children. A consistent correlation between elevated ambient PM10 levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed. Some recent studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in life-span, and the possibility of an increased incidence of cancer.

a. SCAQMD, "Draft 1997 Air Quality Management Plan."

Diesel engines emit a mixture of air pollutants including both gaseous and solid material (including soot) which reduces visibility and is a potent global warmer. Diesel exhaust particulate matter is a toxic air contaminant that has the potential to cause cancer, premature death, and other health problems especially for children and the elderly. Diesel engines also emit fine particulate matter ($PM_{2.5}$). Exposure to DPM is presumed by both federal and state officials to result in excess cancer risk. However, the scientific community is still deliberating over how best to represent the risk from DPM exposure.

Approximately 40% of people in the United States will develop an invasive cancer sometime during their lifetime. Approximately one in every four deaths in the United States is from cancer (American Cancer Society, 2002). Associated cancer risks with respect to air pollution are often measured in terms of "excess deaths" due to the environmental exposure. A lifetime risk of 10-5 corresponds to 10 excess deaths per million people whereas a lifetime risk of 10-4 corresponds to 100 excess deaths per million people. The EPA has stated that estimated excess cancer risks for background air pollution, even in remote areas of the United States, are on the order of 10-5 (Guinnup, 2003).

With respect to regional air quality, the SCAQMD *Multiple Air Toxics Exposure Study* (MATES-II, 2000) calculated that the carcinogenic risk in the SCAB was 1,400 excess cancers per million people exposed. This estimate was based on the average of the pollutant concentrations found at ten fixed sites within the SCAB that were monitoring more than 30 toxic air contaminants. Approximately 70 percent of the carcinogenic risk was attributed to mobile source emissions of diesel particulate matter (DPM). Another 20 percent of the risk was attributed to other toxics associated with mobile sources. The remaining 10 percent was attributed to stationary sources of toxic air pollutants.

3.2 REGIONAL CLIMATE AND AIR QUALITY

The average wind speed in Los Angeles is the lowest of the nation's ten largest urban areas. The maximum mixing height during the summer months in Southern California averages the lowest in the nation, reducing the vertical dispersion of pollutants in the air mass. This region experiences more days of sunshine than any other major urban area in the nation except Phoenix. The abundant sunshine in Southern California drives photochemical reactions which form secondary pollutants including ozone.

Although emissions in Southern California change somewhat by season, the observed variations in pollutant concentrations are largely the result of seasonal differences in weather conditions. Ozone concentrations peak during the summer months (May through September). CO and $PM_{2.5}$ concentrations peak during the late fall and winter months. Peak PM_{10} concentrations in the South Coast Air Basin reflect no clear seasonal variation.

Southern California, with the lowest summer time mean mixing height, the lowest average wind speed and emissions from the second largest urban area in the U.S., has one of the worst air pollution problems in the nation. Although past programs have been effective at improving the air quality of the SCAB, it still exceeds health-based standards frequently.

Pollution controls have reduced exposures to air pollution in the SCAB but population increases have made further emissions reductions more difficult to achieve. Increases in the number of pollution sources and the magnitude of the pollutant emissions may offset or even reverse the gains achieved through decades of regulation unless additional steps are taken to further control pollutant emissions.

During 2011, the SCAB did not exceed the ambient air quality standards for CO, NO_2, or SO_2. The U.S. EPA recently revised the NO_2 and SO_2 ambient air quality standards but the basin appears to be in compliance with the newly mandated standards.

OZONE TRENDS IN THE SCAB

The SCAB is currently designated as an "extreme" nonattainment area for the federal 8-hour ozone standard. The maximum 8-hour ozone concentrations have decreased by thirty percent over the last 20 years. Figure 3-2 shows the long-term downward trend in the maximum ambient 8-hour and 1-hour ozone levels within the SCAB since 1990. All of the emission control programs implemented for the 1-hour ozone standard have contributed to progress on meeting the new 8-hour surface level standard, which is more stringent. The 8-hour ozone standard will require more emission reductions and time to achieve than the 1-hour standard. The 1997 8-hour ozone standard deadline is 2023.

The number of days when the SCAB experiences high ozone levels has decreased dramatically over the last 20 years. As shown in Figure 3-3, the majority of exceedances of the current federal 8-hour ozone standard occur in the mountains and valleys in the southwest portion of San Bernardino County.

The 1-hour ozone standard was revoked by the U.S. EPA and replaced by the 8-hour average ozone standard on June 15, 2005. The U.S. EPA subsequently revised the federal 8-hour ozone standard (from 0.084 ppm to 0.075 ppm) on May 17, 2008. The SCAB still experiences ozone levels which exceed the revoked 1-hour standard on 5 percent of the days. A new 1-hour ozone SIP may have to be prepared within the next year demonstrating attainment within 5 years with a potential 5-year extension.

SUSPENDED PARTICULATE MATTER TRENDS IN THE SCAB

Both PM_{10} and $PM_{2.5}$ concentrations have improved dramatically over the last 20 years. As shown in Figure 3-4, the annual average PM_{10} and $PM_{2.5}$ levels in the SCAB have been reduced by approximately 50 percent. The SCAB has met the PM_{10} standards and a request for redesignation by the U.S. EPA to attainment is pending. During 2011, the annual and the 24-hour $PM_{2.5}$ standards were exceeded at only one location (in Mira Loma).

In the SCAB, PM_{10} is a complex problem because contributions come from a wide variety of emission sources. Nevertheless, progress has been made toward attaining the federal PM_{10} standard in several areas, especially those with fugitive dust problems. PM_{10} concentrations in the SCAB are declining and there has been a substantial decrease in the number of days per year above the standard. The SCAB effectively attains the federal 24-hour PM_{10} standard, with a few remaining exceedances in recent years due to natural windblown dust events.

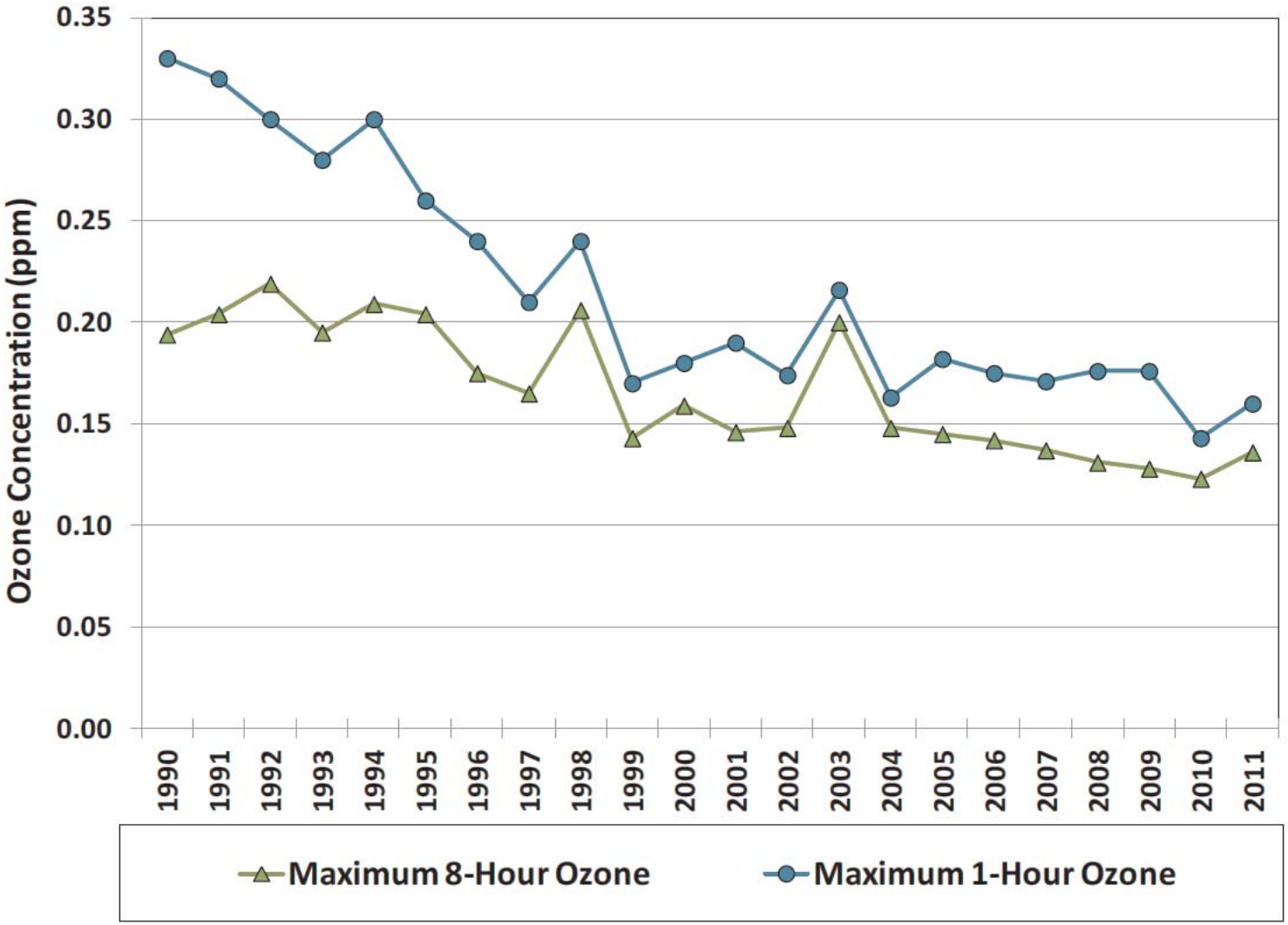
Figure 3-5 shows SCAB and Coachella Valley 3-year design values (2009-2011) for ozone, PM_{10} and $PM_{2.5}$, as a percentage of the corresponding federal standards. Based on the location of the project site within the Banning Pass between the SCAB and the Coachella Valley ambient ozone and particulate concentrations on-site would be expected to be between the levels shown for the SCAB and those shown for the Coachella Valley in Figure 3-5.

OTHER REGIONAL POLLUTANTS

In 2011, the SCAB did not exceed the standards for carbon monoxide, nitrogen dioxide, or sulfur dioxide. Although the U.S. EPA recently revised the NO_2 and SO_2 ambient air quality standards, the basin appears to be in compliance with the newly mandated standards.

Pollution controls have reduced exposures to air pollution in the SCAB but population increases have made further emissions reductions more difficult to achieve. The *Revised Draft 2012 AQMP* states that increases in the number of pollution sources and the magnitude of the pollutant

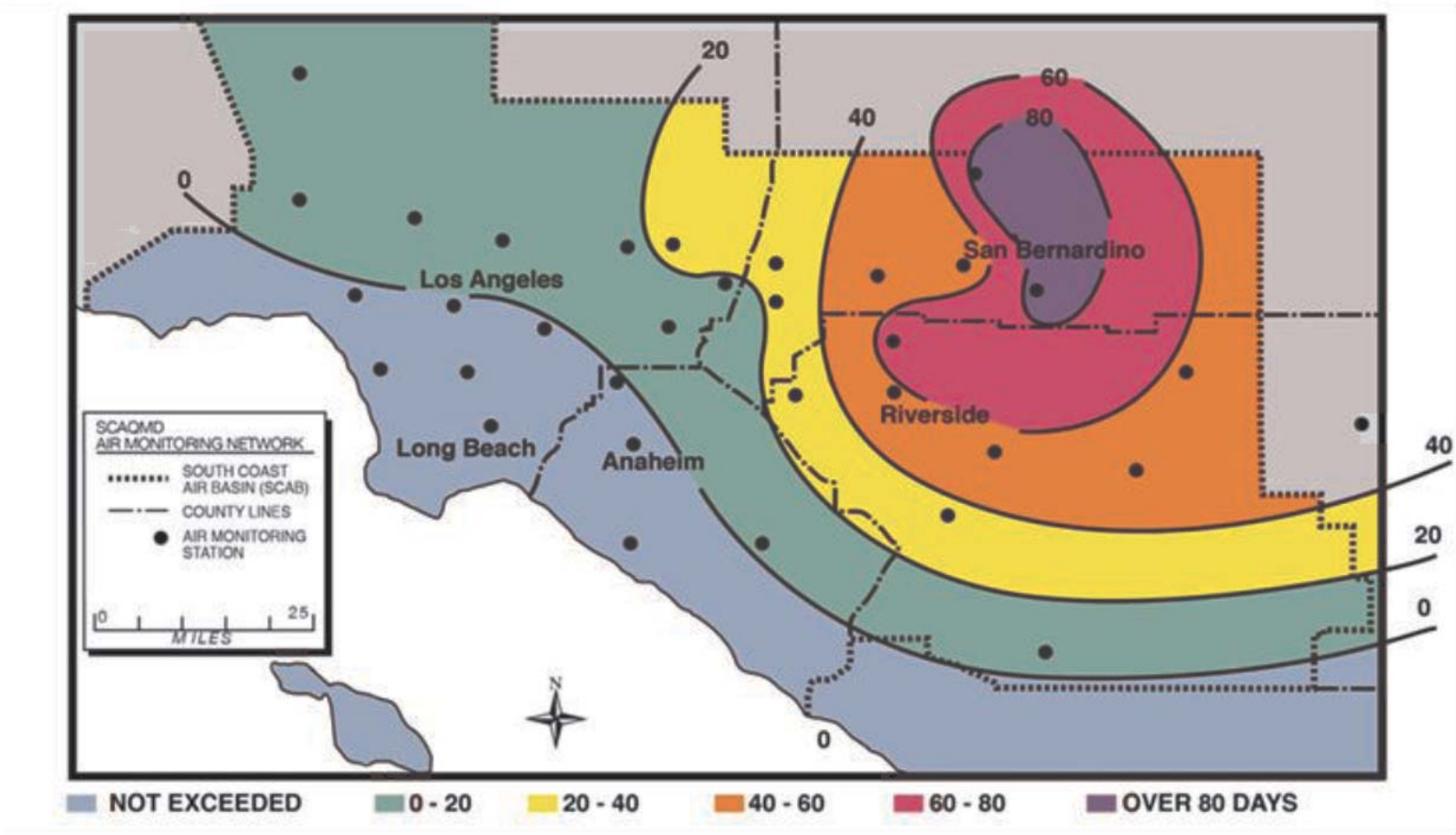
Figure 3-2
Maximum Ozone Concentration Trends
in the South Coast Air Basin



Endo Engineering

Source: SCAQMD "Revised Draft 2012 Air Quality Management Plan"; September 2012.

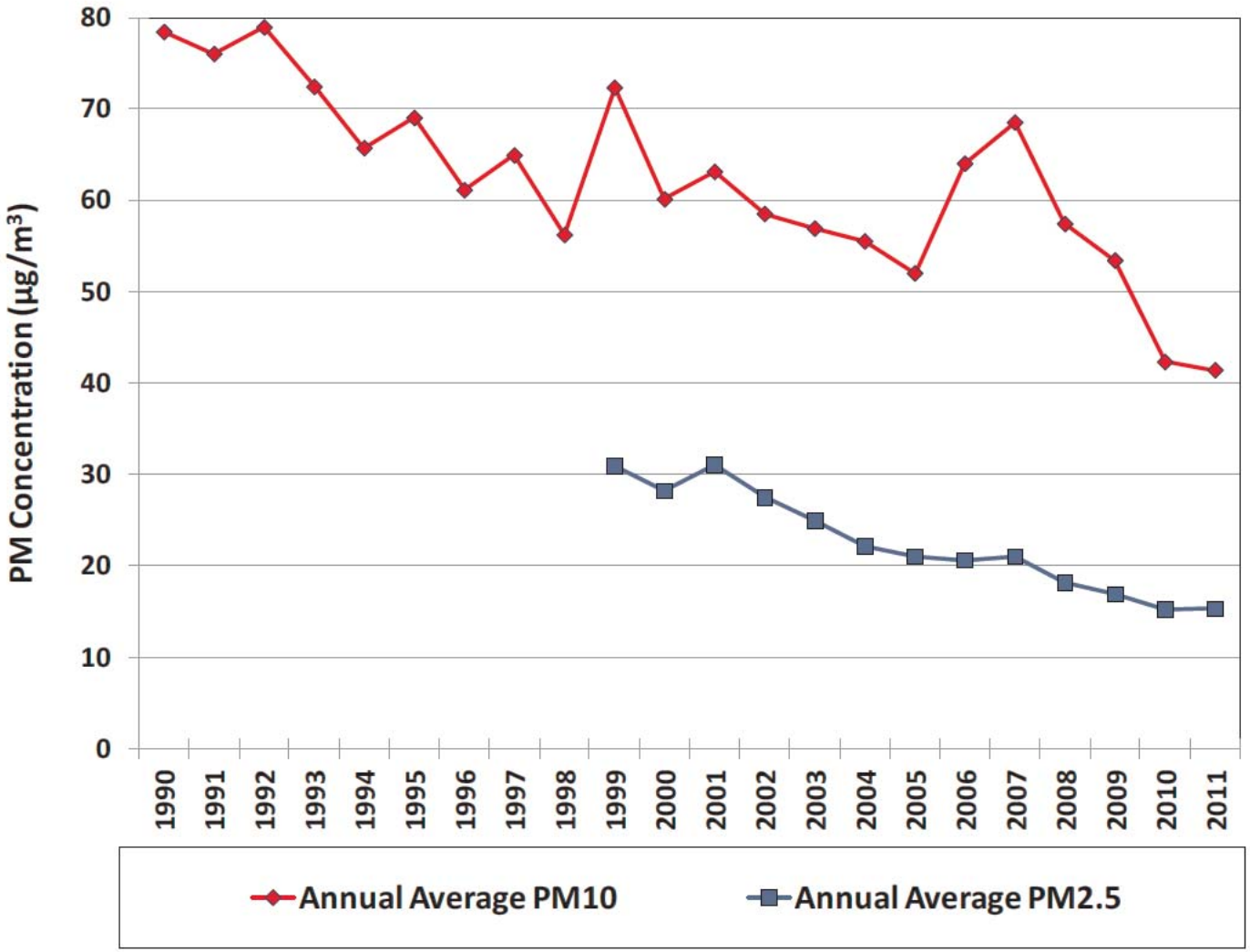
Figure 3-3
Days in 2011 Exceeding Current
Federal 8-Hr. Ozone Standard in SCAB



Endo Engineering

Source: SCAQMD "Revised Draft 2012 Air Quality Management Plan"; September 2012.

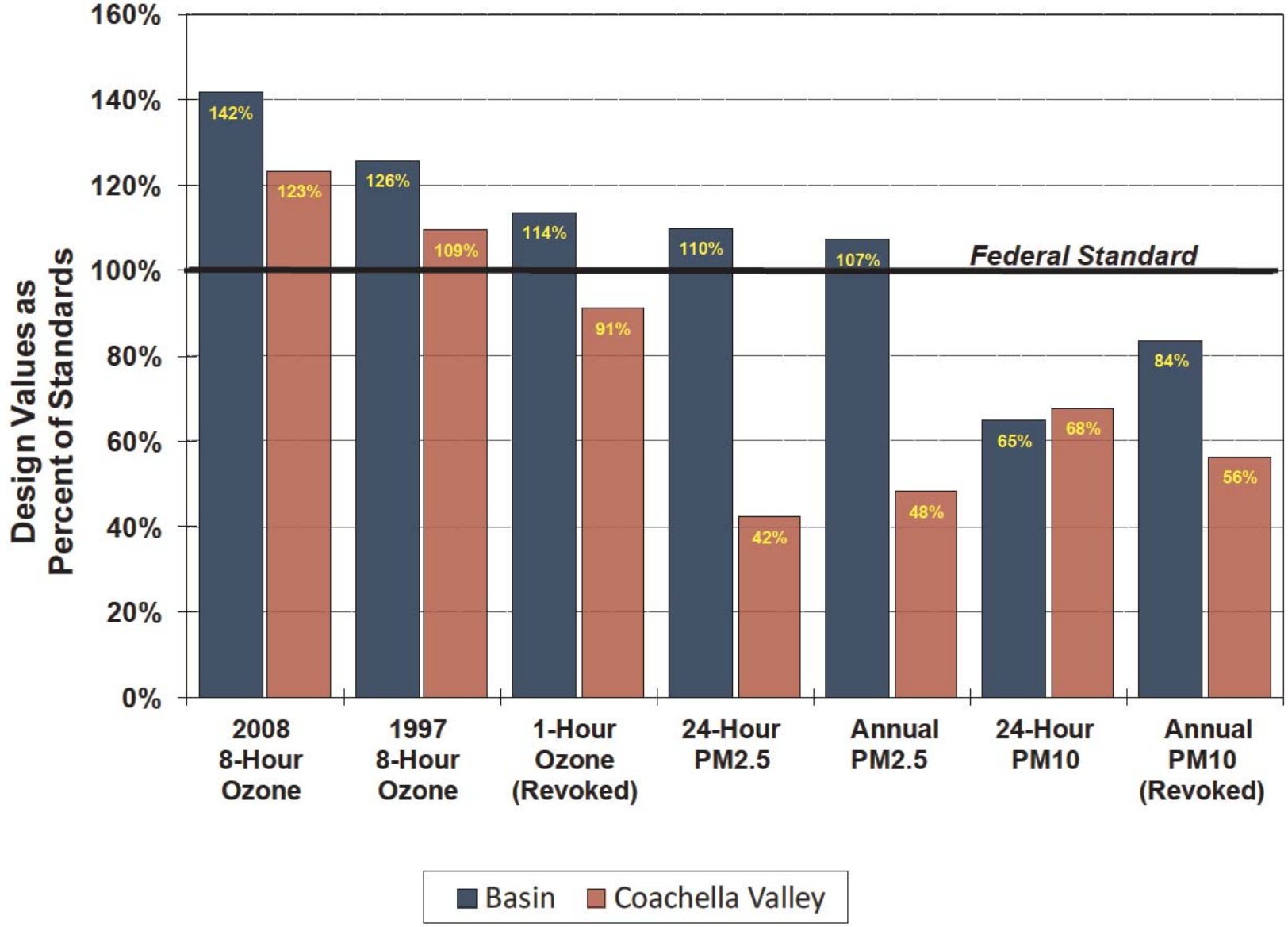
Figure 3-4
Maximum Annual Average Particulate Matter Concentrations
in the South Coast Air Basin



Endo Engineering

Source: SCAQMD "Revised Draft 2012 Air Quality Management Plan"; September 2012.

Figure 3-5
SCAB and Coachella Valley 3-Year
Design Values (2009-2011)



Endo Engineering

Source: SCAQMD "Revised Draft 2012 Air Quality Management Plan"; September 2012.

emissions may offset or even reverse the gains achieved through decades of regulation unless additional steps are taken to further control pollutant emissions.

As federal health-based air quality standards become more stringent and effective new control strategies become increasingly difficult to identify, the SCAB faces several ozone and PM attainment challenges. The California GHG reduction targets and timelines also affect many sources of criteria pollutant emissions. Strategies to achieve air quality and climate goals overlap in terms of both sources and control measures. Meeting multiple deadlines to achieve multiple air quality, climate, and energy objectives is a complex process which requires a coordinated approach involving all levels of government.

GREENHOUSE GASES

Greenhouse gases (GHG) trap solar energy in the Earth's atmosphere and make the planet warmer. Without GHG, the Earth would be too cold to be inhabitable. Common greenhouse gases in the Earth's atmosphere include: water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone, and to a lesser extent chlorofluorocarbons. Carbon dioxide is the main GHG thought to contribute to global climate change. Carbon dioxide absorbs long-wave radiant energy reflected by the Earth, which warms the atmosphere. GHG radiate long-wave radiation absorbed by the atmosphere out to space as well as down toward the Earth's surface. This process is known as the "greenhouse effect." Human activities (such as burning carbon-based fossil fuels) create water vapor and CO_2 as byproducts, thereby impacting the levels of GHG in the atmosphere.

Human activities are thought to be responsible for almost all of the increase in GHG within the atmosphere over the last 150 years. The largest source of GHG emissions is burning fossil fuels for electricity, heat, and transportation.

The U.S. EPA tracks GHG emissions annually. Since 1990, GHG emissions within the United States have increased approximately 10 percent. During 2010, GHG emissions in the U.S. totaled 6,882 million metric tons of CO_2 equivalent. The U.S. EPA attributes GHG emissions to five sectors. the production of electricity (34%), the transportation sector (27%), industry (21%), the commercial and residential sector (11%), and agriculture (7%). Seventy percent of our nation's energy comes from burning fossil fuels. Ninety percent of the fuel used for transportation is petroleum based. GHG from homes and businesses arise primarily from fossil fuels burned for heat, the use of products containing GHG, and the handling of waste. Managed forests and other land areas can absorb CO_2 from the atmosphere. In the U.S., land-use change and forestry were estimated to offset approximately 15% of the GHG emissions in 2010.[7]

Passenger vehicles have been identified by the California Air Resources Board (CARB) as the primary source of GHG emissions in California. During 2008, the CARB identified the CO_2 emissions associated with fuel use in the SCAB (mostly transportation fuels) as 32 percent of the CO_2 released in California.

In the *Revised Draft 2012 AQMP*, the SCAQMD identified on-road transportation as the largest source of GHG and criteria pollutants in the SCAB. Transportation and goods movement are responsible for over 80% of the NOx and 70% of the CO_2 emissions in the SCAB. Reliance primarily on internal combustion engines which are inherently inefficient to move people and goods in the SCAB wastes 80 percent of the energy content of the gasoline as heat. The majority of the $PM_{2.5}$ emissions in 2008 within the SCAB were attributable to transportation sources. Within the transportation sector, the majority of the NOx emitted in the SCAB in 2008 was emitted by diesel-powered vehicles. On-road heavy-duty diesel vehicles have a slow rate of fleet turnover which substantially increases the time before the benefits of technology improvements are fully realized.

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[7] U.S. EPA; *Sources of Greenhouse Gas Emissions; June 14, 2012*.

Improved policies regarding land use and transportation are essential elements in achieving criteria pollutant standards and California's 2050 GHG and climate change goals. Although hybrid and electric vehicles are more efficient than traditional internal combustion engines, additional technology changes in the transportation sector are needed to reduce emissions and increase both efficiency and the use of renewable fuels. Typical gasoline-fueled vehicles currently utilize 20 percent or less of the energy content of gasoline for propulsion.[8] The remaining 80 percent is wasted as heat.

Even though the SCAB consumes two percent of the energy consumed in the nation, California's per capita energy consumption is fourth lowest in the nation. Sixty percent of the energy use in the SCAB is attributed by the SCAQMD to the transportation sector. Three large airports are located in the SCAB serving 16 million residents. These residents rely on the freeways and highway infrastructure for mobility and use enough gasoline in the process to comprise nearly 50 percent of the total energy consumed in the SCAB. Two of the largest maritime ports in the nation are located in the SCAB and handle 40 percent of the nation's container traffic. Local distribution networks require diesel-powered trucks and trains to move goods Conservation, renewable energy generation from all sources, and lower emission technologies will all be required to reduce criteria air pollutants and GHG emissions.

3.3 Local Climate and Air Quality

The project site is located within the east/west Banning Pass, an area fifteen miles long and five miles wide that connects the SCAB to the Coachella Valley. The Banning Pass is one of the three major routes by which air pollutants generated within the Los Angeles metropolitan area are transported out of the SCAB. The elevation of the Banning Pass is 2,200 feet above mean sea level in Beaumont, 2,600 feet in Beaumont, and drops to 1,400 feet between Cabazon and Whitewater. On the north side of the Banning Pass, the San Bernardino Mountains rise to an elevation of 11,500 feet. The San Jacinto Mountains are located on the south side of the Banning Pass and have a maximum elevation of 10,800 feet. The topographical characteristics of the Banning Pass create persistent strong westerly winds that are compressed and channeled by the elevated land mass in the Banning Pass and the adjacent mountains to the north and south.

Local Climate and Meteorology

The prevailing meteorological conditions at the project site include air from the coastal plain to the west being funneled through the Banning Pass into the desert area within the Coachella Valley to the east. The meteorology at the site is transitional and unlike that of either the coastal plain or the desert area. Surface winds at the project site are primarily from the west. They are more frequent and stronger than those in the SCAB or the Coachella Valley. Temperatures within the Banning Pass vary more than in the coastal areas of the SCAB (where the Pacific Ocean moderates the climate) but less than temperatures vary in the Coachella Valley.

The climate station in Beaumont, California is located 5.4 miles west of the Banning Airport and closest to the project site. The study area is located in the Banning Pass, where the climate is warm during the summer, with temperatures typically in the 70's. The warmest month of the year is August, with an average maximum temperature of 96.9 degrees Fahrenheit. The winter climate is cool, with temperatures normally in the 50's. The coldest month of the year is December, with an average minimum temperature of 39.4 degrees Fahrenheit. Temperature variations between night and day can reach 37 degrees Fahrenheit during the summer and 25 degrees during the winter.

[8] Source: fueleconomy.gov

The annual average precipitation in Banning is 19.3 inches. Most of the rainfall occurs between November and March. With an average rainfall of 4.18 inches, January is typically the month with the most rainfall.[9]

Wind direction and speed (which in turn affect atmospheric stability) are the most important climate elements affecting ambient air quality within the area. The prevailing wind direction at the Banning Airport is from the west (85 percent of the time). Westerly wind speeds are predominantly between 9 and 14 miles per hour. During approximately 15 percent of the time, winds blow from the east at speeds ranging from 9 to more than 25 miles per hour. The annual mean wind speed is 9.8 miles per hour. Calm conditions rarely if ever occur at the Banning Airport (as shown in the Banning Airport Wind Rose included in Appendix B).

The Banning Pass is windy most of the time and sparsely populated. Elevated ozone levels are associated with the westerly flow of polluted air out of the SCAB, which is home to a population of approximately 17 million people. Minimal friction is generated between the moving air and the relatively low and sparse vegetation. This allows the wind to maintain its speed as it crosses from the SCAB into the Coachella Valley, where the rapid daytime heating of the air closest to the desert surface leads to convective activity and the exchange of surface air for upper air, which accelerates surface winds during the warm part of the day.[10] The Coachella Valley has a population of approximately 2 million people.

Since the dominant daytime onshore wind pattern follows the peak travel period (6:00 a.m. through 9:00 a.m.) in the Los Angeles/Orange County area, during periods of low inversions and low wind speeds, the photochemical smog formed in metropolitan areas is transported downwind into Riverside County, San Bernardino County, and the Coachella Valley. Peak oxidant levels in the Coachella Valley occur in the late afternoon and evening (between 4 p.m. and 8 p.m.), as pollutants are blown through the Banning Pass. Oxidant concentrations in the 50-mile long and 20-mile wide Coachella Valley are highest, closest to the South Coast Air Basin, and decrease steadily as the air mass moves east from Banning to Palm Springs and then Indio.

Surface-based inversions in the Coachella Valley are prevalent at night throughout the year and usually persist into the day during the winter months. Inversion conditions are associated with degraded air quality because the surface air is prevented from rising and dissipating the air pollutants that accumulate throughout the day. Radiation inversions are prevalent at night throughout the year. They limit the mixing in the lower atmosphere to a height of 200 to 2,000 feet. They persist through much of the day in winter but are destroyed early in the day during the summer.

LOCAL AMBIENT AIR QUALITY

The 2012 EPA "Technical Analysis for the Morongo Band of Mission Indians" concluded that although the Morongo Reservation does contain stationary and mobile sources of ozone precursors, the magnitude of the emissions of ozone precursors (NOx and VOC) is very small compared to emissions in the adjacent SCAB and Coachella Valley ozone nonattainment areas. The minimal amount of emissions associated with activities on the Morongo lands of Indian country and corresponding minimal contribution to regional ozone violations within the adjacent nonattainment areas resulted in the EPA recently designating the Morongo areas of Indian country as a separate ozone nonattainment area.

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[9] http://www.idcide.com/weather/ca/banning.htm.
[10] CARB; *Climate of the Southeast Desert Air Basin*, January, 1990.

NAAQS Attainment Status

Prior to 2003, the Morongo Reservation was included in the Coachella Valley portion of the Southeast Desert Air Basin (SDAB). In 2003 the EPA removed the Banning Pass from the Coachella Valley portion of the SDAB and included it in the SCAB. In 2007 California asked the EPA to reclassify the SCAB from "Severe-17" to "Extreme" nonattainment for the 1997 8-hour ozone NAAQS. Granting that request would lower the New Source Review threshold for major source emissions of ozone precursors within the Morongo Reservation from 25 to 10 tons per year. To prevent this, the Morongo Tribe asked the EPA in 2009, to designate the Morongo Reservation as a separate nonattainment area or move the boundaries of the Coachella Valley portion of the SSAB west to include the Reservation.

In 2010, the EPA granted the 2007 California request to classify the SCAB "Extreme" nonattainment for the 1997 8-hour ozone NAAQS and reclassified all Indian country (except that pertaining to the Morongo Tribe and the Pechanga Tribe) from "Severe-17" to "Extreme" nonattainment. The Coachella Valley nonattainment area was also reclassified at that time by the U.S. EPA to "Severe-15".

On December 20, 2012, the U.S. EPA corrected its 2003 action revising the boundaries between the SCAB and the Coachella Valley portion of the SDAB and established a separate 1-hour ozone nonattainment area for the Indian country within the Morongo Reservation. The EPA also proposed redesignating the areas of Indian country of the Morongo Band of Mission Indians, California as a separate air quality planning area for the one-hour and 1997 eight-hour ozone standards. If finalized, the Morongo Reservation will be its own nonattainment area for each of the federal ozone standards. The U.S. EPA also granted the Morongo Tribe's request to designate the Morongo Reservation portion of Indian country as a separate "Serious" nonattainment area for the 2008 8-hour ozone standard.

Recent Air Monitoring Data

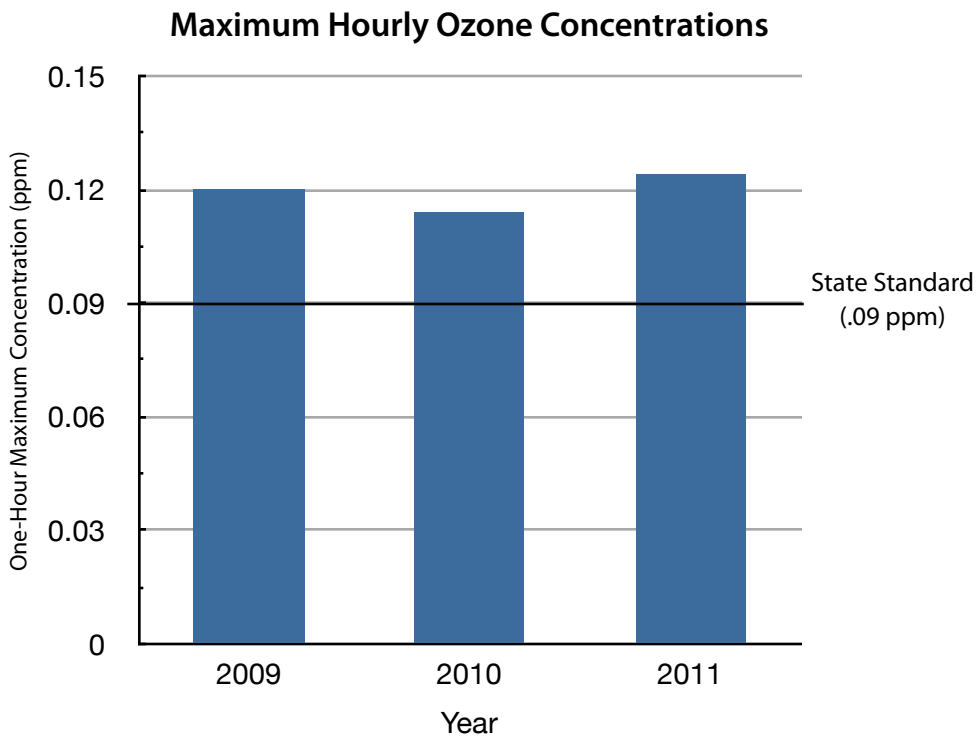
The SCAQMD maintains an ambient air quality monitoring station at the Banning Airport which collects data representative of Source Receptor Area 29 and the project site. The ambient air quality data from this station for 2009 through 2011 (included in Appendix B) indicates that only ozone exceeded the NAAQS. The months between May and October typically have the highest ozone and particulate concentrations.

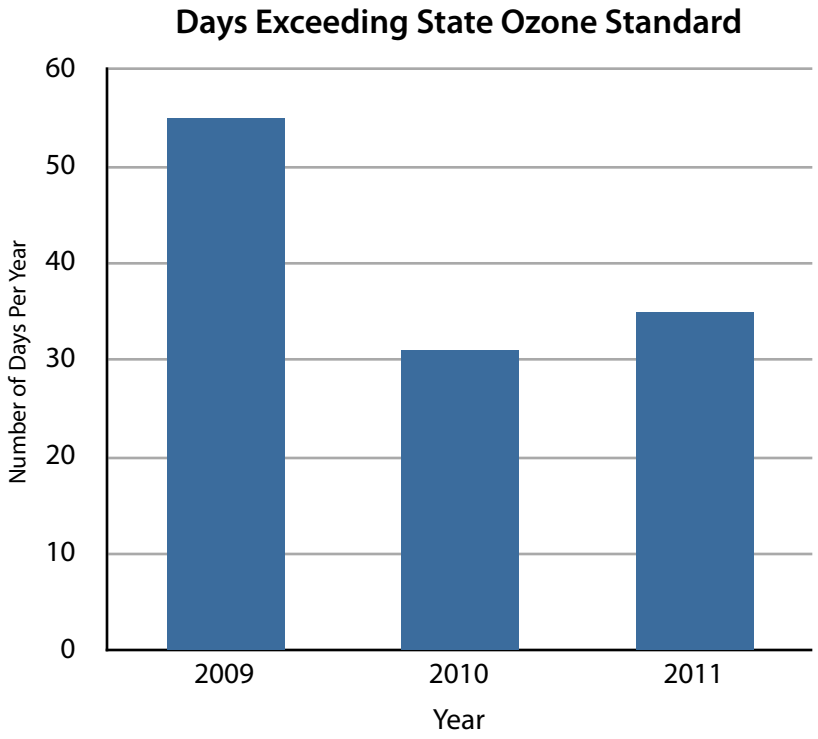
The 8-hour average ozone concentrations monitored at the Banning Airport exceeded the national standard (0.075 ppm) on 171 days (16.3 percent of the days monitored) during the three-year interval from 2009 through 2011. The highest 8-hour average ozone level found (0.111 ppm) exceeded the national standard by 48 percent.

The 8-hour average ozone concentrations at the Banning Airport exceeded the state standard on 236 days (22.5 percent of the days monitored). The highest 8-hour average ozone concentration monitored exceeded the state 8-hour ozone standard by 59 percent.

Figure 3-6 depicts the number of days exceeding the one-hour state ozone standard as well as the maximum hourly ozone concentrations at the Banning Airport air monitoring station. Ozone levels exceeded the state one-hour standard (0.09 ppm) on 121 (11.5 percent) of the 1,049 days monitored from 2009 through 2011. The maximum one-hour ozone concentration was 0.133 parts per million (ppm). The state one-hour ozone standard was exceeded by up to 48 percent at the Banning Airport.

Figure 3-6
Banning Airport Ozone Data





The annual average PM_{10} concentration for two of the three years exceeded the state standard of 20 $\mu g/m^3$ in Banning. The annual average PM_{10} concentration for 2009 (25.9 $\mu g/m^3$) was the highest and exceeded the state standard by 29.5 percent but did not exceed the national standard (50 $\mu g/m^3$). Figure 3-7 depicts the percentage of PM_{10} samples exceeding the state 24-hour standard as well as the maximum 24-hour PM_{10} concentrations. As shown therein, the PM_{10} concentrations at the Banning Airport exceeded the California 24-hour standard on two percent of the days monitored (one of the days monitored each year). The maximum 24-hour PM_{10} concentration was 99 micrograms per cubic meter ($\mu g/m^3$) nearly twice the state standard (50 $\mu g/m^3$) and 66 percent of the national standard (150 $\mu g/m^3$).

Nitrogen dioxide was monitored at the Banning Airport for all three years but did not exceed the state one-hour standard (0.18 ppm) or the state annual standard (0.030 ppm). The highest annual average NO_2 concentration (0.0116 ppm) occurred in 2010 and was 22 percent of the national standard and 39 percent of the state annual standard. The new one-hour national for NO_2 standard (0.100 ppm) became effective on April 7, 2010. The highest one-hour concentration (0.0657 ppm) was 66 percent of the new national one-hour standard for NO_2.

PM_{10} sulfate data was monitored in Banning only during the year 2011. Based upon 59 days of monitoring data, the highest 24-hour average concentration at the Banning Airport was 4.4 $\mu g/m^3$. This concentration was 17.6 percent of the state standard (25 $\mu g/m^3$). There is no national standard for PM_{10} sulfate.

The ambient air monitoring station located at the Banning Airport did not monitor all of the criteria pollutants. Between 2009 and 2011, the following pollutants were not monitored at this locations: Carbon monoxide, lead, $PM_{2.5}$, and sulfur dioxide. PM_{10} sulfate was not monitored in 2009 or 2010.

AIR QUALITY IN THE COACHELLA VALLEY

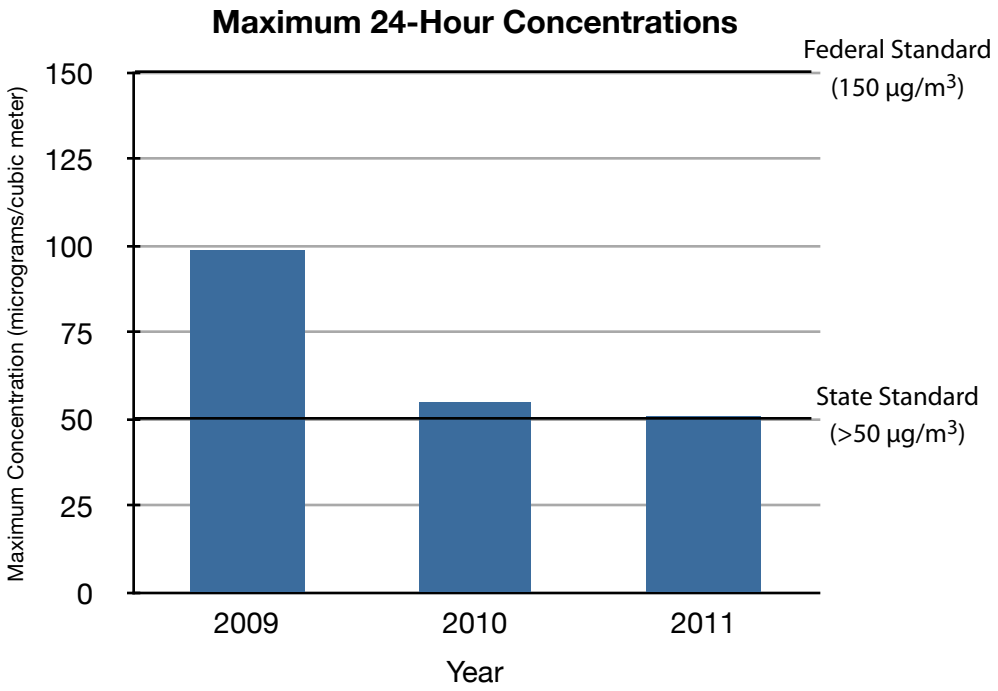
The Coachella Valley Planning Area is a sub-region of Riverside County and the SSAB located east of the project site, as shown in Figure 3-1. The Riverside County portion of the SSAB is currently designated as a federal nonattainment area for ozone and PM_{10} ambient air quality standards. Exceedances of the ozone standards in the Coachella Valley are due to the transport of ozone from the densely populated areas of the upwind SCAB.

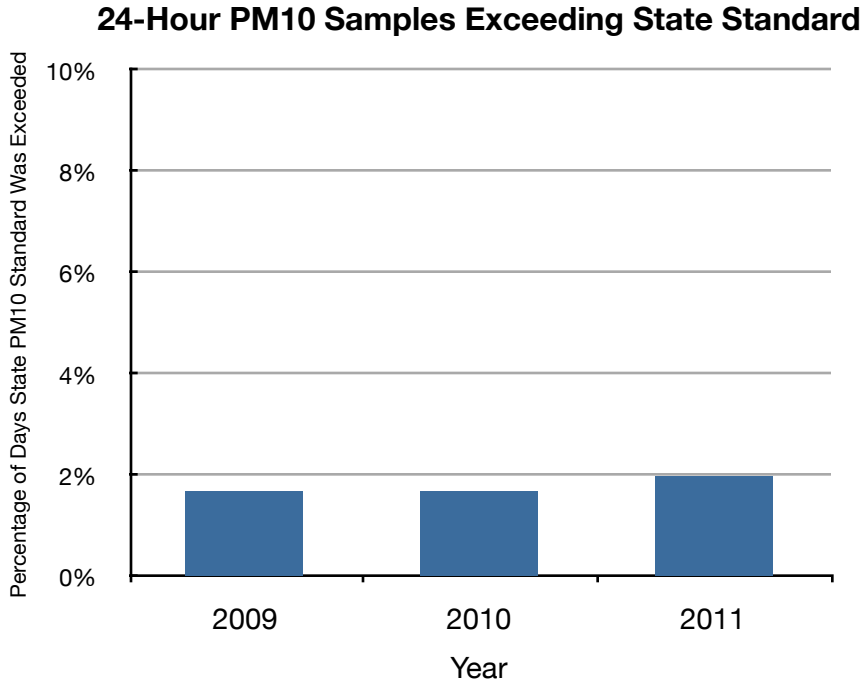
Air pollutants are not constrained by city or county jurisdictional boundaries. Consequently, local programs alone will not be sufficient to solve air quality problems that are regional in nature. The polluted air mass within the neighboring South Coast Air Basin is routinely transported through the Banning Pass into the Coachella Valley, as photchemical reactions proceed which generate both ozone and suspended particulate matter. Peak ozone levels which are found between 1:00 p.m. and 2:00 p.m. within the SCAB occur in the late afternoon and evening in the Coachella Valley. Ozone concentrations within the Coachella Valley are highest at the Palm Springs monitoring station, which is located closer to the densely populated SCAB and closer to the Banning Pass than the Indio station. The Palm Springs air monitoring station is located approximately 16 miles east of the project site

Ozone

Ozone air quality trends for the Coachella-San Jacinto area indicate a downward trend in the number of days exceeding the national 1-hour ozone standard since 1976. This has occurred despite the fact that population growth in the Coachella Valley over this period has been dramatic.

Figure 3-7
Banning Airport PM_{10} Data





Atmospheric ozone in the Coachella Valley is both directly transported from the SCAB by the prevailing sea breezes and formed from precursors emitted upwind. During 2011, the maximum 1-hour concentration measured was 99 percent of the former federal standard. In 2011, the 1997 federal 8-hour standard was exceeded on 18 days during the summer months. The newer and more stringent 2008 federal 8-hour ozone standard was exceeded on 54 days during the summer months. The highest concentration in the Coachella Valley was 129 percent of the current federal standard.

In 2011, the Coachella Valley exceeded the federal 8-hour ozone standards (both the 1997 standard (0.08 ppm) and the lower 2008 standard (0.075 ppm). For both ozone standards, the Coachella Valley is classified as a "severe" ozone nonattainment area. During 2011, the maximum 1-hour concentration measured was 99 percent of the former federal standard. The state 1-hour and 8-hour standards for ozone were exceeded on 25 days and 78 days, respectively in the Coachella Valley.

Particulate Matter (PM_{10})

PM_{10} in the Coachella Valley comes mostly from locally generated fugitive dust produced by both human activities (on-road and off-road vehicles, construction activities and farming) and natural occurrences (sand and dust storms when winds exceed 25 mph). The highest PM_{10} concentrations are typically found in the summer, when hot dry weather produces more dust or result from unusual circumstances such as wildfires or celebrations involving fireworks. The PM_{10} concentrations in Palm Springs and Indio peaked in 2006 and 2007, when construction activities peaked.

The Coachella Valley exceeds the PM_{10} standard on days when high wind events cause the transport of windblown dust from disturbed and natural desert areas. The two days during 2011 on which the PM_{10} standard was exceeded were associated with high-wind natural events and have been flagged for exclusion from the federal database. After excluding high-wind natural event days, no days have exceeded the federal 24-hour PM_{10} standard (150 $\mu g/m^3$) at Indio or Palm Springs since the mid 1990s.

The Coachella Valley is currently designated "serious" nonattainment of the 24-hour average PM_{10} NAAQS by the U.S. EPA. The SCAQMD has requested that the U.S. EPA redesignate the Coachella Valley from nonattainment to attainment of the PM_{10} NAAQS. That request is currently pending. During 2011, the maximum PM_{10} concentration (24-hour average without excluded high-wind days) was 77 percent of the federal standard (150 $\mu g/m^3$). The annual average PM_{10} concentration in 2011 was 65 percent of the revoked federal PM_{10} standard (50 $\mu g/m^3$).

Fine Particulate Matter ($PM_{2.5}$)

With fewer combustion sources than the SCAB, increased vertical mixing, and horizontal dispersion in the desert area, $PM_{2.5}$ concentrations found in the Coachella Valley have remained relatively low compared to levels in the SCAB. The Coachella Valley does not exceed the federal 24-hour or annual standards for $PM_{2.5}$. In 2011, the maximum concentration (24-hour average) in Indio on an exceptionally high-wind day was 99.7 percent of the federal standard. The second highest value was 74 percent of the federal standard and occurred in Palm Springs. The annual average concentration in 2011 was 48 percent of the federal standard.

The $PM_{2.5}$ standards were not exceeded at the Palm Springs monitoring station between 2009 and 2011. The highest 24-hour concentration measured at the Indio monitoring station was 35.4 $\mu g/m^3$ in 2011. The highest 24-hour concentration measured at the Palm Springs monitoring station was 26.3 $\mu g/m^3$ in 2011. When rounded down to 35 $\mu g/m^3$, the 24-hour $PM_{2.5}$ concentration monitored in Indio would not exceed the federal 24-hour standard for $PM_{2.5}$ (>35 $\mu g/m^3$).

The federal standard for $PM_{2.5}$ is 15 $\mu g/m^3$ (annual arithmetic mean). The highest $PM_{2.5}$ annual arithmetic mean in Indio was 7.9 $\mu g/m^3$ in 2009. The highest annual arithmetic mean in Palm Springs was 6.7 $\mu g/m^3$ in 2009.

Other Criteria Pollutants

PM_{10} sulfate was monitored in the year 2011 in both Indio and Palm Springs. The maximum 24-hour concentration was 4.4 $\mu g/m^3$ in Palm Springs and 5.7 $\mu g/m^3$ in Indio. The state sulfate standard is 25 $\mu g/m^3$. During 2011, the maximum 24-hour average sulfate concentration was 23 percent of the state standard. There is no federal standard for sulfate.

CO and NO_2 levels did not exceed the ambient air quality standards in the Coachella Valley. Sulfur dioxide and lead are not currently monitored in the Coachella Valley. National sulfur dioxide standards were last exceeded in the 1960's. These pollutants are not of concern in the Coachella Valley.

3.4 EXISTING SENSITIVE RECEPTORS

A sensitive receptor is a person in the population who is particularly susceptible (i.e. more susceptible than the population at large) to health effects due to exposure to an air contaminant. Sensitive receptors and the facilities that house them are of particular concern if they are located in proximity to localized sources of carbon monoxide, toxic air contaminants, or odors. Land uses considered by the SCAQMD to be sensitive receptors include: residences, long-term health care facilities, schools, rehabilitation centers, playgrounds, convalescent centers, child care centers, retirement homes, and athletic facilities.

If sensitive receptors are located adjacent to a major intersection, carbon monoxide (CO) "hot spots" may occur during peak travel times. High levels of CO are associated with traffic congestion and with idling or slow-moving vehicles, depending on the background CO concentration. Therefore, projects that could negatively impact levels of service at major intersections with nearby sensitive receptors must quantify and, if necessary, mitigate potential impacts.

The sensitive receptor sites closest to the project site are single-family detached residences located approximately 0.25 miles south of the southern boundary of the general parking area proposed on-site (see Figure 2-2, the Vicinity Map). Approximately seven single-family residences are located south of Interstate 10 in this area. The area located west of the project site, between Morongo Trail and Millard Pass is developed with approximately 55 single-family detached dwellings. The closest residential lot in this area is approximately 0.5 miles west of the western site boundary.

3.5 LOCAL SOURCES OF AIR CONTAMINANTS

Ozone precursor emissions generated within the adjacent SCAB exceed 400,000 tons per day of NOx and more than 200,000 tons per day of VOC. Within the Coachella Valley, ozone precursor emissions exceed 50,000 tons per day of NOx and 28,000 tons per day of VOC. By comparison, the Title V operating permit for the Morongo Casino Resort and Spa cogeneration facility limit its emissions to less than 18.7 tons per year of NOx and 18.7 tons per year of VOC (i.e., 0.05 tons per day of NOx and 0.05 tons per day of VOC).

Commercial and Industrial Land Uses

Existing sources of ozone precursor emissions within the tribal boundaries include the Morongo Casino Resort and Spa cogeneration facility. This facility has a Title V operating permit which limits the 8.4 megawatt facility's potential to emit from the four natural gas-fired engines and three

diesel-fired backup generators to less than 18.7 tons per day of NOx emissions and less than 18.7 tons per day of VOC emissions.

The Morongo Travel Center is located north of Seminole Drive and east of Thunder Road, just west of the Morongo Casino Resort and Spa. The Morongo Travel Center dispenses gasoline and diesel fuel to the public from thirty-six pumps. The Morongo Travel Center is a stationary source of VOCs and toxic air contaminants. Gasoline refueling stations emit benzene when gasoline is dispensed to motor vehicles and during the loading and breathing of the underground gasoline storage tanks. Benzene is a constituent of gasoline and is a toxic air contaminant identified under Assembly Bill 1807. The Morongo Travel Center complies with SCAQMD Rule 1401. A permit to construct was required before this gasoline dispensing station was constructed and put into operation. A permit to operate ensures that appropriate emissions control measures are in place and functioning properly, allowing this gasoline dispensing station to operate safely under the conditions, if any, that limit its operation.

A bulk materials plant (gravel pit) is located southwest of the project site, south of Interstate 10 and west of Apache Trail. This facility generates fugitive dust emissions as a result of disturbed surfaces and exhaust emissions associated with the equipment used to extract and process the bulk materials and aggregate from the site.

Trains

The Union Pacific Railroad line traverses the area south of Interstate 10 and the project site. The Union Pacific Railroad provides freight rail service to Riverside County with up to fifty freight trains per day passing through the area to and from major cities throughout the continental United States. Within Riverside County, freight rail is an important backbone of the goods movement industry.

Amtrak provides regional passenger rail service using the railroad line located south of the project site. Amtrak's Sunset Limited passenger service between the Union Station in Los Angeles and New Orleans stops at the North Palm Springs Amtrak train station.

The freight trains are moved by locomotives that emit air pollutants. In Southern California, locomotives emit 30 tons per day of pollutants including particulate-forming nitrogen oxides. That exceeds the combined total emitted by the region's 300 largest factories and other facilities.

Freeway Traffic

The Interstate 10 freeway is part of the state highway truck route system and a local source of air pollution located immediately south of the project site. The primary means of transporting goods and consumer products in Riverside County is large trucks. The agricultural and industrial sectors of the Riverside County economy generate a significant amount of truck traffic. Between the year 2003 and the year 2020, truck volumes in the region are expected to increase by forty percent. Interstate 10 is the primary corridor for the movement of goods within and through the Coachella Valley and the Banning Pass.

Interstate 10 is an eight-lane freeway located immediately south of the project site which currently accommodates up to 99,000 vehicles per day, many of which are trucks. Caltrans data for Interstate 10 at Ramsey Street (approximately three miles west of Apache Trail) indicates that approximately 20,313 trucks per day were using Interstate 10 in the project vicinity in the year 2010. These trucks represented 18.3 percent of the annual average daily traffic volume.

In 2011, the segment of Interstate 10 located near the project site accommodated an annual average traffic volume of 91,000 vehicles per day. The traffic volume on Interstate 10 varies by year as well

as by season. During the peak month in 2011, the average daily traffic volume on Interstate 10 was approximately 99,000 vehicles per day (8.8 percent higher than the annual average day). During the highest hour of the average day in 2011, approximately 8,900 vehicles per hour (9.8 percent of the daily traffic volume) traveled past the project site on Interstate 10.

The CARB has estimated that 50 percent or more of the air pollution in Southern California is the result of motor vehicle emissions. Automobiles and trucks emit four of the six criteria pollutants including: carbon monoxide (which is highly toxic), volatile organic compounds (hydrocarbons), nitrogen oxides, and airborne particulate matter. In addition to criteria pollutants, heavy-duty diesel trucks emit diesel particulate matter (DPM) which has been identified by the CARB as a toxic air contaminant. Chronic exposure to benzene, a hazardous toxic air pollutant damages bone marrow and can depress the immune system increasing the potential for infection and cancer.

Motor vehicle emissions contain gaseous pollutants, fine particulate matter, ultrafine particles (UFP), metals, organic material, black carbon, VOC, NOx, and CO. Although ultrafine particles are toxic and have been shown to have adverse health impacts, they are not regulated at this time. Concern has been growing regarding the potential health effects on people living near major roadways and freeways caused by their exposure to criteria pollutants and air toxics emitted by gasoline and diesel vehicles. Recent studies have identified living near major roadways as a risk factor for respiratory and cardiovascular problems as well as other health-related problems including lung cancer and premature death. Motor vehicles also emit carbon dioxide, a greenhouse gas, thought to play a significant role in climate change.

The available data show that potential cancer risks decrease with distance and the relative exposure and health risk drop substantially within the first 300 feet from the downwind edge of a freeway or rural travel corridor with more than 50,000 vehicles per day. The carcinogenic health risk at 300 feet from the upwind side of the freeway is much less than that at the same distance from the downwind side.[11] The CARB has determined that a separation of 500 feet between sensitive land uses and freeways or busy traffic corridors can reduce localized air pollution exposures by as much as 80 percent.

Traffic volumes and speeds change continuously, as do the number of heavy diesel trucks and low emission vehicles on the freeway and the localized wind direction and speed. Changing weather conditions (such as the ambient temperature, humidity, inversion height, and atmospheric stability) alter the mixing height and affect the dispersion of air contaminants. As a result, the concentrations of various air contaminants found near freeways change constantly and will change in the future as numerous control measures included in the State Implementation Plan and the CARB *Diesel Risk Reduction Plan* are fully implemented. The emission control standards for passenger vehicles and on-road heavy diesel trucks will become more stringent over time, and the characteristics of the fuels being used will also change over time to reduce emissions. The CARB *Diesel Risk Reduction Plan* proposes a three-pronged approach that would require: the use of low-sulfur diesel fuel; retrofitting existing engines with PM filters; and nearly a 90 percent reduction of PM emissions from all new diesel engines and vehicles.

3.6 REGULATORY SETTING

The federal Clean Air Act (CAA) governs air quality by directing federal, state and local agencies to regulate activities that generate air pollutants. The U.S. Environmental Protection Agency (U.S. EPA) is responsible for reducing air pollution nationwide and limiting the emissions of air pollutants coming from industrial and other stationary air pollution sources as well as mobile

[11] California EPA and CARB; *Air Quality and Land Use Handbook: A Community Health Perspective*; April 2005; pg. 9-10.

sources (i.e., on-road motor vehicles and non-road sources such as airplanes, trains, ships, boats, construction equipment, farm machinery etc.).

Section 109 of the CAA requires the U.S. EPA to set NAAQS for pollutants considered to be harmful to human health or the environment. These standards limit how much of certain air pollutants can be in the air anywhere in the United States. The U.S. EPA has established standards for six pollutants known as "criteria" pollutants including: CO, NO_2, ground-level ozone, lead, particulate matter (PM_{10} and $PM_{2.5}$), and SO_2. Under the provisions of Section 107 of the CAA, the U.S. EPA designates areas as attainment, nonattainment, or unclassifiable for the criteria pollutants. The U.S. EPA works with state governors and tribal government leaders to identify "nonattainment" areas where the air does not meet allowable limits for a common air pollutant.

Tribal governments monitor air quality, inspect facilities under their jurisdictions, and enforce the federal Clean Air Act regulations. In the 1990 revision of the Clean Air Act, Congress recognized that Indian Tribes have the authority to implement air pollution control programs. The U.S. EPA's Tribal Authority Rule gives tribes the ability to develop air quality management programs, write rules to reduce air pollution and implement and enforce their rules in Indian country. While state and local agencies are responsible for all Clean Air Act requirements, tribes may develop and implement only those parts of the Clean Air Act that are appropriate for their lands.

States and tribes do much of the planning necessary to reduce common air pollutants to allowable levels by developing air quality control plans called State/Tribal Implementation Plans. While not required to do so, an eligible tribe may develop its own Tribal Implementation Plan (TIP) for approval by the U.S. EPA. Once approved, a TIP is legally binding under both tribal and federal law and may be enforced by the tribe, the U.S. EPA, and the public. If a plan does not meet the necessary requirements, EPA can issue sanctions and, if necessary, take over enforcing the Clean Air Act in that area.

On June 10, 2011 the EPA finalized a Federal Implementation Plan (FIP) to ensure that CAA permitting requirements are applied consistently to facilities in Indian country to protect air quality in these areas. The FIP fills a regulatory gap by clarifying the pre-construction air pollutant permit process (New Source Review) for large and small facilities which are air pollutant sources and ensuring that any increases in emissions from these facilities will not significantly impact air quality in surrounding areas. Tribes that choose to implement the rules can accept delegation of the FIP or develop and seek approval of a Tribal Implementation Plan (TIP) to administer these rules or portions of them, which could include some enforcement authority.

States and tribes often use a permit system as part of their plan to make sure power plants, factories, and other pollution sources meet their goals of attaining the NAAQS. Other Clean Air Act programs for which tribes may receive approval or delegation include: the Title V permit program, New Source Performance Standards, and National Emission Standards for Hazardous Air Pollutants. Tribal New Source Review rules are being developed that will help the U.S. EPA address air quality problems in Indian country in cases where a tribe may be unable to do so themselves. Through the permitting process, these air pollution sources can be required to install the best available control technology (BACT) and assess their impacts on air quality including potential impacts on Class I areas such as national parks and wilderness areas.

Tribes seeking to clean up air pollution are sometimes unable to meet the NAAQS because of pollution blowing in from other upwind areas. The Clean Air Act has a number of programs designed to reduce long-range transport of pollution to ensure that emissions from sources in one area are not contributing significantly to public health problems in downwind areas that fail to meet the NAAQS. The Clean Air Act gives any tribe the authority to ask the U.S. EPA to set emission limits for specific sources of pollution in other (upwind) areas that significantly contribute to its air

quality problems. Tribes can petition the U.S. EPA to require the upwind areas to reduce air pollution.

Conformity is a process mandated by the federal CAA to ensure that federal actions do not impede attainment of the federal health-based ambient air quality standards. General conformity requirements can be found in Section 176(c) of the CAA. On April 5, 2010, the U.S. EPA issued the General Conformity Rule final revision which included annual *de minimis* levels established for use in demonstrating conformity. 40 CFR 93§153 defines *de minimis* levels as the minimum threshold for which a conformity determination must be performed for various criteria pollutants in various areas. Both the General Conformity[12] and NSR regulations[13] require that reductions be enforceable by both the State and EPA.

FEDERAL CLEAN AIR ACT REQUIREMENTS

The Clean Air Act (CAA) is a federal law covering the entire country which requires the adoption of national ambient air quality standards (NAAQS) to ensure public health and welfare and environmental protection from air pollution. Indian tribes have express authority under the 1990 CAA to manage air quality on their reservations. The Clean Air Act gives the U.S. EPA the authority to limit emissions of air pollutants coming from air pollution sources like industrial plants, and utilities. Individual states or tribes may have stronger air pollution laws, but they may not have weaker pollution limits than those set by EPA.

Section 110 of the CAA requires that each State adopt a plan which provides for implementation, maintenance and enforcement of the primary and secondary national air quality standards in that state. That requirement is met by the State Implementation Plan (SIP). The U.S. EPA must approve state, tribal, and local agency plans for reducing air pollution. If a plan does not meet the necessary requirements, EPA can issue sanctions against the state and, if necessary, take over enforcing the Clean Air Act in that area.

The federal CAA prohibits federal departments and agencies or other agencies from acting on behalf of the federal government, and the Metropolitan Planning Organization (MPO) from engaging in, supporting in any way, providing financial assistance for, licensing, permitting, or approving any activity that does not conform to the SIP. The Coachella Valley Association of Governments (CVAG) is the MPO for the Coachella Valley. Federal law requires that a proposed project conform with the SIP.

The November 1990 amendments to the federal CAA were intended to intensify air pollution control efforts across the nation. The CAA identified specific emission reduction goals, required both a demonstration of reasonable further progress (an incremental reduction in emissions of relevant air pollutants needed to ensure attainment of the national ambient air quality standards or NAAQS by the applicable date) and an attainment demonstration, and incorporates more stringent sanctions for failure to attain or to meet interim milestones.

GENERAL CONFORMITY

The goal of conformity is to ensure that federal funding and approvals are given to activities that are consistent with air quality goals. The federal Clean Air Act requires federal projects to conform to the purpose of the State Implementation Plan (SIP). Conformity to a SIP means that such activities will not cause or contribute to any new violations of the NAAQS; increase the frequency or severity of the NAAQS violations; or delay timely attainment of the NAAQS or any required interim milestone. Conformity requirements apply in areas that either do not meet or previously have not

[12] 40 C.F.R. 93.152 *Emission Offset*
[13] 40 C.F.R. 51.165

met air quality standards for ozone, carbon monoxide, particulate matter, or nitrogen dioxide. These areas are known as "nonattainment areas" or "maintenance areas," respectively.

A conformity determination demonstrates that implementation of the project will not cause any new violations of the air quality standard for which an area is designated "nonattainment" or "maintenance" or delay timely attainment of the standard or any interim milestone. The conformity determination shows that the total emissions from the project are consistent with the goals for air quality found in the SIP. Project-level conformity indicates that potential localized emissions impacts are addressed.

A motor vehicle emissions budget is that portion of the total allowable emissions in the SIP that is allocated to on-road mobile sources, such as automobiles, trucks, and buses. It is the level of on-road emissions that the area can have and still meet the SIP goals. The budget acts as a ceiling on emissions from the on-road transportation sector.

THE CALIFORNIA CLEAN AIR ACT

The California Clean Air Act (CCAA), which is generally more stringent than the federal CAA, was signed into law in 1988 and amended in 1992. The CCAA divides nonattainment areas into categories with progressively more stringent requirements, based on pollutant levels monitored therein. The CCAA establishes a legal mandate to achieve health-based state air quality standards at the earliest practicable date that is generally more stringent than the federal CAA. Serious and above nonattainment areas are required to revise their AQMP to include specified emission reduction strategies and to meet milestones in implementing emission controls and achieving better air quality.

The Coachella Valley exceeds the federal ozone standard and is classified as a "Severe-15" ozone nonattainment area. Pollutant transport from the SCAB to the Salton Sea Air Basin through the Banning Pass is the primary cause of the high ozone concentrations found in Indio and Palm Springs in the late afternoon and early evening. Air pollutant emissions within the SCAB are between five and fifty times greater than emissions in the Coachella Valley, depending on which pollutant is considered. Consequently, improved air quality within the Coachella Valley depends on substantial emission reductions in the SCAB. Since the SCAB is also designated a nonattainment area for ozone, the Coachella Valley may only be able to attain the ozone standard after the SCAB reduces emissions of ozone precursors (CO, VOCs and NOx).

Meeting the rate-of-progress requirements of the CAA in rapidly growing areas like the Coachella Valley is difficult. With the control strategy for the SCAB described in the *Final 2007 AQMP,* the federal ozone standard can only be attained by the Coachella Valley if further control of locally-generated VOC emissions occurs via state and federal regulations.

The federal Clean Air Act requires the Coachella Valley to: (1) identify specific emission reduction goals; (2) demonstrate reasonable further progress in VOC emission reductions; (3) demonstrate attainment of the federal ozone standard; and (4) provide contingency actions in the event that interim milestones are not met. These requirements are addressed by the *Final 2007 AQMP*, which also satisfies the State Implementation Plan requirements under Title I of the CAA.

REGIONAL AIR QUALITY MANAGEMENT PLAN (AQMP)

Southern California is far from meeting all of the federal and state ambient air quality standards. The current regional strategy to attain the ambient air quality standards relies on incremental changes in the SCAQMD Rules and Regulations (a command-and control regulatory structure) supplemented by market incentive and compliance flexibility strategies. To attain the federal standards, Southern California must significantly accelerate its pollution reduction efforts. The

SCAQMD is attempting to identify the most effective strategies to improve air quality; maintain a healthy economy; coordinate their efforts with others; and meet applicable transportation, energy and climate objectives.

The SCAQMD leads the regional effort to attain the state and federal ambient air quality standards. The SCAQMD also develops and implements the *Air Quality Management Plan* (AQMP). The AQMP is the region's comprehensive multi-year control strategy to reduce air pollution from stationary sources, on-road and off-road mobile sources, and area sources to ensure continued progress toward attainment, and comply with state and federal requirements. The federal CAA requires the SCAB (a 24-hour $PM_{2.5}$ non-attainment area) to prepare and submit a SIP demonstrating attainment by 2014. It also requires that transportation conformity budgets be established based on the most recent planning assumptions (within the last 5 years) and approved motor vehicle emission models.

The *Draft 2012 AQMP* demonstrates attainment of the federal 24-hour $PM_{2.5}$ standard by 2014 in the SCAB through adoption of all feasible measures. It revises the U.S. EPA approved 8-hour ozone control plan with new commitments for short-term NOx and VOC reductions and updated emissions inventories and projections. Specific measures that assist in attaining the 1997 8-hour ozone (80 ppb) standard by 2023 are included. It builds upon the approaches in the 2007 AQMP for the attainment of federal PM and ozone standards and shows that additional strategies are needed (especially for mobile sources) to meet all federal criteria pollutant standards within the time frames allowed under the federal Clean Air Act.

The purpose of the AQMP is to set forth a comprehensive program to lead the South Coast Air Basin and the desert portion of Riverside County in the Salton Sea Air Basin (including the Coachella Valley) into compliance with all national and state air quality standards. The newest federal $PM_{2.5}$ and 8-hour surface-level ozone standards are more stringent than previous standards. Consequently, meeting the federal Clean Air Act deadlines over the next twenty years will be challenging. Effective strategies are required to improve air quality and meet related transportation, energy, and climate objectives.

Compliance with the provisions of the federal CAA and CCAA is the primary focus of the *Final 2007 Air Quality Management Plan* developed by the SCAQMD and SCAG. Since local government provides the primary focus of land use and growth management decisions, no air quality management plan can succeed without the active participation of local government. Most of the control measures relating to local government are in the areas of trip reduction, energy conservation, and dust control.

Consistent with the need to reduce emissions from mobile sources, many control measures focus on alternatives to current transportation strategies. Ride sharing, carpooling, flexible work schedules, parking management and the acquisition of clean-fueled fleet vehicles are a few of the transportation control measures to be considered for adoption by affected cities and counties. Measures which call upon local jurisdictions to develop more efficient management programs for solid waste including: (1) recycling programs; (2) energy conservation programs; and (3) programs to reduce fugitive dust emissions are also included. Nearly all of the measures call for the adoption of ordinances to implement control programs.

Control strategies from the AQMP that should be considered for adoption by local governments include: (1) emission reductions from paved roads, unpaved roads, unpaved parking lots and staging areas (SCAQMD Rule 403); (2) promotion of lighter color roofing and road materials and tree planting programs; (3) advanced transportation technology incentive programs such as telecommunications, advanced shuttle transit, zero-emission vehicles, alternative fuel vehicles and Intelligent Vehicle Highway Systems.

Local governments are also responsible for participating in voluntary supportive programs. These programs include implementing transportation improvements called for in the AQMP, coordinating with SCAG and CVAG regarding regional transportation projects, programs and plans that conform to the State Implementation Plan, and developing and adopting ordinances to comply with the CMP.

Transportation Control Measures (TCMs) are specific projects or programs designed to reduce emissions from transportation sources that are included in the approved SIP. Emissions can be reduced by reducing vehicle use, changing traffic flow, or changing congestion conditions. Examples include programs for improving public transportation, developing high occupancy vehicle (HOV) lanes, improving vanpooling programs, and ordinances to promote non-motorized vehicle travel. Most AQMP TCMs included in the RTIP are designed to relieve congestion, reduce emissions from idling vehicles, and help maintain the Congestion Management Program level of service standards. Projects like signal timing, bicycle lanes, coordinating land use planning with transportation planning, encouraging the accelerated use of cleaner fuels (especially low diesel fuel) during construction can help reduce emissions.

Most of the air pollutant emissions and health threat to the residents in the SCAQMD region are currently the result of mobile sources including: automobiles, trucks, ships, trains, planes, and construction equipment. The *2007 AQMP* focuses on measures to reduce mobile source emissions through the accelerated turnover of existing fleets and incentive programs to help fund the replacement of aging dirty diesel engines and clean up locomotives. The *2007 AQMP* also addresses the need to further reduce emissions from stationary sources such as power plants, refineries, dry cleaners, gas stations, and industrial facilities. The *2007 AQMP* will help reach the goal of cutting smog-forming emissions an additional 50 percent by the year 2020.

The U.S. EPA approved the 8-hour ozone SIP portion of the 2007 AQMP in 2011. The *2007 AQMP* demonstrated attainment with the 8-hour ozone standard by the year 2023 using a provision of the federal CAA that allows credit for emissions reductions from future improvements in control techniques and technologies. These reductions still account for 65 percent of the remaining NOx emissions reductions needed in 2023. The *Draft 2012 AQMP* updates certain portions of the 8-hour ozone control plan approved by the U.S. EPA to include new implementation control measures and commitments for short-term NOx and VOC emissions reductions to meet the 2023 attainment deadline.

The *Draft 2012 AQMP* is the latest update of the comprehensive regional plan with all feasible control measures to attain the health-based federal 24-hour $PM_{2.5}$ standard by the year 2014 in the SCAB. It also updates the air quality status of the Coachella Valley portion of the Salton Sea Air Basin. A strategy focused on NOx reductions has been identified as the most effective way to achieve both the ozone and $PM_{2.5}$ attainment objectives.

STATE IMPLEMENTATION PLAN

The SIP is the state air quality plan for meeting the NAAQS. It is a compilation of legally enforceable rules and regulations prepared by a State or local air quality agency and submitted by the State's governor to the U.S. EPA for approval. A SIP is designed to achieve better air quality by attaining, making progress toward attaining, or maintaining the NAAQS. The SIP accounts for each pollutant for each source type. There are four types of sources: (1) on-road mobile sources, (2) non-road mobile sources (trains, boats, planes, construction equipment), (3) stationary sources (refineries etc.), and (4) area sources (dry cleaners). The SCAQMD and CARB identify how pollution from all sources will be reduced sufficiently to achieve the purpose of the SIP. Required emissions reductions are calculated and control measures are adopted to achieve needed reductions.

On April 18, 2003, the U.S. EPA approved the *2002 Coachella Valley State Implementation Plan* (2002 CVSIP) which addressed attainment of the PM_{10} standards by building upon a historically proactive and successful dust control program carried out by local jurisdictions in the Coachella Valley and the SCAQMD. The 2002 CVSIP established additional controls needed to demonstrate expeditious attainment of the standards such as:

- additional stabilizing or paving of unpaved surfaces, including parking lots;
- a prohibition on building new unpaved roads;
- requiring more detailed dust control plans from builders in the valley that specify the use of more aggressive and frequent watering, soil stabilization, wind screens, and phased development as opposed to mass grading to minimize dust;
- designating a worker to monitor dust control at construction sites; and
- testing requirements for soil and road surfaces.

The *Final 2003 Coachella Valley PM_{10} SIP* revised the 2002 CVSIP to reflect updated planning assumptions, fugitive dust source emissions estimates, mobile source emissions estimates, and attainment modeling. The 2002 CVSIP control strategies and control measure commitments were not revised. The 2003 CVSIP was approved by the U.S. EPA on December 14, 2005.

Over the past five years, annual average PM_{10} concentrations have met the levels of the revoked federal annual standard (50 $\mu g/m^3$) and the peak 24-hour average PM_{10} concentrations have not exceeded the current federal standard (150 $\mu g/m^3$). The Coachella Valley is currently eligible for redesignation as attainment. Requests have been submitted to the U.S. EPA to re-designate the Coachella Valley and SCAB as attainment for PM_{10}. These redesignations are currently pending. On February 25, 2010, the CARB approved the *2010 Coachella Valley PM_{10} Maintenance Plan* and transmitted it to the U.S. EPA for approval.

The U.S. EPA has designated the SCAB nonattainment for the national $PM_{2.5}$ standards. The Coachella Valley is designated by the U.S. EPA as unclassifiable/attainment of this standard. The *Revised Draft 2012 AQMP* addresses the Clean Air Act planning requirements for the 24-hour $PM_{2.5}$ standard in the SCAB, not the Coachella Valley.

The $PM_{2.5}$ portion of the *2007 AQMP* is the adopted State Implementation Plan to achieve compliance with the NAAQS for $PM_{2.5}$. The majority of the $PM_{2.5}$ portion of the *2007 AQMP* has been approved by the U.S. EPA. The only exception was the failure to meet contingency measure requirements. In 2011, the SCAQMD submitted a $PM_{2.5}$ SIP revision designed to meet the contingency measure requirement for the annual $PM_{2.5}$ SIP.

The U.S. EPA has designated the SCAB and the Coachella Valley portion of the SSAB as nonattainment for the national ozone standards. The *2007 AQMP* addressed the Clean Air Act planning requirements for ozone in the SCAB and the Coachella Valley portion of the SSAB. The ozone portion of the *2007 AQMP* was approved by the U.S. EPA into the 8-hour ozone SIP in 2011.

The *Revised Draft 2012 AQMP* for the SCAB is the current regional plan to achieve compliance with the 2006 health-based federal NAAQS for the 24-hour $PM_{2.5}$ standard and the federal 8-hour ozone standards. Once this plan is approved by the CARB, it will be submitted to the U.S. EPA as the State Implementation Plan (SIP). The *Revised Draft 2012 AQMP* addresses the Clean Air Act planning requirements for the 24-hour $PM_{2.5}$ standard in the SCAB, not the Coachella Valley. The Coachella Valley is designated by the U.S. EPA as unclassifiable/attainment for this standard.

SENATE BILL 375

In 2008, the passage of Senate Bill 375 required the CARB to develop regional GHG reduction targets for the year 2020 and the year 2035 for passenger vehicle emissions. These GHG targets include: an 8 percent reduction below 2005 levels on a per capita basis by the year 2020 and a 13 percent reduction by the year 2035. The SCAG used these targets to develop a Sustainable Communities Strategy integrating land use, housing, and transportation planning in the *2012 Regional Transportation Plan* (2012 RTP).

The 2012 RTP promotes higher residential and employment densities in high quality transit (HQT) areas and encourages transit-oriented development to reduce the total vehicle miles traveled (VMT) by locating homes and jobs closer to public transportation. Much of the transit network is located in close proximity to existing freeways. Consequently, many of the HQT areas are also near freeways. Implementation of the 2012 RTP would result in 282,000 households in the SCAG region located within 500 feet of a freeway and within an HQT area in the year 2035.[14]

SENATE BILL 97 AND ASSEMBLY BILL 32

The Global Warming Solutions Act of 2006 (AB-32) seeks to reduce GHG emissions in California to 1990 levels by the year 2020. To address the long-term adverse impacts associated with global climate change, implementation of the *Governor's Executive Order S-3-05* would also reduce GHG emissions in California 80 percent below 1990 levels or 90 percent below current levels by the year 2050. Achieving this objective would contribute to efforts being made around the globe to stabilize the global climate by capping GHG concentrations at 450 ppm.

To achieve the 2020 goal, the CARB plans to use both voluntary and regulatory measures to reduce GHG emissions. One measure known as the "cap-and-trade" program went into effect in January of 2013. It would establish a cap on GHG emissions for California's largest emitters (i.e., facilities with annual emissions greater than 25,000 MT of CO_{2e}).

New or modified projects must be analyzed pursuant to CEQA and mitigated to the maximum extent feasible. With the passage of Assembly Bill 32 in California, environmental documents for projects pursuant to CEQA are required to analyze greenhouse gases and assess the potential significance of GHG emission impacts. However, there is currently no statewide threshold for GHG emissions for use in making a determination regarding the significance of environmental effects related to GHG emissions in the environmental review process.

The SCAQMD has adopted an interim GHG significance threshold for permitting activities related to industrial (stationary source) projects for which the SCAQMD is the lead agency. The threshold is 10,000 metric tons per year of CO_2 equivalent (MT/year of CO_2e) emissions. This threshold includes construction emissions amortized over 30 years and added to the operational GHG emissions. Although an interim screening level of 3,000 MT/year of CO_2e emissions was identified by the SCAQMD for new mixed-use residential and commercial projects, it was not recommended for use at this time.

SCAQMD RULES AND REGULATIONS

The SCAQMD is responsible for controlling stationary air pollution sources. The SCAQMD *Rules and Regulations* address a wide variety of industrial and commercial operations and require operational controls on many processes. The SCAQMD establishes Permit to Construct and

[14] SCAQMD; *Revised Draft 2012 AQMP;* September 2012; pg. 9-25. High quality transit areas are the 0.5-mile corridor surrounding a fixed bus route (or the intersection of two or more major bus routes) with service intervals no longer than 15 minutes during peak commute hours.

Permit to Operate requirements, inspects emissions sources, and enforces rules and regulations through educational programs and fines. Rule 1108 specifies the content of cutback asphalt.

Studies indicate that one-third of the SCAB ambient PM_{10} concentrations and 90 percent of the Coachella Valley PM_{10} levels are the result of soil dust entrainment (fugitive dust). Rule 403 (Fugitive Dust) specifies control measures for use in developing site specific fugitive dust control plans to minimize blowing dust from construction sites and insure the clean up of construction-related dirt on approach routes to the site including: watering measures, chemical stabilizers, wind fencing, covering haul vehicles, bed liners in haul vehicles, wheel washers, and high wind measures. Rule 403 also prohibits the release of fugitive dust emissions from any active operation, open storage pile, or disturbed surface area beyond the property line of the emission source and prohibits particulate matter deposits on public roadways.

In April of 2004, Rule 403 (Fugitive Dust), Rule 1186 (PM_{10} Emission Reduction from Paved and Unpaved Roads and Livestock Operations), and Rule 403.1 (Supplemental Fugitive Dust Control Requirements for Coachella Valley Sources) were amended. The amended rules increase the stringency of current Best Available Control Measures (BACM) for many dust sources including: construction and related operations, roadways, Coachella Valley farming, and weed abatement activities. The amendments will reduce 1.7 tons per day of PM_{10} emissions from construction, road and agricultural sources. The amendments implement the *2003 AQMP* control measure BCM-07 and the SCAQMD rule making portion of the *2002 CVSIP*.

SCAQMD PERMITTING REQUIREMENTS FOR FACILITIES EMITTING TACs

The SCAQMD establishes permitting requirements, adopts rules regulating the operation of the sources of toxic contaminants, inspects emission sources, and enforces emission control program requirements through education and by levying fines. The SCAQMD also verifies for lead agencies all permitted and non-permitted sources of air pollutants that might significantly affect the health of students and staff at school sites.

The SCAQMD has developed a number of rules and regulations directed at HAPs to meet state and federal requirements. Through its Title V permitting program, the SCAQMD implements the national emission standards for HAPs when they are promulgated by insuring that maximum available control technology is implemented by major sources to reduce HAP emissions by new and existing sources. These regulations require that sources of hazardous materials or criteria pollutants above threshold levels obtain permits prior to operation of the facility.

The SCAQMD reviews the potential for TAC emissions from new and modified stationary sources and regulates levels of air toxics through the District permitting process for stationary sources which covers both construction and operation. Rule 1401 specifies thresholds for maximum individual cancer risk from new or modified stationary sources which emit carcinogenic air toxins (with or without best available control technology for toxics (T-BACT).

HAZARDOUS AND TOXIC AIR CONTAMINANTS (TACS)

Hazardous substances that are released into the air are called air toxics. Air toxics are often called "non-criteria" pollutants because ambient air standards have not been established for them. Toxic air contaminants (TACs) are diverse and their effects on health tend to be local rather than regional. There are hundreds of air toxics. Exposure to these pollutants can cause or contribute to cancer, birth defects, genetic damage, and other adverse health effects.

Toxic air contaminants pose health risks to those who are exposed. The regulatory approach used in controlling toxic air pollutant levels relies on a quantitative risk assessment process to determine allowable emissions from the source, rather than on ambient air concentrations. Local

concentrations that can pose a significant health risk are termed "toxic hot spots." Several studies have shown that risk decreases dramatically with increased distance from the source of the emissions.

Young people, the elderly, pregnant women, and people with existing health problems are particularly susceptible to health effects associated with toxic emissions from certain types of sources. Occupants of land uses such as schools, hospitals, convalescent homes, and daycare facilities are considered sensitive receptors. Residential areas are also considered sensitive receptors, since residents are at home for extended periods of time, which can cause relatively long exposures to air contaminants that are present.

Exposure to toxic compounds can cause a variety of health effects including neurological, respiratory, and developmental effects as well as cancer. Toxic air pollutants may have both chronic effects (long duration) and acute effects (severe but of short duration) on human health. Chronic health effects, such as cancer, result from low-dose, long-term exposure from routine releases of air toxics. Acute health effects are due to sudden exposure to high concentrations of air toxics. These effects may include nausea, skin irritation, respiratory illness, and, in some cases, death.

Title III of the federal Clean Air Act provides a program for the control of Hazardous Air Pollutants (HAPs). Pursuant to Section 112(g) of the federal Clean Air Act (Federal New Source Review for Toxics), no person shall begin construction or reconstruction of a major stationary source emitting hazardous air pollutants listed in Section 112 (b) of the CAA, unless the source is constructed with the Best Available Control Technology for Toxics (T-BACT) and complies with all other applicable requirements, including public noticing, referenced in 40 CFR 63.40 through 63.44.[15]

The regulatory approach used in controlling toxic air pollutant levels relies on a quantitative risk assessment process to determine allowable emissions from the source, rather than on ambient air concentrations. For carcinogenic air pollutants, there is no safe recognized concentration in the atmosphere. Local concentrations that can pose a significant health risk are termed "toxic hot spots."

The SCAQMD and the CARB are responsible for developing and implementing rules and regulations regarding air toxics on the local level. The SCAQMD and the CARB have strong comprehensive regulatory programs in place for new and existing sources of air pollution. The SCAQMD has developed a number of rules and regulations directed at HAPs to meet state and federal requirements. Through its Title V permitting program, the SCAQMD implements the national emission standards for HAPs when they are promulgated by insuring that maximum available control technology is implemented by major sources to reduce HAP emissions by new and existing sources. These regulations require that sources of hazardous materials or criteria pollutants above threshold levels obtain permits prior to operation of the facility.

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[15] U.S. EPA. 40 CFR Part 63 Hazardous Air Pollutants: Regulations Governing Constructed or Reconstructed Major Sources; Final Rule. Federal Register: December 27, 1996 (Volume 61, Number 250) Rules and Regulations [Page 68383-68404]. From the Federal Register Online via GPO Access [wais.acess.gpo.gov]

4.0 AIR QUALITY CONSEQUENCES

The analysis in an Environmental Assessment (EA) need not go beyond that needed to determine whether impacts will or may significantly affect the human environment. The effects analyzed include direct, indirect, and cumulative effects. For each type of effect, those that are short-term, long-term, irreversible, and irretrievable should be considered. The significance of the effects is critical in that it determines if there will be a need to complete an Environmental Impact Statement (EIS).

Agencies should not rely on the possibility of mitigation as an excuse to avoid the EIS requirement. However, if an EA indicates that the environmental effects of a proposal are significant but that, with mitigation, those effects may be reduced to less than significant levels, the lead agency may make a Finding of No Significant Impact (FONSI) rather than prepare an EIS, provided that: (1) the mitigation measures are imposed by statute or regulation; or (2) the mitigation measures are submitted by an applicant as part of the original proposal; or (3) the proposal so integrates mitigation from the beginning that is impossible to define the proposal without including the mitigation. In such cases, the agency may rely on the mitigation measures as a binding commitment in determining that the overall effects would not be significant and make the FONSI and EA available for 30 days of public comment before taking action.

THE ROLE OF TRIBAL GOVERNMENT

The proposed action would result in regional emissions and localized emissions of criteria pollutants, toxic air contaminants, and greenhouse gases. The public review process provides opportunities to define issues and appropriate alternatives as well as environmental ethics that are consistent with accepted local values for incorporation in the decision-making process. The responsibility for making decisions regarding the significance of a proposed project's air quality impacts ultimately rests with the lead agency. Because there may be differences in perspective as well as conflicts among federal, state, and local goals for resources management the Tribal government has adopted a flexible and cooperative approach in reaching a rational and balanced decision.

The impact of air pollutants on sensitive receptors can be controlled through land use decisions and discretionary permits. Land use decisions are typically based upon numerous considerations such as the following.

- What is the intensity and type of project?
- What is the location of the project (i.e. upwind of sensitive receptors or in areas with high pollutant concentrations where the environmental burdens of the project would be borne primarily by residents of a low-income community already disproportionately affected by motor vehicle exhaust and air pollution generated in neighboring areas)?
- Will the project cause an exceedance of any air quality standard?
- Will the project make a substantial contribution to an existing exceedance of an air quality standard?
- Is the project inconsistent with the regional Air Quality Management Plan and State Implementation Plan?

- Will the project emit toxic air contaminants (TACs) within one-quarter mile of a sensitive receptor?
- Will the project causes increases in particulate pollution that exacerbates asthma and can cause cancer?
- Will the project achieve sustainable decreases in greenhouse gas emissions?
- Is the action related to other actions with individually insignificant but cumulatively significant impacts?
- Will the mitigation measures that are attached to the project mitigate the air quality impacts to the maximum extent feasible?

The South Coast Air Quality Management District (SCAQMD) is responsible for adopting, implementing and enforcing air quality rules and regulations within the South Coast Air Basin and the Salton Sea Air Basin. The SCAQMD is also responsible for reviewing and commenting on environmental documents for projects that may generate significant adverse air quality impacts. The SCAQMD advises lead agencies in addressing and mitigating the potential adverse air quality impacts caused by projects both during and after construction.

4.1 METHODOLOGY

The following air quality impact analysis focuses on the impacts associated with criteria pollutants, greenhouse gases (GHGs), and toxic air contaminants (TACs). Project-related construction and operational emissions of criteria pollutants were estimated with the California Emissions Estimator Model (CalEEMod) Version 2011.1.1. CalEEMod provides construction-related and operational emissions estimates for criteria pollutants (including $PM_{2.5}$) and greenhouse gases (including methane and nitrous oxides).

CalEEMod has been approved by the CARB and the SCAQMD for use in addressing air quality and climate change impacts in CEQA compliant documents. CalEEMod uses widely accepted models for emission estimates combined with appropriate default data for use if site-specific data is not available. The model and default estimates use sources such as the U.S. EPA AP-42 emission factors, CARB's EMFAC2007 (Version 2.3) on-road mobile source emission factors and CARB's 2007 OFFROAD emission factors for off-road mobile sources. These emission factors were also used to develop the *2007 AQMP* and *State Implementation Plan*.

CalEEMod incorporates the project location, climate zone, utility company providing electricity, and default values for trip purpose percentages and average trip lengths by trip type. The model can evaluate conditions when construction phases overlap, and incorporates as default parameters regional vehicle fleet mix and travel characteristics representative of the South Coast Air Basin and the Coachella Valley portion of the Salton Sea Air Basin. The default trip generation rates incorporated in CalEEMod were modified to reflect the trip generation forecast developed in the *Draft Traffic Impact Analysis For the Proposed Morongo Outdoor Entertainment Project* (Crain & Associates; February, 2013). Annual average emissions quantified with CalEEMod were utilized for the impact analysis to facilitate comparisons to the U.S. EPA General Conformity *de minimis* levels. These *de minimis* levels represent the minimum thresholds for which a conformity determination must be performed for various criteria pollutants in various areas. The CalEEMod assumptions and output sheets are provided in Appendix C.

In assessing whether or not the project would cause an exceedance of the national ambient air quality standards, the California Line Source Dispersion Model (CALINE4) was utilized to simulate future conditions adjacent to those roadways which are projected to be the most heavily used by project-related traffic. Future traffic projections modeled with CALINE4 were derived

from the *Draft Traffic Impact Analysis For the Proposed Morongo Outdoor Entertainment Project* (Crain & Associates; February, 2013).

The potential effect of the proposed project on climate change was evaluated in terms of the quantity of greenhouse gases that would be emitted during both the short-term construction activities and the long-term operation of the project. CalEEMod was utilized to quantify annual average CO_2e emissions that would be result from the proposed action, based upon the global warming potential of the six greenhouse gases subject to regulation by the U.S. EPA (carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride). CalEEMod was also utilized to quantify the beneficial impacts associated with project design features that would result in reductions in greenhouse gases from the proposed change in on-site vegetation and sequestration.

Both NEPA and the California Environmental Quality Act (CEQA) require that environmental impacts be considered in context. Special attention should be paid to whether a project might cause additional impacts to communities that are already affected by, or particularly vulnerable to, environmental impacts like air pollution that affect public health and welfare. To evaluate this impact, public health risks and environmental justice concerns were identified to ensure that obligations to improve living conditions and foster the physical health and well-being of local residents are taken seriously in the decision-making process. This approach ensures that impacts to already affected communities will not be overlooked in the project permitting process.

Sensitive receptor locations were identified as well a local sources of air contaminants in Section 3.4 and Section 3.5, respectively. The potential for project-related emissions of hazardous or toxic air contaminants (TACs) within one-quarter mile of a sensitive receptor was evaluated. The potential health risks associated with the inhalation of diesel particulate matter and other toxic air contaminants are addressed.

4.2 NEPA Impact Significance Considerations

Significance varies with the setting of the proposed action. As used in NEPA, the determination of significance requires consideration of both context and intensity. The significance of an action must be considered in several contexts including: society as a whole (human, national), the affected region, the affected interests, and the locality. Both short-term and long-term effects are relevant.

Intensity refers to the severity of the impact. In evaluating intensity, the degree to which the proposed action affects public health and safety should be considered. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks should be considered. The degree to which the action may establish a precedent for future actions with significant effects should be considered. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

Unique characteristics of the geographic area such as its proximity to historic or cultural resources, park lands, prime farmlands, wild and scenic areas, or ecologically critical areas should also be considered. Class I federal lands include areas such as national parks, national wilderness areas, and national monuments which are granted special air quality protections under Section 162(a) of the federal Clean Air Act. 40 CFR Section 51.307 requires the operator of any new major stationary source or major modification located within 100 kilometers of a Class I area to contact the Federal Land Managers for that area. Class I areas in EPA Region 9 in the project vicinity include: the Joshua Tree National Park (in the Coachella Valley), and the U.S. Forest Service San Gorgonio Wilderness and San Jacinto Wilderness Class I areas.

Significance thresholds are valuable tools for use by lead agencies in considering both primary or "direct" impacts and secondary or "indirect" impacts on air quality. If the lead agency finds that a project has the potential to generate emissions that would exceed the applicable significance thresholds, the project may have significant adverse regional effects on air quality and mitigation should be identified. Neither the *CEQA Guidelines* nor the CEQA statute prescribe thresholds of significance or particular methodologies for performing impact analyses. This is left to the discretion and judgment of lead agencies, based upon factual data and guidance from regulatory agencies and others where applicable and available. Even in the absence of clearly defined thresholds of significance, the law requires that when a lead agency determines that a project contributes to a significant individual or cumulative impact, such emissions must be disclosed and mitigated to the extent feasible.

Federal actions require a determination regarding the significance of air quality impacts under the National Environmental Policy Act (NEPA).[1] Significance under NEPA differs from General Conformity in that emissions of criteria pollutants in attainment as well as nonattainment and attainment-maintenance areas are considered. General Conformity *de minimis* levels, as shown in Table 4-1, are appropriate thresholds for use in determining NEPA significance. *De minimis* levels are defined in 40 CFR 93 § 153 as the minimum threshold for which a conformity determination must be performed for various criteria pollutants in various areas. Project actions with total direct and indirect emissions below specified *de minimis* levels are assumed to conform to Federal Implementation Plans and are not subject to a conformity determination.[2]

Pursuant to section 107(d) of the CAA, the U.S. EPA must designate as "nonattainment" those areas that violate the NAAQS and those areas that contribute to violations. In 2009 and again in 2012 the Morongo Band of Mission Indians requested that the U.S. EPA designate the Indian country of the Morongo Band of Mission Indians as a separate nonattainment area for the 2008 ozone NAAQS. The U.S. EPA completed a technical analysis dated December 20, 2012 evaluating: (1) ambient air quality data, (2) emissions and emission-related data, (3) meteorology and pollution transport patterns, (4) geography and topography, and (5) jurisdictional boundaries. Based on that analysis, the U.S. EPA granted the Morongo Band of Mission Indians request to designate the Morongo Reservation portion of the Indian country in California as a separate ozone nonattainment area.

In determining significance under NEPA, the annual direct and indirect project-related emissions of all criteria pollutants (including the ozone precursors VOC and NOx) resulting from project construction and operation activities were compared to the lowest U.S. EPA *de minimis* levels shown in Table 4-1 based on the nonattainment status of both of the adjacent air basins.

In accordance with section 101(b)(1) and section 160 of the federal Clean Air Act, each state SIP and each applicable Tribal Implementation Plan shall contain emission limitations and other measures as necessary to prevent significant deterioration of air quality. Section 176(c) of the federal CAA requires the U.S. EPA to adopt regulations to ensure that projects sponsored by federal agencies do not interfere with a state's ability to meet or maintain the NAAQS. To fulfill the CAA requirements in 42 U.S.C. 7506(c), the U.S. EPA promulgated the General Conformity Regulations on November 30, 1993 (58 FR 63214-63259). These regulations prevent federal agencies from taking actions in nonattainment and maintenance areas that increase emissions in violation of the SIP. Compliance with the General Conformity Regulations can be achieved in the following ways: (1) documenting that planned emission increases are included in the existing SIP; (2) persuading the state to include the emission increases in the SIP; (3) offsetting emission increases with concurrent emission decreases of the same size; and (4) mitigating the emissions.

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[1] National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 *et seq*.).

[2] epa.gov/air/genconform/faq.html#9

Table 4-1
General Conformity *De Minimis* Levels[a]

Pollutant	Area Type (Region With Specified EPA Designation)[b]	Tons/Year
Ozone (VOC or NOx)	Serious Nonattainment (Morongo Band of Mission Indians Land)	50
	Severe Nonattainment (SSAB-Coachella Valley)	25
	Extreme Nonattainment (SCAB)	10
	Other Areas Outside an Ozone Transport Region	100
Ozone (NOx)	Marginal and Moderate Nonattainment Inside an Ozone Transport Region	100
	Maintenance	100
Ozone (VOC)	Marginal and Moderate Nonattainment Inside an Ozone Transport Region	50
	Maintenance Within an Ozone Transport Region	50
	Maintenance Outside an Ozone Transport Region	100
Carbon Monoxide, SO_2, and NO_2	All nonattainment and maintenance	100
PM_{10}	Serious Nonattainment (SSAB-Coachella Valley & SCAB)	70
	Moderate Nonattainment and Maintenance	100
$PM_{2.5}$	All nonattainment and maintenance[c]	10
$PM_{2.5}$ (SO_2 or NOx)	All nonattainment and maintenance[c]	40
Lead (Pb)	All Nonattainment and Maintenance (SCAB-L.A. County)	25

a. Source: 40 CFR 93 § 153. Annual thresholds given in terms of the emissions in tons per year.
b. SSAB-Coachella Valley=Coachella Valley portion of the Salton Sea Air Basin. SCAB=South Coast Air Basin. SCAB-L.A. County=Only the Los Angeles County portion of the South Coast Air Basin.
c. Existing U.S. EPA regulations (74FR28333, May 16, 2008) identify 10 tons/year of direct $PM_{2.5}$ emissions (including condensable PM) as the *de minimis* significant emissions rate (SER) for use as a screening tool to facilitate the implementation of the New Source Review program. For $PM_{2.5}$ precursors, 40 tons/year of SO_2 and 40 tons/year of NOx were identified by the EPA as the *de minimis* SER for use as a screening tool per 40CFR 51.166 (b)(23) and 40 CFR 52.21(b)(23) based on both the annual and 24-hour $PM_{2.5}$ NAAQS.
d. The U.S. EPA Green Book designation as of December 14, 2012 for the Indian country of the Morongo Band of Mission Indians is "serious" nonattainment for the 2008 8-hr. ozone NAAQS.

All federal actions are subject to general conformity requirements unless otherwise exempt. Exempt actions include: (1) federal actions covered by the Transportation Conformity Regulations; (2) actions with total direct and indirect emissions below specified de minimis levels; (3) actions specifically listed as exempt in the rule; and (4) actions included on any list of "presumed to conform" actions.

GREENHOUSE GASES INDICATOR

There is no formally adopted NEPA threshold for GHG emissions for use in making a determination regarding the significance of environmental effects related to GHG emissions in the environmental review process. However, the United States Council on Environmental Quality Guidance (CEQ) issued guidance for consideration by Federal agencies in scoping their NEPA analyses in the form of a memorandum entitled *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions* on February 18, 2010. As stated therein:

> *"Specifically, if a proposed action would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of CO_2-equivalent GHG emissions on an annual basis, agencies should consider this an indicator that a quantitative and qualitative assessment may be meaningful to decision makers and the public."*

For the purposes of this guidance, the CEQ defines GHGs in accordance with Section 19(i) of Executive Order 13514 as: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The intent of this guidance was to assist in the determination of whether analysis of the direct and indirect GHG emissions from proposed actions would provide meaningful information to decision makers and the public. CEQ does not propose this as an indicator of a threshold of significant effects, but rather as an indicator of a minimum level of GHG emissions that may warrant some description in the appropriate NEPA analysis for agency actions involving direct emissions of GHGs. This level of greenhouse gas emissions is utilized herein as an indicator of whether or not the project-related GHG emissions during construction or operation would result in an adverse impact on climate change that warrants further more detailed analysis. The potential effects of GHG emissions on climate change are global and cumulative. Therefore, they are addressed in the context of cumulative impacts in Section 4.6.

TOXIC AIR CONTAMINANT SIGNIFICANCE THRESHOLDS

Unlike other pollutants regulated by the U.S. EPA, there are no risk levels that represent acceptable or unacceptable regulatory thresholds for air toxics. Based on their national-scale toxics assessment, the U.S. EPA has determined that millions of people live in areas where air toxics may pose potentially significant health concerns. Risk assessments which estimate average population exposures include many limitations in the data and methods used which introduce significant uncertainties (particularly with respect to emissions levels, exposure concentrations, and toxicity). An upper limit of acceptability of one in 10,000 lifetime cancer risk for highly exposed individuals was set by the U.S. EPA in the 1989 *Benzene National Emission Standard for Hazardous Air Pollutants*. In the same study, the U.S. EPA set a target of protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately one in one million.

The U.S. EPA has concluded that diesel exhaust is likely to be a human carcinogen. However, the available data is not sufficient for the U.S. EPA to develop a confident estimate of cancer unit risk for use in health assessments (i.e., to estimate the environmental risk at a particular location based upon site-specific environmental exposure data). The current diesel exhaust hazard information is sufficient to indicate that this pollutant represents a potentially significant public health concern. The U.S. EPA has concluded that national average lifetime cancer risks from exposure to diesel

exhaust may exceed one in 100,000 and could be as high as one in one thousand, although the lower end of the risk range includes zero.

The SCAQMD has established the following significance thresholds for TACs.

- A maximum incremental cancer risk equal to or exceeding ten per million exposed people provided that the source has the best available control technology for toxics (T-BACT).
- A cancer burden greater than 0.5 excess cancer cases (in areas greater than or equal to one in one million).
- Chronic and acute hazard index equal to or greater than 1.0 (project increment).

The SCAQMD has established a significance threshold for odor. A project is considered significant by the SCAQMD if it creates an odor nuisance pursuant to SCAQMD Rule 402.

4.3 SHORT-TERM CONSTRUCTION IMPACTS

During the construction of the proposed development, air pollutants would be emitted by both stationary and mobile sources of air pollutants. Stationary sources of air pollutants would include the construction activities under way within the project site that would generate fugitive dust and the power plant located off-site that would generate the electricity required to implement the proposed project. Mobile sources of air pollutants would include both on-road vehicles (used to transport workers and building materials to the site) and off-road construction equipment (such as scrapers, dozers, water trucks, tractor loader/backhoes, and excavators). Mobile sources would emit exhaust emissions during construction activities, and vehicular travel associated with the construction workers and the vendors that would deliver perimeter fencing, aggregate for the unpaved parking areas, trees required for landscaping, hydro seed for the turf, and asphalt for the paved entry roads and VIP parking area.

Short-term impacts on air quality would occur during the construction activities required to implement the proposed project. The proposed construction activities would require approximately 65 working days to complete. Construction is expected to begin on September 1, 2013 and be completed within approximately three months. No permanent buildings or structures would be constructed within the site. No architectural coatings would be used. Refer to Section 2.3 for a description of the site-specific construction details and Appendix C for the construction information required as input parameters associated with the California Emissions Estimator Model.

Short-term air pollutant emissions during the construction activities would include the following:

- Diesel exhaust emissions from: (1) the construction equipment used on-site; (2) the vehicles used to transport the off-highway construction equipment to/from the site; (3) the haul trucks used to import the 89,100 tons of aggregate required to cover 128.1 acres of the unpaved parking areas on-site; (4) the trucks used to transport 15,000 linear feet of perimeter chain link fencing and landscaping (2,000 trees and hydro seed required for 100 acres of turf);
- Exhaust and on-road fugitive dust emissions from the vehicles of construction workers and vendors;
- Particulate emissions (fugitive dust) during: (1) site clearing, grading the 310 acres on-site, and utility trenching; (2) excavation for the outdoor amphitheater and associated berms; and (3) and earthwork required to complete the entry roadway improvements within and abutting the site;
- Exhaust emissions from the haul trucks used to transport building materials to the site;

- Off-gassing emissions associated with the asphalt used for the 15.5 acres of entry roadway improvements required and 6.5 acres of the on-site parking areas.

The number and type of construction equipment as well as the number of hours that they will be in operation each day are key parameters affecting construction-related air pollutant emissions. In addition, the size of the area disturbed on a given day during grading activities and the quantity of earthwork as well as whether or not the material will be balanced on-site can have a substantial impact on the air pollutant emissions generated locally and regionally during construction activities. Overlapping construction phases can substantially increase daily air pollutant emissions.

PROJECT-RELATED CONSTRUCTION DETAILS

The California Emissions Estimator Model (CalEEMod Version 2011.1.1) was utilized to estimate short-term construction-related emissions of criteria air pollutants and greenhouse gas emissions that would be associated with the construction activities necessary to implement the proposed project. Default construction parameters incorporated in the CalEEMod were assumed for some construction activities. Appendix C provides additional information on the default values assumed as well as the CalEEMod output.

To the extent that they are currently available, site-specific construction details were used as input parameters for CalEEMod. The project site is undeveloped and relatively flat. Cut and fill earthwork quantities are expected to be balanced within the project site. Scrapers and dozers will be used to level the ground and move any excess cut material from one area on-site to other areas within the site where it will be used as fill material to ensure proper contouring to handle storm water runoff. No import or export of excess material is expected to be necessary in conjunction with site grading activities. The project is expected to be constructed over a period of approximately two to three months.

Four distinct construction phase types would be required to prepare the project site for the proposed outdoor entertainment activities. These construction phase types include: (1) site grading, including the importation of the aggregate necessary to cover the unpaved parking areas; (2) utility trenching, (3) paving the entry roadways and 6.5 acres of the parking area; and (4) installation of perimeter fencing and site landscaping activities.

The number and type of construction equipment and the length of each phase of the proposed construction activities were identified by MSA Consultants, Inc. Without building any permanent structures, the construction time required to complete the temporary improvements within the project site would be relatively short. The default values in CalEEMod were assumed for the number of construction workers and their travel characteristics (i.e., the number and average length of worker commute trips. The default value in CalEEMod of 20 miles per trip for haul truck trips was assumed for perimeter fencing and landscaping (trees and hydro seed for turf). Those haul trips required to import the aggregate needed to cover the unpaved parking areas were assumed to be shorter than 20 miles because local sources of aggregate are located approximately 1.5 miles from the project site.

The default mode of CalEEMod does not assume that construction activities required to implement each development phase will overlap. Overlapping construction phases are proposed for fifteen working days, when the utility trenching and the site grading activities would overlap. The emissions associated with each phase were added together to accurately reflect these concurrent construction phases.

The Construction Specifications may require contractors to utilize best-practice procedures to reduce air pollutant emissions during the construction process. For example, submittal of a dust

control plan could be required for review and approval prior to the issuance of grading permits. A dust control plan would identify all of the control measures that would be implemented to minimize airborne dust before, during, and after grading activities including measures associated with stockpiling of aggregate or other material. Fugitive dust control measures required by SCAQMD Rule 403.1 which have been incorporated in a project are not considered mitigation and consequently are reflected in the unmitigated short-term air pollutant emissions projections. No architectural coatings would be applied at the site as no permanent building structures are proposed on-site initially. Temporary outdoor facilities are proposed including portable sanitation facilities, tent venues, and a depressed outdoor amphitheater without fixed seats. If the project is successful, the provision of more permanent on-site facilities may be justified and constructed in the future.

CONSTRUCTION-RELATED EMISSIONS PROJECTIONS

Air pollutant emissions generated by construction activities are difficult to accurately quantify, since the type and number of equipment that will be used and the acreage that may be disturbed on any given day are not known with any reasonable level of certainty. The emphasis in the environmental process has traditionally been on minimizing the emissions as fully as possible through comprehensive mitigation strategies, even though the emissions cannot be precisely quantified.

Construction activities required to implement the proposed project will vary from day to day and generate increases in localized greenhouse gas emissions as well as criteria pollutant emissions in the project vicinity. Exhaust emissions during the construction activities on-site will vary as required construction equipment and activity levels change. The resulting air pollutant concentration increases will depend on several factors including: the soil moisture content, the meteorological conditions (such as the wind stability and presence of a temperature inversion that limits the atmospheric mixing height) the extent of the construction activity at any given time, the number and type of machinery used at any given point in time, and the construction schedule. The scheduling of concurrent construction processes would increase the daily emissions.

The unmitigated emissions of criteria pollutants and GHGs during the three-month construction period estimated with CalEEMod are shown in Table 4-2. The annual average emissions associated with construction activities are shown therein to facilitate comparison to the General Conformity *de minimis* levels. Table 4-2 summarizes the short-term emissions associated with the construction activities required to implement the project. Over the three-month construction period, the project-related construction activities would generate: 0.81 tons of ROG, 6.34 tons of NOx, 3.19 tons of CO, 0.01 tons of SO_2, 0.57 tons of PM_{10}, and 0.32 tons of $PM_{2.5}$. None of the construction-related criteria pollutant emissions would exceed the General Conformity *de minimis* levels.

NOx Emissions

The project site is within the Morongo Band of Mission Indians "Serious" nonattainment area for the 2008 8-hour ozone NAAQS. VOC and NOx are ozone precursors. The VOC and NOx emissions generated by the proposed site grading activities would not exceed the General Conformity *de minimis* levels for serious nonattainment areas of 50 tons per year and are therefore less than significant. Project-related emissions of ozone precursors would be too low to contribute to nonattainment in the adjacent Coachella Valley portion of the SSAB which is designated "severe" nonattainment for ozone or the SCAB which is designated "extreme" nonattainment for ozone by the U.S. EPA. In this context, while mitigation is not required, it may be desirable to implement feasible control measures to reduce project-related NOx and VOC emissions similar to the measures required of projects in the neighboring air basins to conform to regional air quality strategies (i.e., to reduce ground level ozone levels and ozone precursor emissions to the maximum extent feasible).

Table 4-2
Unmitigated Annual Average Air Pollutant Emissions[a]
Associated With Construction of the Proposed Project
(Tons/Year)

Emissions Source	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_{2e}
Site Grading Phase							
- Fugitive Dust	0.00	0.00	0.00	0.00	0.13	0.05	0.00
- Off-Road Diesel	0.55	4.79	2.10	0.00	0.19	0.19	507.66
- Worker Trips	0.00	0.01	0.06	0.00	0.01	0.00	9.20
- Hauling	0.05	0.43	0.34	0.00	0.17	0.01	37.52
Subtotal	0.60	5.23	2.50	0.00	0.50	0.25	554.38
Trenching Phase							
- Off-Road Diesel	0.11	0.81	0.44	0.00	0.04	0.04	100.59
- Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	3.85
Subtotal	0.11	0.81	0.47	0.00	0.04	0.04	104.44
Paving Phase							
- Pavement Offgassing	0.03	0.00	0.00	0.00	0.00	0.00	0.00
- Off-Road Diesel	0.03	0.19	0.12	0.00	0.02	0.02	15.42
- Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	1.28
Subtotal	0.06	0.19	0.13	0.00	0.02	0.02	16.70
Landscaping Phase							
- Off-Road Diesel	0.01	0.09	0.07	0.00	0.01	0.01	9.39
- Vendor	0.03	0.02	0.01	0.00	0.00	0.00	2.70
- Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.93
Subtotal	0.04	0.11	0.09	0.00	0.01	0.01	13.02
Total Construction	0.81	6.34	3.19	0.01	0.57	0.32	688.54
***De Minimis* Level**	50	50	100	40	70	10	25,000
Below *De Minimis*	Yes	Yes	Yes	Yes	Yes	Yes	Yes

a. Twice daily watering of exposed surfaces was assumed as well as reduced speeds (less than 15 mph) on unpaved on-site surfaces. These practices are included in SCAQMD Rule 403.1 and are not considered by the SCAQMD to be mitigation. CO_{2e} emissions are shown in metric tons per year. See Appendix C for CalEEMod input parameter assumptions and defaults.

NOx emissions generated by off-road diesel-fueled equipment used to grade the project site could be reduced by construction activity management (e.g., reducing the number of pieces of equipment that would be operating simultaneously during grading activities). However, reducing the intensity of the proposed grading activities would result in soil being disturbed within the project site over a longer period of time before measures proposed to reduce fugitive dust emissions could be implemented. These measures would include landscaping of the buffer areas (including the introduction of 2,000 trees and hydro seeding 100 acres for turf), paving the entry roadways, and the placement of aggregate over 128 acres of compacted unpaved general parking areas.

A substantial reduction in the projected NOx emissions generated by off-road diesel-fueled equipment could be achieved through the use of one or more of the following mitigation strategies.

- Extend the grading period to reduce the daily emissions.
- Use grading equipment powered by alternative fuels such as biodiesel, compressed natural gas, or propane.
- Use newer tier engines that meet more stringent U.S. EPA tier emissions standards than the state fleet mix (Tier 3 and Tier 4 engines) to reduce NOx emissions.
- Use a combination of construction activity management techniques (such as extending the construction period, reducing the number of pieces of equipment used simultaneously, turning off heavy equipment on-site when it is not in use to minimize emission sources, and reducing or changing the hours of construction).

Particulate Matter Emissions

The PM_{10} emissions generated by the proposed site grading activities would not exceed the General Conformity *de minimis* for serious nonattainment areas of 70 tons per year and are therefore less than significant. The neighboring Coachella Valley portion of the SSAB (to the east) is designated "serious" nonattainment for PM_{10}. In this context, while mitigation is not required, it may be desirable to implement feasible control measures to reduce project-related PM_{10} emissions similar to the measures required of projects in the neighboring air basins to conform to regional air quality strategies (i.e., to reduce PM_{10} emissions to the maximum extent feasible).

The proposed grading activities are scheduled to be completed within thirty working days. Following grading, 40,000 cubic yards of aggregate will be used to cover exposed unpaved parking areas. Landscaping with 2,000 new trees and 100 acres of turf will be completed within two weeks to reduce the exposure of disturbed surfaces to wind erosion. Paving activities will be completed within two weeks to reduce the potential for airborne particulate matter to be generated by vehicles accessing the site to deliver portable sanitation facilities, lay concrete over the area in front of the stage, and load in stage lighting and sound equipment.

To be consistent with regional air pollution control efforts to achieve the PM_{10} NAAQS, the magnitude of the project-related particulate matter emissions could be reduced through the implementation of fugitive dust control measures. SCAQMD Rule 403 applies to projects within the South Coast Air Basin and SCAQMD Rule 403.1-*Supplemental Fugitive Dust Control Requirements for Coachella Valley Sources* (Amended April 2, 2004) applies to projects within the Coachella Valley portion of the Salton Sea Air Basin. Rule 403.1 identifies numerous techniques that can be implemented to reduce the amount of fugitive dust and PM_{10} emitted during construction activities. The Coachella Valley Best Available Control Measures detailed in the *Coachella Valley Dust Control Handbook* are effective and can be useful in developing a site-specific Fugitive Dust Control Plan for review and approval prior to the issuance of grading permits.

Greenhouse Gas Emissions During Construction

Table 4-2 provides estimates from CalEEMod of the carbon dioxide equivalent emissions during the grading, utility trenching, paving, and landscaping activities required to implement the proposed project. The unmitigated construction-related GHG emissions are projected to total 687.28 metric tons (MT) of CO_{2e} over the three-month period in 2013. Greenhouse gas emissions are projected to be highest during the site grading activities, primarily as a result of the use of off-road diesel construction equipment.

Approximately one hundred on-site acres would hydro seeded to introduce turf as part of the site improvements proposed. The turf would reduce fugitive dust emissions generated by pedestrians in the festival grounds and flex areas during events. The change in on-site vegetation to include grassland that would occur with the proposed project would result in a one-time positive impact on GHG emissions estimated by CalEEMod to be 431 MT of CO_{2e}. Consequently, the net increase in GHG emissions in the year 2013 associated with the three-month project-related construction activities would total 256.28 MT of CO_{2e}. The net increase in GHG emissions during project construction would represent approximately 37 percent of the unmitigated GHG emissions shown in Table 4-2.

The State of California has not adopted significance thresholds for GHG emissions although various thresholds are being considered to reduce net GHG emissions through the implementation of stringent performance standards or equivalent mitigation measures addressing energy use, transportation, water use, waste disposal, and construction. Based upon the United States CEQ guidance, since the proposed action would be anticipated to cause direct emissions of less than 25,000 metric tons of CO_2-equivalent GHG emissions on an annual basis, agencies should consider this an indication that a quantitative and qualitative assessment may not be meaningful to decision makers and the public. Construction-related GHG emissions in 2013 would be less than significant and reduced to the maximum extent feasible by project design features.

Toxic Air Contaminants Emitted During Construction

During construction activities required to implement the proposed project, primarily diesel-fueled construction equipment will be used on-site. Diesel equipment is durable and tends to last for many years. Consequently, the beneficial effects associated with new emission control technology may not be seen for many years until older equipment is eventually replaced by newer cleaner equipment. No sensitive receptors are currently located within one-quarter mile of the project site other than patrons of the Morongo Casino Resort & Spa using the outdoor recreational areas surrounding the Oasis Pool. These areas include a sandy beach area around a heated swimming pool, two heated Jacuzzis, and a water slide and a lazy river water feature.

The combustion products emitted by diesel-fueled construction equipment include a mix of toxic air contaminants. Diesel exhaust contains up to 100 times more emissive particles than exhaust from gasoline-powered equipment. Most of the diesel exhaust will be diesel particulate matter, including soot particles that can be inhaled and deposited in the lungs.

Impacts during construction activities will be reduced through the implementation of the CARB *Diesel Risk Reduction Plan*.[3] This plan requires: (1) the use of low-sulfur diesel fuel; (2) the retrofitting of existing engines with particulate matter filters; and (3) a reduction of nearly 90 percent in the emissions of particulate matter from all new diesel engines and vehicles. Air regulatory agencies have been working with diesel vehicle manufacturers to reduce emissions by

[3] CARB; *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*; October, 2000.

establishing cleaner fuel specifications and engine technologies. Regulatory efforts at the national, state and local level are currently lowering the average level of diesel emissions per vehicle.

By the year 2015, all new construction equipment sold in California will have Tier 4 engines which emit less air pollution. After treatment will be mandatory on Tier 4 engines (including oxidation catalysts and particulate matter traps) and reduce air pollutant emissions by 90 percent. The CARB goal is to achieve a statewide reduction in diesel particulate emissions of 85 percent by the year 2020. Full implementation of the AQMP and CARB measures is expected to reduce toxic-weighted emissions throughout the SCAB by 50 percent. Consequently, any future construction of permanent facilities on-site would most likely be accomplished with equipment that incorporates more advanced air pollution control equipment and generates fewer emissions.

4.4 LONG-TERM OPERATIONAL IMPACTS

The significance of project-related operational impacts will vary depending on the frequency with which events occur and the types of entertainment events held on-site. The types of events held on-site will determine the number of people traveling to and from the site and the duration of their stay. Large music festivals with many popular performers will occur over longer periods of time and attract a larger audience that would be willing to travel longer distances. The larger the audience, the more vehicular travel would be associated with the event and the more air pollutants would be emitted within the region by mobile sources.

Over the long-term, the operation of the outdoor entertainment facility would generate primarily indirect air pollutant emissions associated with mobile sources (automobiles, recreational vehicles, buses, and trucks) used to access the project site. Direct on-site emissions would occur during large events, such as one-day and two-day music festivals, and during Friday night concerts when patrons, employees and vendors would enter and occupy the site prior to departing following the events.

OPERATIONAL EMISSIONS OF CRITERIA AIR POLLUTANTS

Table 4-3 shows the projected long-term operational emissions of criteria pollutants once the project is completed and fully operational with all entertainment venues utilized over the course of a year. Annual average area source emissions associated with the proposed project would be negligible.

As shown in Table 4-3, the average annual unmitigated operational emissions of criteria pollutants associated with the proposed project are projected to total: 1.03 tons per year of ROG, 1.59 tons per year of NOx, 6.96 tons per year of CO, 0.02 tons per year of PM_{10}, and 0.02 tons per year of $PM_{2.5}$. None of the projected annual average criteria pollutant emission levels are expected to exceed the General Conformity *de minimis* levels. The long-term operational impact of the proposed project on regional emissions of criteria pollutants including ozone precursors would be less than significant.

Project-related mobile source emissions are projected to occur throughout the region, rather than within the project site or within the immediate vicinity of the project site. Many of the people frequenting the events on-site are expected to use Interstate 10 for regional access. The average trip length was estimated by Crain & Associates to be 75 miles per trip for attendees of the large music festivals and concert events proposed. The average trip length for employees and vendors was estimated by Crain & Associates to be 37 miles per trip.

Table 4-3
Unmitigated Annual Average Air Pollutant Emissions[a]
Associated with the Operation of Proposed Project
(Tons/Year)

Pollutant	Regional Mobile Source Emissions (Tons/Year)	*De Minimis* Level (Tons/Year)	Below *De Minimis* (Yes/No)
Reactive Organic Gases	1.03	50	Yes
NOx	1.59	50	Yes
Carbon Monoxide	6.96	100	Yes
SOx	0.00	40	Yes
PM_{10}	0.02	70	Yes
$PM_{2.5}$	0.02	10	Yes

a. See Appendix C for CalEEMod assumptions and output. The annual average area source emissions were negligible. Mobile source emissions assumed a project opening year of 2014 but included the on-road motor vehicle use (VMT) projected to occur approximately five years after the project opens. The VMT assumed reflected all travel to and from the site by patrons, employees, and vendors over the course of a year based upon a vehicle occupancy rate of 2.5 patrons per vehicle and 1.15 employees and vendors per vehicle.

OPERATIONAL EMISSIONS OF GREENHOUSE GASES

Carbon dioxide (CO_2) is the primary component of GHG emissions. With CalEEMod it was estimated that the project-related operational CO_2 emissions will total 448.52 metric tons per year, 84.8 percent of the proposed project's unmitigated carbon dioxide equivalent (CO_{2e}) emissions over the long term. Biological CO_2 emissions would comprise 11.8 percent and Non-Biological CO_2 would represent 73.1 percent of the operational GHG emissions with the Preferred Project. Methane (CH_4) emissions would represent 0.7 percent of the operational GHG emissions. Nitrous oxide (N_2O) emissions would be negligible. The global warming potential of each of these greenhouse gases is taken into account by converting emissions of CO_2, CH_4, and N_2O into CO_2 equivalent (CO_{2e}) emissions, which are often expressed in units of metric tons (MT) per year.

As shown in Table 4-4, the proposed project would generate approximately 528.74 metric tons of CO_{2e} per year as a result of the unmitigated operational use of motor vehicles, energy, and water (potable and irrigation water), as well as the generation and disposal of wastewater and solid waste. Two thousand new trees planted on-site would reduce GHG emissions by 1,381 MT of CO_{2e} through sequestration. The annual reduction in CO_{2e} emissions (69.05 MT/year of CO_{2e}) was determined by dividing the total CO_{2e} emission reduction from sequestration by the anticipated life of the project, which was assumed to be consistent with the twenty-year active growth period of the new trees. The net increase in GHG emissions (after sequestration is taken into account) would be 459.69 MT/year of CO_{2e}. The project design would reduce GHG emissions resulting from the long-term operation of the proposed development by 13.1 percent per year.

Table 4-4
Project-Related Annual Average Operational GHG Emissions[a]

Source Category	Unmitigated CO2e Emissions (Metric Tons per Year)	Sequestration Reduction (Metric Tons/Year)	Net CO2e Emissions (Metric Tons per Year)
Energy	214.86	NA	NA
Mobile	141.99	NA	NA
Waste	139.23	NA	NA
Water	32.66	NA	NA
Total	528.74	-69.04 (-13.1%)	459.69

a. Refer to Appendix C for the CalEEMod assumptions, the mitigation incorporated in the project design as well as the annual average output. Two thousand new trees planted on-site would reduce GHG emissions by 1,381.00 MT of CO_2e through sequestration. The annual reduction in CO2e emissions (69.05 MT/year of CO_2e) was determined by dividing the total CO_2e emission reduction from sequestration by the anticipated life of the project, which was assumed to be consistent with the twenty-year active growth period of the new trees.

The CEQ guidance states that agencies should consider the direct emission of 25,000 metric tons or more of CO_2-equivalent GHG emissions on an annual basis as an indicator that quantitative and qualitative assessment of GHG emissions associated with a proposed action may be meaningful to decision makers and the public. Based upon this indicator, the proposed project would have a less than significant impact on GHG emissions and climate change over both the short-term and long-term. Therefore, additional more detailed analyses would not provide meaningful results for the public or decision makers.

The California State Attorney General has determined that projects should only be presumed to have a less-that-significant effect on the environment if specific performance standards are met such that their GHG emissions will not prevent California from achieving the GHG reduction targets identified under AB 32 to reduce the state's impact on climate change. As shown in Table 4-4, the proposed project would reduce its long-term operational GHG emissions by 13.1 percent through specific design features incorporated in the project. As noted previously, the construction-related GHG emissions would be reduced by 63 percent by changing the vegetation of approximately 100 acres of the site to turf.

The current fuel economy ratings for passenger vehicles (27.5 miles per gallon for cars and 22 miles per gallon for trucks) will be increased to 35.5 miles per gallon by the year 2016. On July 29, 2011, the U.S. EPA announced that the administration had reached an agreement with automakers increasing fuel economy to 54.5 miles per gallon (or 163 grams of CO_2 per mile) by the year 2025. This legislation will effectively double the fuel efficiency of these on-road vehicles and reduce their GHG emissions by fifty percent.

Since mobile source GHG emissions represent 27 percent of the proposed project's total GHG emissions, a fifty percent reduction in mobile GHG emissions would be equivalent to a 13.5 percent reduction in the project's overall operational GHG emissions over the long term. This 13.5 percent reduction, when coupled with the 13.1 percent reduction in project-related GHG emissions shown in Table 4-4, would result in GHG emissions reductions consistent with the California GHG reduction targets identified under AB 32 to reduce the state's impact on climate change.

OPERATIONAL HAZARDOUS AND TOXIC AIR CONTAMINANTS (TACS)

Residential areas are considered sensitive receptor sites because residents spend much of their time at home and tend to live in the same home for many years. This can result in relatively long exposures to any toxic air contaminants that are present. The health risk assessment guidelines for TACs assume that residential exposures will occur over a period of 70 years. Young people, the elderly, and infirm are more susceptible to infections and other health problems related to poor air quality. As a result, occupants of land uses such as schools, hospitals, convalescent homes, and day care facilities are considered sensitive receptors.

There are no existing sensitive receptor sites located within one-quarter mile of the project site other than people who frequent the outdoor recreation area located west of the project site that was developed in conjunction with the Morongo Casino Resort and Spa. The proposed music festivals and concerts are not expected to generate significant operational emissions of hazardous or toxic air contaminants that would result in adverse impacts on existing sensitive receptors located within one-quarter mile of the project site. However, the transport and use of small amounts of materials classified as hazardous within the site (such as compressed natural gas, propane, or other flammable liquids used for cooking) and the storage of relatively small amounts of fuels for use by campers in portable lighting equipment may occur. These materials would be transported, stored, and used in accordance with existing regulations. Their use by employees or vendors at entertainment events on-site would be subject to the issuance of permits and inspections by the Morongo Fire Department.

The proposed project would generate heavy-duty diesel truck trips and increase diesel idling emissions in the vicinity. Diesel particulate matter and diesel exhaust organic gas emissions associated with those truck trips would introduce additional toxic air contaminants on and adjacent to the site. Risks associated with diesel particulate matter will decrease over time as cleaner technology is implemented.

A concentration of multiple sources of air contaminants may pose a public health risk to individuals who are exposed, even though each of the pollution sources may individually comply with air pollution control requirements (or fall below applicable risk thresholds). Freeways and other busy transportation corridors in the immediate vicinity can also contribute to local background air pollution levels.

Traffic management plans shall be developed by qualified traffic engineers with experience on similar recreational events and modified as necessary to ensure that adequate capacity is provided and long queues of idling vehicles do not develop along the entry routes to the site prior to the start of events. Similarly, traffic management programs shall be developed and implemented in the project vicinity to stagger the departure of concert and festival attendees and reduce the number of idling vehicles queued on-site and in the project vicinity following large events. Idling by charter buses and heavy-duty diesel trucks on-site will be limited to not more than five consecutive minutes to reduce diesel exhaust and associated health risks.

OPERATIONAL EMISSIONS OF OBJECTIONABLE ODORS

Objectionable odors can be associated with toxic or non-toxic emissions. If objectionable odors are generated near a high density residential area, the effects of project-related offensive odor emissions may be more pronounced because they may impact a considerable number of people, including children. If a project has the potential to cause an objectionable odor or other nuisance problem which could impact a residential area or a considerable number of sensitive receptors, it warrants close scrutiny.

The lead agency and project proponents should coordinate to identify and resolve any potential land use compatibility issues. In making a determination of odor significance, the distance between the odor source and the sensitive receptors must be considered. For example, all outdoor trash areas and waste bins should be designed and maintained such that deposited material is contained during windy periods to minimize litter, odors, and other nuisances. Trash and any recyclables should be collected regularly. Portable sanitation facilities should be located far enough from sensitive receptors to minimize the potential for impacts associated with objectionable odors.

CARBON MONOXIDE "HOT SPOT" ANALYSIS

There are no existing sensitive residential receptor sites located within one-quarter mile of the project site. Therefore, carbon monoxide levels were evaluated adjacent to the intersection of Thunder Road and Seminole Drive, which is projected to accommodate the most project-related traffic in the future. The sensitive residential receptors located closest to this intersection are approximately 700 feet from the center of the intersection.

Future carbon monoxide levels in the project vicinity during peak hour traffic conditions prior to the start of a concert were evaluated with the California Line Source Dispersion Model (CALINE4). Future traffic volumes in the year 2014 with and without the proposed project were modeled. Carbon monoxide concentrations adjacent to all other intersections accommodating project-related traffic in the project vicinity would be lower than the concentrations shown in Table 4-5.

Table 4-5
Projected Future Carbon Monoxide Concentrations[a]
Near the Intersection of Thunder Road and Seminole Drive

Future Scenario	1-Hour Average[b]	8-Hour Average[b]
Future Year 2014 Without Project		
- Year 2014 CO Background[c]	5.1 ppm	3.0 ppm
- Ambient Traffic Contribution	0.3 ppm	0.2 ppm[d]
2014 Total Concentration Without Project	5.4 ppm	3.2 ppm
Future Year 2014 With Project		
- Year 2014 CO Background[c]	5.1 ppm	3.0 ppm
- Ambient + Project Traffic Contribution	0.9 ppm	0.5 ppm[d]
2014 Total Concentration With Project	6.0 ppm	3.5 ppm
State Standard	20.0 ppm	9.0 ppm
Federal Standard	35.0 ppm	9.0 ppm

a. Refer to Appendix D for the input parameters and CALINE4 output sheets.
b. These concentrations reflect worst-case conditions at a receptor located downwind of the intersection (100 feet east of the centerline of Thunder Road and 100 feet north of the Seminole Drive centerline). Existing residential receptors are located 700 feet to the northwest (upwind of the intersection 85 percent of the time) and should be exposed to substantially lower CO levels.
c. The SCAQMD website (updated March 11, 2005) identified background CO concentrations.
d. A persistence factor of 0.6 was used to determine the 8-hour ambient and ambient + project CO concentrations from the 1-hour values determined with CALINE4.

At a point located 100 feet east of the centerline of Thunder Road and 100 feet north of the centerline of Seminole Drive, the peak hour traffic passing through the intersection in the year 2014 would contribute up to 0.9 ppm (over a 1-hour averaging period) and up to 0.5 ppm (over an 8-hour averaging period) to the background carbon monoxide concentrations in this area. Without the proposed project, the highest carbon monoxide concentration expected at this location downwind of the intersection of Thunder Road and Seminole Drive in the year 2014 is projected to be 5.4 ppm (over a 1-hour averaging period) and 3.2 ppm (over an 8-hour averaging period). With the proposed project, the carbon monoxide concentration is projected to be 6.0 ppm (averaged over one hour) and 3.5 ppm (averaged over eight hours). The motor vehicles attracted by the proposed project are projected to increase the local CO concentrations by 0.6 ppm (1-hour average) and 0.3 ppm (8-hour average) at a distance 100 feet downwind of the intersection.

A project has a significant impact if it interferes with the attainment of the federal 1-hour or 8-hour carbon monoxide standards by either exceeding them or contributing to an existing or projected violation. Based upon the CO "hotspot" analysis, the proposed project will not interfere with the attainment of the federal 1-hour or 8-hour carbon monoxide standards by either exceeding them or contributing to an existing or projected violation at sensitive receptor locations. Future year 2014 carbon monoxide concentrations adjacent to the worst-case intersection modeled will represent up to 17 percent of the 35 ppm federal standard (1-hour average) with the proposed project. Projected 8-hour carbon monoxide concentrations with the proposed development will represent up to 39 percent of the federal 8-hour carbon monoxide standard in the year 2014.

4.5 Consistency With Air Quality Plans, Programs, and Regulations

The purpose of a consistency finding is to determine whether or not a project is consistent with the assumptions and objectives of regional air quality plans. Based on this determination, conclusions can be drawn regarding whether or not the project will interfere with the region's ability to comply with federal and state air quality standards.

The Planning Department of the Morongo Band of Mission Indians is responsible for preparing the *Morongo General Plan*. The *Morongo General Plan* has over 65 percent of the Tribal Lands listed as "Open Space/Conservation Element Areas" in the Land Use and Open Space/ Conservation Elements. The initial site improvements would be temporary and the Tribe would maintain the authority to relocate the 242 acres of parking to another location and develop alternative uses within that area. The proposed project would provide the flexibility for the Tribe to either alter the land uses on-site in the future or incorporate the proposed land use within the *Morongo General Plan*.

On June 10, 2011, the U.S. EPA finalized a Federal Implementation Plan (FIP) that will help provide environmental protection in Indian country by establishing a federal program for issuing pre-construction air permits through a minor New Source Review (NSR) rule and a nonattainment major NSR rule. Tribes that choose to implement these rules can accept delegation of the federal program or develop and seek approval of a Tribal Implementation Plan (TIP) to administer these rules or portions of them. The proposed project, if approved and developed, should result in direct and indirect air pollutant emissions in quantities well below the minor NSR thresholds and the major NSR thresholds. Therefore, the proposed project would not be inconsistent with the FIP or any future TIP.

Although Morongo's areas of Indian country do contain stationary and mobile sources of ozone precursors, the magnitude of the ozone precursor emissions is very small compared to emissions from the adjacent SCAB and Coachella Valley nonattainment areas. Consequently, the proposed project, which would result is lower ozone precursor emissions than the existing land uses in the Morongo Reservation, would have an insignificant impact on the ability of adjacent nonattainment areas to attain the NAAQS.

The proposed project does not have the regulatory authority to control motor vehicle tailpipe emissions of the formulation of gasoline and diesel fuel used in Southern California. Motor vehicle emissions are regulated by the U.S. EPA and the California Air Resources Board. The most effective way to reduce motor vehicle air pollutant emissions is at the source with emission control devices such as catalytic converters and other emissions control technology. Project specific Transportation Demand Management strategies would not have a significant effect on whether or not the SCAB, the Coachella Valley, or the Morongo Band of Mission Indians nonattainment area meet the 2008 8-hour ozone NAAQS. The emission sources located the more densely developed areas upwind and downwind of the project site determine the concentrations of the criteria pollutants for which these areas are nonattainment.

The proposed project includes no residential land uses and would not provide directly and indirectly for increased population on-site that would exceed levels previously approved and accounted for in the forecasts used to develop regional air quality strategies. Although the project would not increase the population in the area, it would introduce new employment opportunities within the Reservation and support existing Tribal enterprises by attracting people to the area who will frequent existing Tribal enterprises and other commercial/retail and business uses in the project vicinity.

STATE IMPLEMENTATION PLAN FOR PM_{10} IN THE COACHELLA VALLEY

The Morongo Tribe's Ordinance #12 specifies that one goal is to not hinder the adjacent air basins from attaining the NAAQS. Even though the construction-related PM10 emissions are projected to be de minimis and no mitigation is required, the lead agency may opt to require the applicant to have a Fugitive Dust Control Plan prepared and submitted to the Tribe for review and approval prior to the initiation of grading activities. SCAQMD Rule 403.1 identifies various dust control measures and their efficiency for use in developing Fugitive Dust Control Plans to ensure that fugitive dust emissions are minimized during construction activities. Through the Construction Specifications, the project proponent can require that all feasible PM_{10} control measures be implemented to ensure that the proposed project is consistent with the goals of the *Coachella Valley PM_{10} SIP*.

4.6 CUMULATIVE IMPACTS

Pursuant to 72 Fed. Reg. at 54,139, when the impact of an air pollutant source does not exceed the significant impact level for the area in which it is located (i.e., is *de minimis*) the "EPA considers the conduct of a cumulative air quality analysis and modeling to yield information of trivial or no value with respect to the impact of the proposed source of air pollution." As shown in Table 4-2 and 4-3, the impact of the proposed project would be *de minimis*. Therefore, the project is not required to conduct more extensive air quality analyses or modeling to demonstrate that its emissions, in combination with the emissions of other air pollution sources in the vicinity, will not cause or contribute to a violation of the national ambient air quality standards at the project location.

Project-related direct and indirect air pollutant emissions would not exceed the applicable General Conformity *de minimis* levels. Therefore, the proposed action is exempt from a conformity determination and should be assumed to not have a significant cumulative impact on air quality. Air quality impacts associated with the proposed project would not be cumulatively considerable, because the project would not generate criteria air pollutant emissions that would exceed the General Conformity *de minimis* levels and the project will be consistent with either the FIP or the TIP.[4]

[4] Mr. Steve Smith, Ph.D., SCAQMD Program Supervisor, CEQA Section, Correspondence dated November 9, 2006.

ROG and NOx are ozone precursors, therefore, the emission of these pollutants constitutes the emission of ozone. The SSAB is a non-attainment area for ozone and PM_{10}. The proposed project would not substantially contribute to a cumulative net increase in the emissions of pollutants for which the SSAB is designated nonattainment. The U.S. EPA determined in a letter to the Morongo Band of Mission Indians dated December 20, 2012, that the amount of emissions associated with activities on the Morongo lands of Indian country are minimal and do not contribution to regional ozone violations. The project-related emissions would be less than the existing emissions in the Reservation. The project-related cumulative impact on air quality would be less than significant and no mitigation is required.

Cumulative impacts on air quality were addressed in the carbon monoxide "hot spot" analysis. The year 2014 ambient traffic volumes modeled with the California Line Source Dispersion Model included the growth in background traffic volumes expected to occur in the project vicinity including the additional traffic that would be generated by cumulative developments in the area. The CALINE4 modeling assumed background concentrations that included carbon monoxide contributions from other sources. Traffic levels used in the model included all reasonably foreseeable projects that will contribute traffic to the intersection and roadway segments evaluated. The project's cumulative impact on air pollutant concentrations at the intersections carrying the most project-related traffic is not projected to be significant and no mitigation is required.

5.0 AIR QUALITY MITIGATION MEASURES

Since the proposed action would result in criteria air pollutant emissions below the U.S. EPA General Conformity *de minimis* levels, the impacts of the proposed action on air quality would be less than significant. The proposed federal action is exempt from the General Conformity Regulations and no mitigation measures are required. However, mitigation measures should be considered for implementation if feasible, even for impacts that by themselves would not be considered significant.

There may be mitigation or alternatives that would be desirable to consider and adopt even though the impacts of the proposed action will not be significant. Where an Environmental Assessment (EA) is the appropriate environmental document, an EA and Finding of No Significant Impact (FONSI) can be used to impose enforceable mitigation measures, monitoring programs, and other requirements. In such cases, the EA should include a discussion of these measures or alternatives to: (1) assist lead agency planning and decision making, and (2) aid the lead agency in complying with NEPA when no EIS is necessary. Appropriate mitigation measures can be imposed as enforceable permit conditions or adopted as part of the agency final decision in the same manner that mitigation measures are adopted in the formal Record of Decision that is required in EIS cases.[1]

Project actions with total direct and indirect emissions below the U.S. EPA General Conformity *de minimis* levels are assumed to conform to Federal Implementation Plans and are not subject to a conformity determination. Since the proposed action would result in total direct and indirect criteria air pollutant emissions below the U.S. EPA General Conformity *de minimis* levels:

- the impacts of the proposed action on air quality would be less than significant and no mitigation is required;
- the proposed action is assumed to conform to Federal Implementation Plans; and
- the proposed action is not subject to a conformity determination.

The U.S. EPA Tribal Authority Rule gives Tribes the ability to develop air quality management programs, write rules to reduce air pollution and implement and enforce their rules in Indian country. There is currently no Tribal Implementation Plan approved by the U.S. EPA to reduce air pollution and meet the Clean Air Act requirements for the Morongo Band of Mission Indians nonattainment area for the 2008 eight-hour ozone NAAQS. Any TIP developed in the future to conform to CAA requirements and achieve the NAAQS, would most likely contain control measures to reduce ozone precursor (NOx and VOC) emissions that would be similar to measures currently included in the ozone SIPs for the SCAB and the Coachella Valley planning area. The Morongo Band of Mission Indians may opt to develop a series of regulations, programs, and policies that the Morongo Tribe can use in the interim to impose enforceable mitigation measures, monitoring programs, and other requirements on projects proposed within the Morongo Reservation.

MITIGATION TO REDUCE CONSTRUCTION-RELATED EMISSIONS

During the construction phase, construction-related activities will generate air pollutant emissions, including substantial amounts of fugitive dust. The development of a Fugitive Dust Control Plan is recommended that requires compliance with the provisions of SCAQMD Rule 403 - *Fugitive Dust*

[1] [46 FR18038] and Section 1501.3(b), 1508.9(a)(2).

or SCAQMD Rule 403.1-*Supplemental Fugitive Dust Control Requirements for Coachella Valley Sources*. A Fugitive Dust Control Plan should include: (1) the incorporation of appropriate dust control practices in each of the construction activities; and (2) compliance with measures related to the cleaning of construction equipment and haul trucks that enter and leave the site. If feasible, a paved staging area should be required during construction activities where worker parking can occur and construction equipment, aggregate, fencing materials, and trees to be planted can be off-loaded and departing haul vehicles can be washed.

To reduce the potential for diesel particulate matter impacts in outdoor recreational areas at the Morongo Casino Resort and Spa associated with construction activities on-site, the construction specifications shall limit the idling of construction equipment on-site while not in use to periods no longer than five consecutive minutes. Emissions of toxic air contaminants and GHG may be further reduced by requiring the use of cleaner fuels and the preferential use of newer construction equipment with pollution control equipment installed (such as diesel oxidation catalysts and diesel particulate matter filters). Tier 3 and Tier 4 equipment may be required to substantially reduce emissions of diesel particulate matter, which is considered by both the CARB and the U.S. EPA to be a toxic air contaminant.

SCAQMD Rules and Regulations

To be consistent with regional air pollution control efforts to achieve the NAAQS, the Tribe should consider requiring the project proponent to incorporate in the Construction Specifications procedures outlined in the following SCAQMD Rules and Regulations.

- Rule 401 (Visible Emissions) specifies control measures for use in developing site-specific Fugitive Dust Control Plans to minimize blowing dust from construction sites and insure

- Rule 402 (Public Nuisance) specifies control measures for use in developing site-specific Fugitive Dust Control Plans to minimize blowing dust from construction sites and insure

- Rule 403 or Rule 403.1 (Fugitive Dust) specifies control measures for use in developing site-specific Fugitive Dust Control Plans for projects to minimize blowing dust from construction sites and insure the clean up of construction-related dirt on approach routes to the site including: watering measures, chemical stabilizers, wind fencing, wheel washers and high wind measures.

- Rule 1108 and 1108.1 (Cutback and Emulsified Asphalt) prohibits the use of rapid and medium cure cutback asphalts as well as organic compounds in emulsified asphalts used during the construction process;

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Appendices

A. List of Acronyms and Glossary

B. Ambient Air Quality Standards,
Health Effects of Air Pollutants
Banning Airport Wind Rose
Ambient Air Quality Monitoring Data

C. CalEEMod Assumptions and Output

D. CALINE4 Assumptions and Output

Appendix A

Acronyms and Glossary

Appendix A
List of Acronyms

AB	Assembly Bill
ADT	Average Daily Traffic
AQMP	Air Quality Management Plan
BACM	Best Available Control Measures
CAA	Clean Air Act
CARB	California Air Resources Board
CCAA	Claifornia Clean Air Act
CFR	Code of Federal Regulations
CMP	Congestion Management Program
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	CO_2 equivalent
CVAG	Coachella Valley Association of Governments
CVSIP	Coachella Valley State Implementation Plan
DPM	Diesel Particulate Matter
FIP	Federal Implementation Plan
GHG	Greenhouse Gas
HAP	Hazardous Air Pollutant
HQT	High Quality Transit
I-10	Interstate 10
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
MT	Metric Tons
NAAQS	National Ambient Air Quality Standards
NATA	National-Scale Air Toxics Assessment
NEPA	National Environmental Policy Act
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
NSR	New Source Review
O_3	Ozone
OPR	California Governor's Office of Planning and Research
Pb	Lead (particulate)
PM	Particulate Matter
$PM_{2.5}$	Fine Particulate Matter 2.5 microns or less in diameter
PM_{10}	Particulate Matter 10 microns or less in diameter
PSD	Prevention of Significant Deterioration
ROG	Reactive Organic Gas
RTP	Regional Transportation Plan
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SER	Significant Emission Rate
SIL	Significant Impact Level
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_4^{2-}	Sulfate
SO_x	Sulfur Oxides
SSAB	Salton Sea Air Basin

T-BACT	Best Available Control Technology for Toxics
TAC	Toxic Air Contaminant
TDM	Transportation Demand Management
TIP	Tribal Implementation Plan
TSM	Transportation Systems Management
UFP	Ultra Fine Particulates
U.S. EPA	United States Environmental Protection Agency
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound
VPD	Vehicles Per Day

Appendix A
Air Quality Glossary

AAQS – Ambient Air Quality Standards.

AB 32 – Assembly Bill 32 is California's Global Warming Solutions Act of 2006 which requires the CARB to establish a greenhouse gas emissions cap for the year 2020 and adopt mandatory reporting rules for significant sources of greenhouse gas.

Air Basin – An area with common and distinctive geographical features.

Air Monitoring – Sampling and measuring pollutants present in the atmosphere.

Ambient Air – Outside air.

AQMP – The Air Quality Management Plan.

ARB – The California Air Resources Board.

Attainment – Legal recognition that an area meets standards for a particulate pollutant.

AVR – Average Vehicle Ridership

BACT – Best Available Control Technology.

CAA – The Federal Clean Air Act.

CALINE4 – The California Line Source Dispersion Model.

CARB – The California Air Resources Board.

CalEEMod – The California Emissions Estimator Model (Version 2011.1.1) is a land use emissions computer model developed by ENVIRON International Corporation for the SCAQMD to provide a uniform platform for governmental agencies, planners, and environmental professionals to quantify criteria pollutant and greenhouse gas emissions associated with both construction and operation from land use projects throughout California.

CCAA – The California Clean Air Act.

CEQA – The California Environmental Quality Act.

CMP – The Congestion Management Program.

CO – Carbon monoxide is a colorless, odorless, toxic gas formed by incomplete combustion of fossil fuels.

Coachella Valley Blowsand Zone – The corridor of land extending two miles to either side of the centerline of the I-10 Freeway beginning at the SR-111/I-10 junction and continuing southeast to the I-10/Jefferson Street interchange in Indio.

Construction/Demolition Activities – Any on-site mechanical activities preparatory to or related to the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to the following activities; grading, excavation, loading, crushing, cutting, planning, shaping or ground breaking.

Contingency Measures – Actions which will be implemented in the event of a failure to attain or to meet interim milestones.

Criteria Air Contaminants – Criteria air contaminants are pollutants for which air quality standards currently exist (i.e. ozone, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), fine suspended particulates (PM_{10}), lead and sulfate).

CVAG – The Coachella Valley Association of Governments.

CVSIP – The Coachella Valley PM_{10} State Implementation Plan.

***De Minimis* Levels** – 40 CFR 93§153 defines *de minimis* levels as the minimum threshold for which a conformity determination must be performed for various criteria pollutants in various areas

Disturbed Surface Area – A portion of the earth's surface which has been physically moved, uncovered, de stabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust. This definition excludes those areas restored to a natural state, such that vegetative ground cover and soil characteristics are similar to adjacent or near-by natural conditions.

DPM – Diesel particulate matter.

DRRP – CARB *Diesel Risk Reduction Plan*.

Dust Suppressants – Water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive emissions. Non-toxic chemical stabilizers must not be used if prohibited by the Regional Water Quality Control Boards, the California Air Resources Board, the Environmental Protection Agency, or any other applicable law, rule or regulation; and should meet any specifications, criteria, or tests required by any federal, state, or local water agency.

Earth-Moving Activities – Shall include, but not be limited to, such operations as grading, loading or unloading of dirt or bulk materials, adding to or removing from open storage piles of bulk materials, landfill operations, soil mulching, or agricultural tilling.

EIR – Environmental Impact Report.

EMFAC2007 – Version 2.3 Burden model developed by the CARB and used by CalEEMod to identify on-road mobile source emission factors for various speeds throughout California based on local conditions including the vehicle fleet mix and year of interest.

Emission Inventory – A listing by source of pollutants emitted into a community's atmosphere (typically given in units of pounds per day or tons per year).

EPA – The U.S. Environmental Protection Agency (i.e., the federal agency with responsibility for ambient air quality).

Episode Criteria – California has adopted health advisory levels called episode criteria for ozone, carbon monoxide, sulfur dioxide, and ozone in combination with sulfates. Episode criteria represent short-term exposures at concentrations which actually threaten public health.

Facility – Any permit unit or grouping of permit units or other air contaminant-emitting activities which are located on one or more contiguous properties within the District, in actual physical contact or separated solely by a public roadway or other public right-of-way, and are owned or operated by the same person (or by persons under common control).

FIP – The Federal Implementation Plan.

Fugitive Dust – Any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of man.

GHG – Greenhouse gas emissions usually given in units of metric tons per year of equivalent CO_2 (MT/year of CO_2e).

GP – General Plan.

Health Advisory – Issued when ozone levels are projected to reach 15 parts per hundred million to warn athletes to avoid strenuous outdoor activities.

HOV – High Occupancy Vehicle.

Hydrocarbons – Any compound containing carbon and hydrogen in various combinations found in solvents and fuels.

Inversion – A layer of warm air in the atmosphere that lies over a layer of cooler air, trapping pollutants in the mixing layer beneath it.

$\mu g/m^3$ – Microgram (1/1,000,000 of a gram) per cubic meter of air.

NAAQS – National Ambient Air Quality Standards.

NATA – The National-Scale Air Toxics Assessment is EPA's ongoing comprehensive evaluation of air toxics in the United States. It is a screening tool for State/Local/Tribal Agencies to prioritize pollutants, emission sources, and locations of concern for further study of the risks of cancer and other serious health effects from inhaling air toxics.

New Source Review – requires major stationary pollution sources to obtain permits issued by the EPA, the state, or local agencies which establish construction details, emission limits, monitoring, recordkeeping, and reporting requirements.

NO – Nitric oxide, a colorless, odorless gas.

NO_2 – Nitrogen dioxide, a reddish-brown gas formed by the combination of nitric oxide with oxygen.

Nonattainment Area – An area that does not meet state or national standards for a given pollutant and is designated as nonattainment under section 107 of the federal Clean Air Act as amended in 1990 and described in 40 CFR part 81.

Nonroad Mobile Sources – Mobile sources not found on roads or highways including: airplanes, trains, lawn mowers, construction vehicles, farm machinery, ships, and boats.

NOx – Oxides of nitrogen. Gases formed primarily from atmospheric nitrogen and oxygen when combustion takes place (particularly under conditions of high temperature). Oxides of nitrogen are primary receptors of ultraviolet light initiating the photochemical reactions that produce smog.

O_3 – Ozone, a pungent, colorless toxic gas which is produced by the photochemical process. Ozone is formed through chemical reactions of VOCs, oxides of nitrogen and oxygen in the presence of sunlight.

OFFROAD2007 – A program **that** identifies emission factors for off-road equipment (including off-highway trucks, scrapers, graders, etc.) that is used by CalEEMod to estimate construction-related equipment exhaust emissions.

Offset – An emission reduction that compensates for an emission increase.

OPR – Governor's Office of Planning and Research

Ozone Precursors – Chemicals such as volatile organic compounds (VOCs) and nitrogen oxides (NOx) which contribute to the formation of ozone.

Particulate Matter – Particulate matter consists of particles in the atmosphere as a by-product of fuel combustion, through abrasion such as tire wear, and through soil erosion by the wind. Particulates can also be formed through photochemical reactions in the atmosphere.

Particulate Matter Precursors – PM2.5 precursors include sulfur dioxide (SO_2) and nitrogen oxides (NOx).

Photochemical – Requiring the presence of sunlight for a chemical reaction.

Photochemical Oxidant – Photochemical oxidant (O_3) can include several different pollutants, but consists primarily of ozone (90%) and a group of chemicals called organic peroxynitrates. Photochemical oxidant is created by complex atmospheric reactions involving oxides of nitrogen and volatile organic compounds, in the presence of ultraviolet energy from sunlight.

PM – Total suspended particulate matter.

$PM_{2.5}$ – Suspended particulate matter with a mean aerodynamic diameter of less than 2.5 micrometers. $PM_{2.5}$ from stationary source fuel combustion comprises approximately 99 percent of the PM_{10}. $PM_{2.5}$ from fugitive dust represents approximately 21 percent of the PM_{10}. $PM_{2.5}$ from off-road equipment comprises approximately 89 percent of the PM_{10}.

PM_{10} – Suspended particulate matter with a mean aerodynamic diameter of less than 10 micrometers.

PM_{10} SIP – The PM_{10} State Implementation Plan.

PPM – Parts per million parts of air.

Primary Pollutants – Primary pollutants (i.e., those emitted directly from a source and include: carbon monoxide (CO), nitric oxide (NO), sulfur dioxide (SO_2), particulates, and various hydrocarbons and other volatile organic compounds (VOC).

RACM – Reasonably Available Control Measures.

RACT – Reasonably Available Control Technology.

Rate-of-Progress – Reducing pollutants contributing to nonattainment by five percent per year or all feasible control measures and an expeditious adoption schedule.

Regionally Significant Action – A federal action for which the direct and indirect emissions of any pollutant represent ten percent or more of a nonattainment or maintenance area's emissions inventory for that pollutant.

Reasonably Foreseeable Emissions – Projected future indirect emissions that are identified at the time a conformity determination is made. The location of such emissions must be known and the emissions must be quantifiable.

Receptor Location – Any location outside the boundaries of the facility at which a person could experience acute or chronic exposure. The SCAQMD shall consider the potential for exposure in determining whether the location will be considered a receptor location.

Reasonable Further Progress – An incremental reduction in emissions of relevant air pollutants that is needed to ensure attainment of the national ambient air quality standards or NAAQS by the applicable date.

Risk Assessment – An evaluation of expected health impacts on a specific population.

ROC – Reactive organic compounds (i.e., compounds composed of hydrocarbons that contribute to the formation of photochemical oxidant).

ROG – Reactive organic gases (i.e., gases composed of hydrocarbons that contribute to the formation of photochemical oxidant).

SCAB – The South Coast Air Basin.

SCAG – The Southern California Association of Governments.

SCAQMD – The South Coast Air Quality Management District.

Secondary Pollutants – Secondary pollutants are created with the passage of time in the air mass and include: photochemical oxidants (90% of which are ozone), photochemical aerosols, peroxyacetylnitrate (PAN), and nitrogen dioxide (NO_2).

Senate Bill 97 – Amended the CEQA statute to establish that GHG emissions and their effects are appropriate topics for CEQA analysis.

Sensitive Land Use – Sensitive land uses are land uses associated with indoor and/or outdoor human activities that may be subject to stress and/or significant impact as a result of air pollutant exposure. They include residential (single-family and multi-family dwellings, mobile home parks, dormitories and similar uses); transient lodging (including hotels, motels and similar uses); hospitals, nursing homes, convalescent hospitals and other facilities for long-term medical care; and public or private educational facilities.

SIP – State Implementation Plan. A document that shows the steps planned to meet federal air quality standards (outlined in the Clean Air Act). Each nonattainment area prepares an air quality improvement plan. These plans are combined to make the statewide SIP.

SO_2 – Sulfur dioxide results from the combustion of high sulfur content fuels.

SOx – Sulfates result from a reaction of sulfur dioxide and oxygen in the presence of sunlight.

SRA – Source Receptor Area. The Coachella Valley is in Source Receptor Area 30.

SSAB – The Salton Sea Air Basin.

Stage I Alert – alert called when ozone concentrations are projected to reach 20 parts per hundred million. A Stage I Alert indicates that the general public should avoid strenuous outdoor activities because of unhealthful air quality.

Stage II Alert – Alert called when ozone concentrations are projected to reach 35 parts per hundred million. A Stage II Alert indicates that everyone should remain indoors because of very unhealthful air quality.

TACs – Toxic air contaminants.

T-BACT – Best Available Control Technology For Toxics means the most stringent emissions limitation or control technique which has been achieved in practice for such permit unit category or class of source or any other emissions limitation or control technique found by the SCAQMD to be technologically feasible for a specific source.

TCM – Transportation Control Measures.

TDM – Transportation Demand Management.

Toxic Air Contaminant – An air pollutant which may cause or contribute to an increase in mortality or serious illness, or which may pose a present or potential hazard to human health.

VMT – Vehicle Miles Traveled (usually daily). CalEEMod determines the annual VMT.

VOC – Hydrocarbon and other Volatile Organic Compounds are formed from combustion of fuels and the evaporation of organic solvents. Many hydrocarbon compounds are major air pollutants, and those classified as aromatics are highly photochemically reactive with NO_x, forming photochemical smog.

VT – Vehicle Trips.

Appendix B

AMBIENT AIR QUALITY STANDARDS
EFFECTS OF AIR POLLUTANTS ON SENSITIVE RECEPTORS
BANNING AIRPORT WIND ROSE
AMBIENT AIR QUALITY MONITORING DATA

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.075 ppm (147 µg/m^3)		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		—		
Fine Particulate Matter (PM2.5)	24 Hour	—	—	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3		
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	—	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	—	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	
Nitrogen Dioxide (NO_2)[8]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	—	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[9]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	—	Ultraviolet Flourescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for certain areas)[9]	—	
	Annual Arithmetic Mean	—		0.030 ppm (for certain areas)[9]	—	
Lead[10,11]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m^3 (for certain areas)[11]	Same as Primary Standard	
	Rolling 3-Month Average	—		0.15 µg/m^3		
Visibility Reducing Particles[12]	8 Hour	See footnote 12	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[10]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page …

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

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

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

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

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

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

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

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

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

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

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

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

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

Appendix B
Effects of Air Pollutants on Sensitive Receptors

Oxidants (primarily ozone) at high enough concentrations can cause eye irritation; aggravate respiratory disease; suppress the body's capacity to fight infection; impair athletic performance and cause growth retardation in sensitive trees. Oxidants also cause cracking of untreated rubber. Short-term and long-term ozone exposures have been found to have adverse health effects on humans and animals. Ozone and fine particulates are responsible for a wide range of health effects including slowed lung growth in children, worsening of asthma symptoms, increased susceptibility to respiratory infections, increased hospital admissions, and increased death rates.

Suspended particulates such as soot, dust, aerosols, fumes, and mists produce haze and reduce visibility. Health concerns focus on smaller particles that penetrate deeply into and then damage the human respiratory tract. Deaths from short-term exposures have been documented and symptoms are exacerbated in sensitive patients with respiratory disease. Excess seasonal declines in pulmonary function have been found (especially in children). Typically, industrial and agricultural operations, combustion, and photochemical reactions produce suspended particulates.

Volatile organic compounds in the presence of other primary pollutants (particularly oxides of nitrogen) lead to the formation of oxidants. VOCs also damage plants by inhibiting growth and causing flowers and leaves to fall.

Carbon monoxide is essentially colorless, odorless and toxic to humans. It enters the blood stream and interferes with the transfer of fresh oxygen, thereby depriving sensitive tissues in the heart and brain of oxygen. At high enough concentrations it can impair visual function, psychomotor performance and time discrimination. Carbon monoxide exposure aggravates angina pectoris and other aspects of coronary heart disease. It may also impose increase risks to fetuses.

Nitrogen dioxide at high enough exposures can cause fibrotic lung changes, broncho-striction, and acute bronchitis among infants and school children. Over several months, it can cause collapsed lesions near the leaf margin and moderate injury in sensitive plants. Nitrogen dioxide aggravates chronic respiratory disease and respiratory symptoms in sensitive groups.

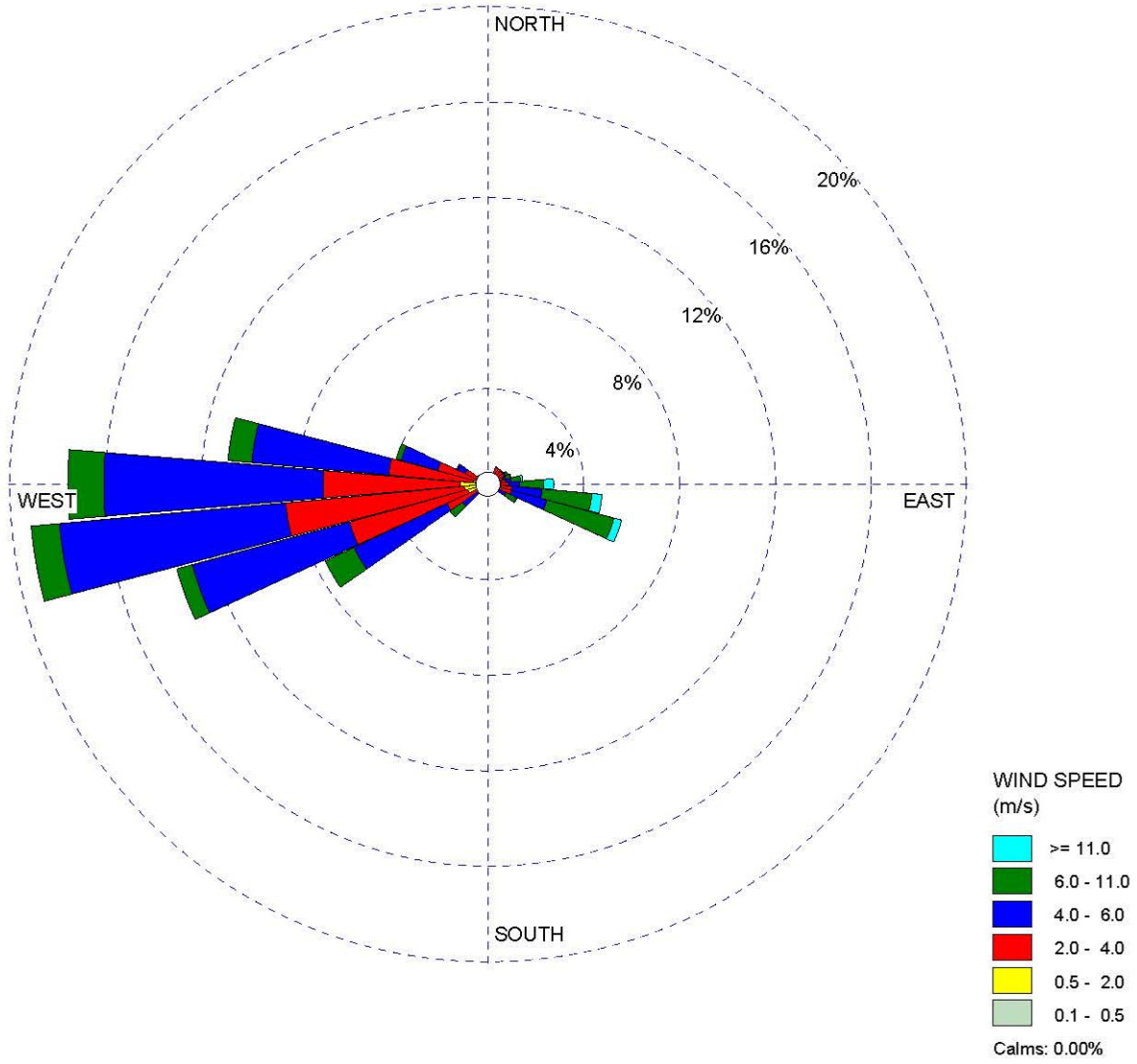
Lead at high enough concentrations impairs hemoglobin synthesis and nerve conduction by increasing lead levels in the blood. Sulfur dioxide and suspended particulate exposures can each cause higher frequencies of acute respiratory symptoms and diminished ventilatory function in children. In addition, these two pollutants at lower concentrations can act in conjunction to cause greater harm by injuring lung tissue. Sulfur oxides, in combinations with moisture and oxygen, can yellow the leaves of plants, dissolve marble, and erode iron and steel. Sulfates decrease ventilatory function, aggravate asthmatic symptoms, aggravate cardio-pulmonary disease and cause damage to vegetation (while degrading visibility).

WIND ROSE PLOT:

bnap

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	2005-2007 **Jan 1 - Dec 31** **00:00 - 23:00**	MODELER:	
	CALM WINDS: **0.00%**	TOTAL COUNT: **26234 hrs.**	
	AVG. WIND SPEED: **4.40 m/s**	DATE: **1/28/2009**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

2009 AIR QUALITY
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

2009

Source/Receptor Area No.	Location	Station No.	Carbon Monoxide[a] No. Days of Data	Carbon Monoxide Max. Conc. in ppm 1-hour	Carbon Monoxide Max Conc. in ppm 8-hour	Ozone No. Days of Data	Ozone Max. Conc. in ppm 1-hour	Ozone Max. Conc. in ppm 8-hour	Ozone Fourth High Conc. ppm 8-hour	Ozone Health Advisory ≥ 0.15 ppm 1-hour	Ozone No. Days Standard Exceeded Federal[b] Old > 0.12 ppm 1-hour	Ozone Federal[b] Current > 0.075 ppm 8-hour	Ozone State[c] Current > 0.09 ppm 1-hour	Ozone State[c] Current > 0.070 ppm 8-hour	Nitrogen Dioxide[d] No. Days of Data	Nitrogen Dioxide Max Conc. in ppm 1-hour	Nitrogen Dioxide 98th Percentile Conc. ppm 1-hour	Nitrogen Dioxide Annual Average AAM Conc. ppm	Sulfur Dioxide[e] No. Days of Data	Sulfur Dioxide Max. Conc. in ppm 1-hour	Sulfur Dioxide Max. Conc. in ppm 24-hour
LOS ANGELES COUNTY																					
1	Central LA	087	357	3	2.2	365	0.139	0.100	0.073	0	1	2	3	5	365	0.12	0.07	0.0281	365	0.01	0.002
2	Northwest Coastal LA County	091	365	2	1.5	365	0.131	0.094	0.075	0	1	3	6	5	355	0.08	0.06	0.0170	--	--	--
3	Southwest Coastal LA County	820	349	2	1.9	352	0.077	0.070	0.061	0	0	0	0	0	362	0.08	0.07	0.0159	362	0.02	0.006
4	South Coastal LA County 1	072	362	3	2.2	363	0.089	0.068	0.064	0	0	0	0	0	362	0.11	0.07	0.0212	361	0.02	0.005
4	South Coastal LA County 2	077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6	West San Fernando Valley	074	365	4	2.8	365	0.135	0.100	0.093	0	1	19	15	31	365	0.07	0.06	0.0171	--	--	--
7	East San Fernando Valley	069	365	3	2.9	365	0.145	0.096	0.086	1	1	14	16	28	353	0.09	0.07	0.0274	362	0.01	0.003
8	West San Gabriel Valley	088	365	4	2.1	365	0.176	0.114	0.095	1	3	12	12	19	365	0.08	0.06	0.0221	--	--	--
9	East San Gabriel Valley 1	060	357	3	1.7	365	0.150	0.107	0.091	1	4	17	23	32	365	0.10	0.07	0.0194	--	--	--
9	East San Gabriel Valley 2	591	351	3	2.1	352	0.150	0.118	0.108	3	7	42	45	64	350	0.09	0.06	0.0170	--	--	--
10	Pomona/Walnut Valley	075	365	3	1.8	365	0.138	0.099	0.095	0	1	23	25	37	365	0.10	0.08	0.0274	--	--	--
11	South San Gabriel Valley	085	365	3	2.1	365	0.131	0.101	0.072	0	1	3	8	6	361	0.10	0.07	0.0259	--	--	--
12	South Central LA County	112+	354	7	4.6	354	0.104	0.086	0.064	0	0	1	2	1	354	0.09	0.07	0.0214	--	--	--
13	Santa Clarita Valley	090	361	2	1.4	357	0.140	0.122	0.103	0	5	64	57	77	357	0.06	0.05	0.0151	--	--	--
ORANGE COUNTY																					
16	North Orange County	3177	365	4	2.3	365	0.115	0.082	0.075	0	0	3	4	9	365	0.10	0.06	0.0206	--	--	--
17	Central Orange County	3176	365	3	2.7	365	0.093	0.077	0.068	0	0	1	0	2	365	0.07	0.06	0.0179	--	--	--
18	North Coastal Orange County	3195	362	3	2.2	365	0.087	0.075	0.066	0	0	0	0	3	365	0.07	0.06	0.0130	364	0.01	0.004
19	Saddleback Valley	3812	362	2	1.0	362	0.121	0.095	0.084	0	0	10	7	14	--	--	--	--	--	--	--
RIVERSIDE COUNTY																					
22	Norco/Corona	4155	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23	Metropolitan Riverside County 1	4144	364	2	1.9	346	0.116	0.100	0.089	0	0	35	25	57	357	0.08	0.06	0.0171	364	0.01	0.003
23	Metropolitan Riverside County 2	4146	365	3	1.8	--	--	--	--	--	--	--	--	--	365	0.08	0.06	0.0200	--	--	--
23	Mira Loma	4165	364	3	2.4	364	0.118	0.090	0.086	0	0	22	15	37	364	0.08	0.05	0.0158	--	--	--
24	Perris Valley	4149	--	--	--	354	0.125	0.108	0.101	0	1	67	53	88	--	--	--	--	--	--	--
25	Lake Elsinore	4158	365	1	0.7	365	0.128	0.105	0.096	0	1	37	24	65	365	0.06	0.04	0.0129	--	--	--
29	Banning Airport	4164	--	--	--	359	0.133	0.104	0.100	0	1	70	55	93	359	0.06	0.05	0.0109	--	--	--
30	Coachella Valley 1**	4137	365	2	0.7	365	0.120	0.098	0.096	0	0	53	28	73	349	0.05	0.04	0.0081	--	--	--
30	Coachella Valley 2**	4157	--	--	--	365	0.097	0.090	0.085	0	0	24	6	41	--	--	--	--	--	--	--
SAN BERNARDINO COUNTY																					
32	Northwest San Bernardino Valley	5175	365	2	1.5	365	0.146	0.121	0.102	1	3	49	51	71	363	0.11	0.07	0.0239	--	--	--
33	Southwest San Bernardino Valley	5817	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
34	Central San Bernardino Valley 1	5197	365	2	1.5	365	0.142	0.128	0.100	0	3	48	45	65	365	0.11	0.07	0.0235	365	0.01	0.002
34	Central San Bernardino Valley 2	5203	363	3	1.9	363	0.150	0.126	0.101	1	2	62	53	79	363	0.08	0.06	0.0196	--	--	--
35	East San Bernardino Valley	5204	--	--	--	365	0.145	0.122	0.100	1	1	73	62	91	--	--	--	--	--	--	--
37	Central San Bernardino Mountains	5181	--	--	--	364	0.149	0.117	0.110	2	7	92	70	107	--	--	--	--	--	--	--
38	East San Bernardino Mountains	5818	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
DISTRICT MAXIMUM				7	4.6		0.176	0.128	0.110	3	7	92	70	107		0.12	0.08	0.0281		0.02	0.006
SOUTH COAST AIR BASIN				7	4.6		0.176	0.128	0.110	6	15	113	102	133		0.12	0.08	0.0281		0.02	0.006

ppm - Parts Per Million parts of air, by volume. AAM = Annual Arithmetic Mean -- - Pollutant not monitored.

** Salton Sea Air Basin.

+ Site was relocated.

a) - The federal 8-hour standard (8-hour average CO > 9 ppm) and state 8-hour standard (8-hour average CO > 9.0 ppm) were not exceeded. The federal and state 1-hour standards (35 ppm and 20 ppm) were not exceeded, either.

b) - The federal 1-hour ozone standard was revoked and replaced by the 8-hour average ozone standard effective June 15, 2005. U.S. EPA has revised the federal 8-hour ozone standard from 0.084 ppm to 0.075 ppm, effective May 27, 2008.

c) - The 8-hour average California ozone standard of 0.070 ppm was established effective May 17, 2006.

d) - The federal standard is annual arithmetic mean NO_2 > 0.0534 ppm. California Air Resources Board has revised the NO_2 1-hour state standard from 0.25 ppm to 0.18 ppm and has established a new annual standard of 0.030 ppm, effective March 20, 2008. U.S. EPA has established a new NO2 1-hour standard of 100 ppb (0.100 ppm), effective April 7, 2010.

e) - The state standards are 1-hour average SO_2 > 0.25 ppm and 24-hour average SO_2 > 0.04 ppm. U.S. EPA has revised the federal standard by establishing a new SO2 1-hour standard of 75 ppb (0.075 ppm) and revoking the existing annual (0.03 ppm) and 24-hour (0.14 ppm) SO2 standards, effective August 2, 2010. The federal and state SO_2 standards were not exceeded.

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4182
www.aqmd.gov

2009 AIR QUALITY
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

2009

Source/Receptor Area No.	Location	Station No.	Suspended Particulates PM10 f) No. Days of Data	Max. Conc. in µg/m³ 24-hour	No. (%) Samples Exceeding Standards Federal > 150 µg/m³ 24-hour	State > 50 µg/m³ 24-hour	Annual Average Conc. h) (AAM) µg/m³	Fine Particulates PM2.5 g) No. Days of Data	Max. Conc. in µg/m³ 24-hour	98th Percentile Conc. in µg/m³ 24-hour	No. (%) Samples Exceeding Federal Std > 35 µg/m³ 24-hour	Annual Average Conc. i) (AAM) µg/m³	Particulates TSP No. Days of Data	Max. Conc. in µg/m³ 24-hour	Annual Average Conc. (AAM) µg/m³	Lead Max. Monthly Average Conc. j) µg/m³	Max. Quarterly Average Conc. j) µg/m³	Sulfate Max. Conc. in µg/m³ 24-hour	No. Days Exceeding State Std ≥ 25 µg/m³ 24-hour
LOS ANGELES COUNTY																			
1	Central LA	087	60	72	0	4(6.7)	33.1	359	61.7	34.0	7(1.9)	14.3	61	148	66.8	0.02	0.01	9.8	0
2	Northwest Coastal LA County	091	--	--	--	--	--	--	--	--	--	--	59	99	50.8	--	--	9.1	0
3	Southwest Coastal LA County	820	60	52	0	1(1.7)	25.4	--	--	--	--	--	48	87	42.4	0.01	0.01	8.6	0
4	South Coastal LA County 1	072	57	62	0	3(5.3)	30.5	328	63.0	34.2	6(1.8)	13.0	60	128	55.4	0.01	0.01	13.6	0
4	South Coastal LA County 2	077	56	83	0	5(8.9)	33.2	350	55.8	30.5	4(1.1)	12.5	59	159	65.2	0.01	0.01	12.1	0
6	West San Fernando Valley	074	--	--	--	--	--	110	39.9	27.2	1(0.9)	11.4	--	--	--	--	--	--	--
7	East San Fernando Valley	069	60	80	0	11(18.3)	39.2	243	67.5	34.4	4(1.6)	14.4	--	--	--	--	--	--	--
8	West San Gabriel Valley	088	--	--	--	--	--	109	52.0	35.7	3(2.8)	12.3	59	153	48.5	--	--	8.8	0
9	East San Gabriel Valley 1	060	52	74	0	7(13.5)	32.0	153	72.1	42.9	6(3.9)	12.8	58	208	74.9	--	--	7.9	0
9	East San Gabriel Valley 2	591	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10	Pomona/Walnut Valley	075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11	South San Gabriel Valley	085	--	--	--	--	--	118	71.1	35.4	2(1.7)	14.8	59	194	69.7	0.04	0.02	9.9	0
12	South Central LA County+	112+	--	--	--	--	--	114	69.2	37.7	3(2.6)	14.7	57	118	59.6	0.03	0.02	9.9	0
13	Santa Clarita Valley	090	53	56	0	1(1.9)	23.4	--	--	--	--	--	--	--	--	--	--	--	--
ORANGE COUNTY																			
16	North Orange County	3177	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17	Central Orange County	3176	56	63	0	1(1.8)	30.9	334	64.6	32.1	4(1.2)	11.8	--	--	--	--	--	--	--
18	North Coastal Orange County	3195	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19	Saddleback Valley	3812	60	56	0	1(1.7)	23.5	116	39.2	23.8	1(0.9)	9.5	--	--	--	--	--	--	--
RIVERSIDE COUNTY																			
22	Norco/Corona	4155	59	79	0	7(11.9)	35.6	--	--	--	--	--	--	--	--	--	--	--	--
23	Metropolitan Riverside County 1	4144	119	77	0	35(29.4)	42.5	347	54.5	39.6	13(3.7)	15.3	60	161	87.6	0.01	0.01	7.3	0
23	Metropolitan Riverside County 2	4146	--	--	--	--	--	114	42.2	34.0	2(1.8)	13.4	61	162	66.0	0.01	0.01	6.8	0
23	Mira Loma	4165	59	108	0	33(55.9)	53.4	229	49.2	40.6	14(6.1)	16.9	--	--	--	--	--	--	--
24	Perris Valley	4149	58	80	0	9(15.5)	34.8	--	--	--	--	--	--	--	--	--	--	--	--
25	Lake Elsinore	4158	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29	Banning Airport	4164	59	99	0	1(1.7)	25.9	--	--	--	--	--	--	--	--	--	--	--	--
30	Coachella Valley 1**	4137	54	140	0	1(1.9)	22.6	112	21.8	14.6	0	6.7	--	--	--	--	--	--	--
30	Coachella Valley 2**	4157	120	132	0	9(7.5)	32.5	112	27.5	17.0	0	7.9	--	--	--	--	--	--	--
SAN BERNARDINO COUNTY																			
32	Northwest San Bernardino Valley	5175	--	--	--	--	--	--	--	--	--	--	59	123	58.5	0.01	0.01	6.8	0
33	Southwest San Bernardino Valley	5817	62	70	0	9(14.5)	35.6	114	46.9	35.9	3(2.6)	14.7	--	--	--	--	--	--	--
34	Central San Bernardino Valley 1	5197	60	75	0	13(21.7)	40.2	118	46.4	32.7	2(1.7)	14.3	58	185	84.3	--	--	6.7	0
34	Central San Bernardino Valley 2	5203	52	66	0	11(21.2)	41.5	110	37.8	35.2	2(1.8)	13.0	61	125	74.3	0.01	0.01	7.1	0
35	East San Bernardino Valley	5204	60	52	0	2(3.3)	30.2	--	--	--	--	--	--	--	--	--	--	--	--
37	Central San Bernardino Mountains	5181	51	57	0	1(2.0)	24.5	--	--	--	--	--	--	--	--	--	--	--	--
38	East San Bernardino Mountains	5818	--	--	--	--	--	56	40.8	29.4	1(1.8)	9.9	--	--	--	--	--	--	--
	DISTRICT MAXIMUM			140	0	35	53.4		72.1	42.9	14	16.9		208	87.6	0.04	0.02	13.6	0
	SOUTH COAST AIR BASIN			108	0	60	53.4		72.1	42.9	27	16.9		208	87.6	0.04	0.02	13.6	0

µg/m³ - Micrograms per cubic meter of air. AAM = Annual Arithmetic Mean -- - Pollutant not monitored.

** Salton Sea Air Basin.

+ Site was relocated.

f) - PM10 samples were collected every 6 days at all sites except for Station Numbers 4144 and 4157 where samples were collected every 3 days.

g) - PM2.5 samples were collected every 3 days at all sites except for the following sites: Station Numbers 069, 072, 077, 087, 3176, 4144 and 4165 where samples were taken every day, and Station Number 5818 where samples were taken every 6 days.

h) - Federal annual PM10 standard (AAM > 50 µg/m³) was revoked effective December 17, 2006. State standard is annual average (AAM) > 20 µg/m³.

i) - Federal PM2.5 standard is annual average (AAM) > 15.0 µg/m³. State standard is annual average (AAM) > 12.0 µg/m³.

j) - Federal lead standards are rolling 3-month average > 0.15 µg/m3, and quarterly average > 1.5 µg/m³. State standard is monthly average ≥ 1.5 µg/m³.

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Maps showing the source/receptor area boundaries can be accessed via the Internet by entering your address in the AQMD Current Hourly Air Quality Map, accessed from http://www2.aqmd.gov/webappl/gisaqi2/VEMap3D.aspx or at http://www.aqmd.gov/map/MapAQMD2.pdf . A map is also available free of charge from the AQMD Public Information Center at 1-800-CUT-SMOG.

2010 AIR QUALITY
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

2010

Source/Receptor Area			Carbon Monoxide[a)]			Ozone									Nitrogen Dioxide[b)]				Sulfur Dioxide[c)]		
											No. Days Standard Exceeded										
											Federal		State								
No.	Location	Station No.	No. Days of Data	Max. Conc. in ppm 1-hour	Max Conc. in ppm 8-hour	No. Days of Data	Max. Conc. in ppm 1-hour	Max. Conc. in ppm 8-hour	Fourth High Conc. ppm 8-hour	Health Advisory ≥ 0.15 ppm 1-hour	Old > 0.12 ppm 1-hour	Current > 0.075 ppm 8-hour	Current > 0.09 ppm 1-hour	Current > 0.070 ppm 8-hour	No. Days of Data	Max Conc. in ppb 1-hour	98th Percentile Conc. ppb 1-hour	Annual Average AAM Conc. ppb	No. Days of Data	Max. Conc. in ppb 1-hour	Max. Conc. in ppb 24-hour
LOS ANGELES COUNTY																					
1	Central LA	087	364	3	2.3	357	0.098	0.080	0.064	0	0	1	1	1	364	89.0	70.5	25.0	355	9.8	1.5
2	Northwest Coastal LA County	091	364	2	1.4	360	0.099	0.078	0.069	0	0	1	2	4	365	70.8	57.4	15.6	--	--	--
3	Southwest Coastal LA County	820	344	3	2.2	319	0.089	0.070	0.059	0	0	0	0	1	358	75.8	60.9	12.1	327	25.9	3.5
4	South Coastal LA County 1	072	358	3	2.1	358	0.101	0.084	0.057	0	0	1	1	1	360	92.8	70.2	19.8	329	40.0	6.0
4	South Coastal LA County 2	077	--	--	--	--	--	--	--	--	--	--	--	--	--			--	--	--	--
6	West San Fernando Valley	074	365	3	2.6	295	0.122	0.091	0.086	0	0	19	11	40	365	75.0	56.0	16.7	--	--	--
7	East San Fernando Valley	069	364	3	2.4	317	0.111	0.084	0.076	0	0	4	3	11	359	82.0	64.3	24.1	233*	14.9	4.1
8	West San Gabriel Valley	088	355	3	2.0	325	0.101	0.081	0.075	0	0	3	1	6	355	71.0	63.0	19.6	--	--	--
9	East San Gabriel Valley 1	060	355	3	1.3	356	0.104	0.081	0.075	0	0	3	5	10	364	77.2	59.6	18.5	--	--	--
9	East San Gabriel Valley 2	591	360	2	1.3	350	0.124	0.099	0.090	0	0	20	25	48	360	78.5	55.5	15.4	--	--	--
10	Pomona/Walnut Valley	075	365	3	1.8	342	0.115	0.082	0.076	0	0	4	9	20	365	97.0	72.5	26.2	--	--	--
11	South San Gabriel Valley	085	364	2	1.9	358	0.112	0.086	0.059	0	0	1	1	1	364	79.0	65.4	22.9	--	--	--
12	South Central LA County	112	353	6	3.6	358	0.081	0.062	0.050	0	0	0	0	0	364	76.8	68.8	17.9	--	--	--
13	Santa Clarita Valley	090	355	2	1.1	331	0.126	0.105	0.087	0	1	23	18	44	364	59.3	54.2	14.3	--	--	--
ORANGE COUNTY																					
16	North Orange County	3177	356	3	1.8	351	0.118	0.096	0.071	0	0	1	2	4	333	82.5	61.6	20.1	--	--	--
17	Central Orange County	3176	358	3	2.0	331	0.104	0.088	0.060	0	0	1	1	1	364	73.3	61.1	17.5	--	--	--
18	North Coastal Orange County	3195	364	2	2.1	353	0.097	0.076	0.060	0	0	1	1	2	364	70.0	56.0	11.3	348	9.5	2.1
19	Saddleback Valley	3812	362	1	0.9	353	0.117	0.082	0.069	0	0	2	2	2	--			--	--	--	--
RIVERSIDE COUNTY																					
22	Norco/Corona	4155	--	--	--	--	--	--	--	--	--	--	--	--	--			--	--	--	--
23	Metropolitan Riverside County 1	4144	364	3	1.8	341	0.128	0.098	0.092	0	1	47	31	78	333	64.5	57.0	16.8	349	17.6	4.6
23	Metropolitan Riverside County 2	4146	355	3	1.7	--	--	--	--	--	--	--	--	--	361	60.8	51.5	17.2	--	--	--
23	Mira Loma	4165	360	3	1.9	324	0.121	0.094	0.090	0	0	38	22	63	365	62.2	50.3	15.1	--	--	--
24	Perris Valley	4149	--	--	--	343	0.122	0.107	0.099	0	0	50	42	82	--			--	--	--	--
25	Lake Elsinore	4158	363	1	0.6	355	0.107	0.091	0.086	0	0	24	15	42	363	51.2	40.6	10.1	--	--	--
29	Banning Airport	4164	--	--	--	328	0.124	0.107	0.099	0	0	60	31	84	365	65.7	53.2	11.6	--	--	--
30	Coachella Valley 1**	4137	365	2	0.5	361	0.114	0.099	0.092	0	0	52	23	83	365	45.7	39.0	8.5	--	--	--
30	Coachella Valley 2**	4157	--	--	--	348	0.100	0.087	0.084	0	0	19	7	47	--			--	--	--	--
SAN BERNARDINO COUNTY																					
32	Northwest San Bernardino Valley	5175	353	2	1.8	349	0.131	0.097	0.090	0	1	39	31	59	365	78.9	-- 58.0	20.4	--	--	--
33	Southwest San Bernardino Valley	5817	--	--	--	--	--	--	--	--	--	--	--	--	--			--	--	--	--
34	Central San Bernardino Valley 1	5197	359	3	1.4	350	0.143	0.100	0.094	0	2	33	28	55	363	71.9	64.8	23.1	330*	6.6	1.6
34	Central San Bernardino Valley 2	5203	326	2	1.7	354	0.129	0.105	0.095	0	1	40	27	63	365	69.2	56.6	18.8	--	--	--
35	East San Bernardino Valley	5204	--	--	--	363	0.128	0.112	0.097	0	1	61	43	86	--			--	--	--	--
37	Central San Bernardino Mountains	5181	--	--	--	364	0.142	0.123	0.109	0	6	74	52	101	--			--	--	--	--
38	East San Bernardino Mountains	5818	--	--	--	--	--	--	--	--	--	--	--	--	--			--	--	--	--
DISTRICT MAXIMUM				6	3.6		0.143	0.123	0.109	0	6	74	52	101		97.0	72.5	26.2		40.0	6.0
SOUTH COAST AIR BASIN				6	3.6		0.143	0.123	0.109	0	7	102	79	131		97.0	72.5	26.2		40.0	6.0

ppm - Parts Per Million parts of air, by volume ppb – Parts Per Billion parts of air, by volume AAM = Annual Arithmetic Mean -- - Pollutant not monitored

** Salton Sea Air Basin

- In 2010, the State and Federal Ambient Air Quality Standards were met for the gaseous pollutants CO, NO2 and SO2 at all District regular monitoring sites, listed above.
  a) - The federal 8-hour standard is 8-hour average CO > 9 ppm and state 8-hour standard is 8-hour average CO > 9.0 ppm. The federal and state 1-hour standards are 35 ppm and 20 ppm.
  b) - The NO2 federal 1-hour standard is 100 ppb and the annual standard is annual arithmetic mean NO_2 > 0.0534 ppm. The state 1-hour and annual standards are 0.18 ppm and 0.030 ppm.
  c) - The federal SO2 1-hour standard is 75 ppb (0.075 ppm). The state standards are 1-hour average SO_2 > 0.25 ppm and 24-hour average SO_2 > 0.04 ppm.
- Revised/New Standards in 2010:
  -- U.S. EPA established the new NO2 1-hour federal standard of 100 ppb (0.100 ppm), effective April 7, 2010.
  -- U.S. EPA revised the SO2 federal standard by establishing the new 1-hour standard of 75 ppb (0.075 ppm) and revoking the existing annual (0.03 ppm) and 24-hour (0.14 ppm) standards, effective August 2, 2010.

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4182
www.aqmd.gov

2010 AIR QUALITY
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

2010

Source/Receptor Area No.	Location	Station No.	Suspended Particulates PM10 d) No. Days of Data	Max. Conc. in µg/m³ 24-hour	No. (%) Samples Exceeding Standards Federal > 150 µg/m³ 24-hour	State > 50 µg/m³ 24-hour	Annual Average Conc. (AAM) µg/m³	Fine Particulates PM2.5 e) No. Days of Data	Max. Conc. in µg/m³ 24-hour	98th Percentile Conc. in µg/m³ 24-hour	No. (%) Samples Exceeding Fzederal Std > 35 µg/m³ 24-hour	Annual Average Conc. (AAM) µg/m³	Particulates TSP f) No. Days of Data c)	Max. Conc. in µg/m³ 24-hour	Annual Average Conc. (AAM) µg/m³	Lead f) Max. Monthly Average Conc. µg/m³	Max. Quarterly Average Conc. µg/m³	Sulfate f) Max. Conc. in µg/m³ 24-hour	No. Days Exceeding State Std ≥ 25 µg/m³ 24-hour
LOS ANGELES COUNTY																			
1	Central LA	087	56	42	0	0	27.1	335	39.2	27.1	2(0.6%)	11.9	53	105	53.3	0.02	0.01	9.1	0
2	Northwest Coastal LA County	091	--	--	--	--	--	--	--	--	--	--	59	82	40.8	--	--	7.5	0
3	Southwest Coastal LA County	820	55	37	0	0	20.6	--	--	--	--	--	55	85	36.7	0.01	0.01	9.7	0
4	South Coastal LA County 1	072	58	44	0	0	22.0	338	35.0	28.3	0	10.5	60	129	45.5	0.01	0.01	11.8	0
4	South Coastal LA County 2	077	59	76	0	2(3.4%)	27.3	351	33.7	26.5	0	10.4	57	130	50.8	0.01	0.01	12.2	0
6	West San Fernando Valley	074	--	--	--	--	--	100	40.7	30.4	1(1.0%)	10.2	--	--	--	--	--	--	--
7	East San Fernando Valley	069	55	51	0	1(1.8%)	29.6	322	43.7	31.8	4(1.2%)	12.5	--	--	--	--	--	--	--
8	West San Gabriel Valley	088	--	--	--	--	--	97	35.2	24.0	0	10.2	58	58	36.4	--	--	7.7	0
9	East San Gabriel Valley 1	060	55	70	0	5(9.1%)	29.8	93	44.4	35.4	1(1.1%)	10.9	53	136	58.2	--	--	6.4	0
9	East San Gabriel Valley 2	591	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10	Pomona/Walnut Valley	075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11	South San Gabriel Valley	085	--	--	--	--	--	117	34.9	32.0	0	12.5	59	265	86.1	0.02	0.01	8.5	0
12	South Central LA County	112	--	--	--	--	--	111	38.2	31.8	1(0.9%)	12.5	58	94	49.2	0.01	0.01	7.8	0
13	Santa Clarita Valley	090	57	40	0	0	21.0	--	--	--	--	--	--	--	--	--	--	--	--
ORANGE COUNTY																			
16	North Orange County	3177	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17	Central Orange County	3176	57	43	0	0	22.4	331	31.7	25.2	0	10.2	--	--	--	--	--	--	--
18	North Coastal Orange County	3195	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19	Saddleback Valley	3812	58	34	0	0	18.1	116	19.9	17.3	0	8.0	--	--	--	--	--	--	--
RIVERSIDE COUNTY																			
22	Norco/Corona	4155	61	50	0	0	27.2	--	--	--	--	--	--	--	--	--	--	--	--
23	Metropolitan Riverside County 1	4144	122	75	0	7(5.7%)	32.8	351	46.5	32.0	4(1.1%)	13.2	60	131	64.3	0.01	0.01	6.7	0
23	Metropolitan Riverside County 2	4146	--	--	--	--	--	115	43.7	27.3	2(1.7%)	11.0	59	88	45.0	0.01	0.01	5.0	0
23	Mira Loma	4165	60	89	0	25(41.7%)	42.3	340	54.2	36.1	8(2.4%)	15.2	--	--	--	--	--	--	--
24	Perris Valley	4149	61	51	0	1(1.6%)	28.0	--	--	--	--	--	--	--	--	--	--	--	--
25	Lake Elsinore	4158	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29	Banning Airport	4164	60	55	0	1(1.7%)	21.8	--	--	--	--	--	--	--	--	--	--	--	--
30	Coachella Valley 1**	4137	61	37	0	0	18.7	111	12.8	12.6	0	6.0	--	--	--	--	--	--	--
30	Coachella Valley 2**	4157	119	107	0	6(5%)	29.3	112	16.0	12.2	0	6.8	--	--	--	--	--	--	--
SAN BERNARDINO COUNTY																			
32	Northwest San Bernardino Valley	5175	--	--	--	--	--	--	--	--	--	--	59	86	46.7	0.01	0.01	10.1	0
33	Southwest San Bernardino Valley	5817	60	87	0	3(5%)	31.8	112	46.1	31.2	1(0.9%)	13.0	--	--	--	--	--	--	--
34	Central San Bernardino Valley 1	5197	53	62	0	9(17%)	33.9	112	42.6	30.8	2(1.8%)	12.0	61	142	73.3	--	--	6.3	0
34	Central San Bernardino Valley 2	5203	59	63	0	3(5.1%)	32.4	119	39.3	29.7	2(1.7%)	11.1	60	106	57.7	0.01	0.01	11.4	0
35	East San Bernardino Valley	5204	58	57	0	1(1.7%)	25.8	--	--	--	--	--	--	--	--	--	--	--	--
37	Central San Bernardino Mountains	5181	57	39	0	0	18.9	--	--	--	--	--	--	--	--	--	--	--	--
38	East San Bernardino Mountains	5818	--	--	--	--	--	53	35.4	27.5	0	8.4	--	--	--	--	--	--	--
	DISTRICT MAXIMUM			107	0	25	42.3		54.2	36.1	8	15.2		265	86.1	0.02	0.01	12.2	0
	SOUTH COAST AIR BASIN			89	0	34	42.3		54.2	36.1	13	15.2		265	86.1	0.02	0.01	12.2	0

** Salton Sea Air Basin µg/m³ - Micrograms per cubic meter of air AAM = Annual Arithmetic Mean -- - Pollutant not monitored

- In 2010, Particulate Matter concentrations met the Ambient Air Quality Standard levels for the federal PM10 Standard, the State and Federal Lead Standards, and the State Sulfate standard at the regular monitoring sites, listed above.

d) - PM10 samples were collected every 6 days at all sites except for Station Numbers 4144 and 4157, where samples were collected every 3 days. The Federal annual PM10 standard (AAM > 50 µg/m³) was revoked in 2006. State standard is annual average (AAM) > 20 µg/m³.

e) - PM2.5 samples were collected every 3 days at all sites except for station numbers 069, 072, 077, 087, 3176, 4144 and 4165, where samples were taken daily, and station number 5818 where samples were taken every 6 days. Federal annual PM2.5 standard is annual average (AAM) > 15.0 µg/m³. State standard is annual average (AAM) > 12.0 µg/m³.

f) - TSP Particulate, Lead and Sulfate samples were taken every 6 days at all sites monitored.

- Federal Equivalent Method (FEM) continuous monitoring instruments were operated at some of the above locations for PM10 and PM2.5 monitoring. The Federal Reference Method (FRM) data is used for the above statistics.

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For information on the current standard levels and most recent revisions please refer to the previous year "Air Quality" summary card or access the "Ambient Air Quality Standards" chart at http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

Maps showing the source/receptor area boundaries can be accessed via the Internet by entering your address in the AQMD Current Hourly Air Quality Map, accessed from http://www2.aqmd.gov/webappl/gisaqi2/VEMap3D.aspx or at http://www.aqmd.gov/map/MapAQMD2.pdf. A map is also available free of charge from the AQMD Public Information Center at 1-800-CUT-SMOG.

2011 AIR QUALITY
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

2011

Source/Receptor Area No.	Location	Station No.	Carbon Monoxide a) No. Days of Data	Carbon Monoxide a) Max Conc. in ppm 8-hour	Ozone No. Days of Data	Ozone Max. Conc. in ppm 1-hour	Ozone Max. Conc. in ppm 8-hour	Ozone Fourth High Conc. ppm 8-hour	Ozone Health Advisory ≥ 0.15 ppm 1-hour	Ozone No. Days Standard Exceeded: Old Federal > 0.124 ppm 1-hour	Ozone No. Days Standard Exceeded: Current Federal > 0.075 ppm 8-hour	Ozone No. Days Standard Exceeded: Current State > 0.09 ppm 1-hour	Ozone No. Days Standard Exceeded: Current State > 0.070 ppm 8-hour	Nitrogen Dioxide b) No. Days of Data	Nitrogen Dioxide b) Max Conc. in ppb 1-hour	Nitrogen Dioxide b) 98th Percentile Conc. ppb 1-hour	Nitrogen Dioxide b) Annual Average AAM Conc. ppb	Sulfur Dioxide c) No. Days of Data	Sulfur Dioxide c) Max. Conc. in ppb 1-hour	Sulfur Dioxide c) 99th Percentile Conc. ppb 1-hour
LOS ANGELES COUNTY																				
1	Central LA	087	365	2.4	365	0.087	0.065	0.060	0	0	0	0	0	365	109.6	67.0	23.1	331	19.8	11.0
2	Northwest Coastal LA County	091	360	1.3	360	0.098	0.068	0.061	0	0	0	2	0	360	81.3	58.2	13.9	--	--	--
3	Southwest Coastal LA County	820	364	1.8	360	0.078	0.067	0.062	0	0	0	0	0	365	97.6	64.8	13.4	365	11.5	8.3
4	South Coastal LA County 1	072	365	2.6	363	0.073	0.061	0.059	0	0	0	0	0	365	106.4	67.6	17.7	365	14.8	10.7
4	South Coastal LA County 2	077	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4	South Coastal LA County 3	033	354	3.3	360	0.074	0.063	0.057	0	0	0	0	0	359	90.0	74.0	21.2	350	43.3	24.7
6	West San Fernando Valley	074	355	2.8	365	0.130	0.103	0.091	0	3	26	17	35	359	56.1	53.8	14.9	--	--	--
7	East San Fernando Valley	069	365	2.4	364	0.120	0.084	0.081	0	0	6	8	10	365	67.8	56.2	22.1	363	9.0	5.2
8	West San Gabriel Valley	088	365	2.2	365	0.107	0.084	0.077	0	0	5	5	13	359	87.3	72.8	20.3	--	--	--
9	East San Gabriel Valley 1	060	365	1.4	365	0.111	0.092	0.082	0	0	12	13	19	356	79.5	65.1	19.0	--	--	--
9	East San Gabriel Valley 2	591	362	1.1	362	0.134	0.111	0.095	0	4	30	35	40	361	77.6	53.9	12.9	--	--	--
10	Pomona/Walnut Valley	075	364	1.6	364	0.119	0.096	0.086	0	0	16	15	24	364	87.3	66.7	24.6	--	--	--
11	South San Gabriel Valley	085	365	2.4	362	0.096	0.074	0.061	0	0	0	1	1	362	90.6	72.5	23.7	--	--	--
12	South Central LA County	112	364	4.7	362	0.082	0.065	0.061	0	0	0	0	0	361	75.4	65.3	18.6	--	--	--
13	Santa Clarita Valley	090	363	0.8	363	0.144	0.122	0.101	0	3	30	31	52	360	60.1	46.8	13.3	--	--	--
ORANGE COUNTY																				
16	North Orange County	3177	365	2.1	365	0.095	0.074	0.069	0	0	0	1	3	365	69.8	60.7	17.7	--	--	--
17	Central Orange County	3176	365	2.1	365	0.088	0.072	0.064	0	0	0	0	1	365	73.8	60.8	16.8	--	--	--
18	North Coastal Orange County	3195	344	2.2	360	0.093	0.077	0.063	0	0	1	0	2	350	60.5	52.8	10.0	357	7.7	4.8
19	Saddleback Valley	3812	365	0.8	365	0.094	0.083	0.074	0	0	2	0	5	--	--	--	--	--	--	
RIVERSIDE COUNTY																				
22	Norco/Corona	4155	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23	Metropolitan Riverside County 1	4144	365	1.4	365	0.128	0.115	0.106	0	4	67	52	92	359	63.3	56.5	16.6	365	51.3	12.5
23	Metropolitan Riverside County 2	4146	365	1.5	--	--	--	--	--	--	--	--	--	364	57.1	50.4	16.9	--	--	--
23	Mira Loma	4165	361	1.4	362	0.126	0.104	0.096	0	1	36	32	63	364	58.8	51.8	15.3	--	--	--
24	Perris Valley	4149	--	--	364	0.125	0.112	0.094	0	2	54	44	77	--	--	--	--	--	--	--
25	Lake Elsinore	4158	365	0.7	365	0.133	0.106	0.092	0	1	28	19	45	365	50.3	41.3	9.6	--	--	--
26	Temecula	4031	--	--	355	0.105	0.085	0.073	0	0	14	1	27	--	--	--	--	--	--	--
29	Banning Airport	4164	--	--	362	0.127	0.111	0.100	0	3	41	35	59	350	60.7	50.2	9.5	--	--	--
30	Coachella Valley 1**	4137	350	0.6	350	0.124	0.098	0.092	0	0	49	21	69	350	44.7	39.4	8.0	--	--	--
30	Coachella Valley 2**	4157	--	--	360	0.099	0.090	0.085	0	0	19	3	42	--	--	--	--	--	--	--
SAN BERNARDINO COUNTY																				
32	Northwest San Bernardino Valley	5175	365	1.3	365	0.145	0.122	0.098	0	5	36	36	45	353	68.5	60.1	19.6	--	--	--
33	Southwest San Bernardino Valley	5817	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
34	Central San Bernardino Valley 1	5197	365	1.1	365	0.144	0.124	0.105	0	5	39	39	53	365	76.4	64.6	21.1	365	12.3	7.2
34	Central San Bernardino Valley 2	5203	365	1.7	365	0.135	0.121	0.101	0	2	39	40	66	365	61.9	52.9	16.9	--	--	--
35	East San Bernardino Valley	5204	--	--	364	0.151	0.133	0.113	1	7	80	64	96	--	--	--	--	--	--	--
37	Central San Bernardino Mountains	5181	--	--	360	0.160	0.136	0.106	1	8	84	58	103	--	--	--	--	--	--	--
38	East San Bernardino Mountains	5818	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	DISTRICT MAXIMUM			4.7		0.160	0.136	0.113	1	8	84	64	103		109.6	74.0	24.6		51.3	24.7
	SOUTH COAST AIR BASIN			4.7		0.160	0.136	0.113	1	16	106	90	125		109.6	74.0	24.6		51.3	24.7

ppm - Parts Per Million parts of air, by volume ppb – Parts Per Billion parts of air, by volume AAM = Annual Arithmetic Mean -- - Pollutant not monitored

** Salton Sea Air Basin

a) - The federal 8-hour standard (8-hour average CO > 9 ppm) and state 8-hour standard (8-hour average CO > 9.0 ppm) were not exceeded. The federal and state 1-hour standards (35 ppm and 20 ppm) were not exceeded either.

b) - The NO_2 federal 1-hour standard is 100 ppb and the annual standard is annual arithmetic mean NO_2 > 0.0534 ppm (5.34 ppb). The state 1-hour and annual standards are 0.18 ppm (180 ppb) and 0.030 ppm (30 ppb).

c) - The federal SO_2 1-hour standard is 75 ppb (0.075 ppm). The state standards are 1-hour average SO_2 > 0.25 ppm (250 ppb) and 24-hour average SO_2 > 0.04 ppm (40 ppb).

South Coast Air Quality Management District
21865 Copley Drive
Diamond Bar, CA 91765-4182
www.aqmd.gov

For information on the current standard levels and most recent revisions please refer to "Appendix II – Current Air Quality" of the "Final 2012 AQMP (December)" which can be accessed at http://www.aqmd.gov/aqmp/2012aqmp/DraftFinal/appII.pdf. Maps showing the source/receptor area boundaries can be accessed via the Internet by entering your address in the AQMD Current Hourly Air Quality Map, accessed from http://www2.aqmd.gov/webappl/gisaqi2/VEMap3D.aspx or at http://www.aqmd.gov/map/MapAQMD2.pdf. A map or copy of the AQMP Appendix II is also available free of charge from the AQMD Public Information Center at 1-800-CUT-SMOG.

2011 AIR QUALITY
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

2011

Source/Receptor Area No.	Location	Station No.	Suspended Particulates PM10 d) No. Days of Data	Max. Conc. in µg/m³ 24-hour	No. (%) Samples Exceeding Standards Federal > 150 µg/m³ 24-hour	State > 50 µg/m³ 24-hour	Annual. Average Conc. e) (AAM) µg/m³	Fine Particulates PM2.5 f) No. Days of Data	Max. Conc. in µg/m³ 24-hour	98th Percentile Conc. in µg/m³ 24-hour	No. (%) Samples Exceeding Federal Std > 35 µg/m³ 24-hour	Annual. Average Conc. (AAM) µg/m³	Particulates TSP No. Days of Data	Max. Conc. in µg/m³ 24-hour	Annual. Average Conc. (AAM) µg/m³	Lead h) Max. Monthly Average Conc. µg/m³	Max. 3-Months Rolling Averages µg/m³	Max. Quarterly Average Conc. µg/m³	PM10 Sulfate i) No. Days of Data	Max. Conc. in µg/m³ 24-hour
LOS ANGELES COUNTY																				
1	Central LA	087	59	53	0	1(2%)	29.0	331	49.3	31.5	4(1.2%)	13.0	60	84	53.7	0.012	0.011	0.011	58	8.0
2	Northwest Coastal LA County	091	--	--	--	--	--	--	--	--	--	--	59	155	49.3	--	--	--	--	--
3	Southwest Coastal LA County	820	58	41	0	0	21.7	--	--	--	--	--	55	69	36.1	0.008	0.005	0.005	58	5.9
4	South Coastal LA County 1	072	60	43	0	0	24.2	340	39.7	27.8	1(0.3%)	11.0	61	91	44.0	0.010	0.007	0.007	59	6.1
4	South Coastal LA County 2	077	60	50	0	0	28.7	346	42.0	26.6	3(0.9%)	10.7	56	81	43.9	0.013	0.009	0.009	60	5.9
4	South Coastal LA County 3	033	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6	West San Fernando Valley	074	--	--	--	--	--	117	39.8	23.6	1(0.9%)	10.2	--	--	--	--	--	--	--	--
7	East San Fernando Valley	069	55	61	0	2(4%)	28.4	321	47.8	33.5	5(1.6%)	13.2	--	--	--	--	--	--	54	7.4
8	West San Gabriel Valley	088	--	--	--	--	--	97	43.8	29.8	1(1.0%)	10.8	59	74	44.1	--	--	--	--	--
9	East San Gabriel Valley 1	060	61	65	0	9(15%)	32.7	118 g)	49.5 g)	26.9 g)	1(0.8%) g)	11.4 g)	57	154	72.5	--	--	--	60	6.6
9	East San Gabriel Valley 2	591	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10	Pomona/Walnut Valley	075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11	South San Gabriel Valley	085	--	--	--	--	--	114	41.2	31.5	1(0.9%)	12.5	59	140	64.4	0.011	0.010	0.010	--	--
12	South Central LA County	112	--	--	--	--	--	110	35.3	31.5	0	13.0	57	112	52.8	0.014	0.010	0.010	--	--
13	Santa Clarita Valley	090	58	45	0	0	20.8	--	--	--	--	--	--	--	--	--	--	--	58	6.1
ORANGE COUNTY																				
16	North Orange County	3177	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17	Central Orange County	3176	60	53	0	2(3%)	24.8	352	39.2	28.1	2(0.6%)	11.0	--	--	--	--	--	--	60	6.5
18	North Coastal Orange County	3195	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19	Saddleback Valley	3812	61	48	0	0	19.2	110	33.4	28.8	0	8.6	--	--	--	--	--	--	61	4.8
RIVERSIDE COUNTY																				
22	Norco/Corona	4155	59	60	0	2(3%)	27.6	--	--	--	--	--	--	--	--	--	--	--	56	5.1
23	Metropolitan Riverside County 1	4144	112	82	0	14(13%)	33.7	352	60.8	31.0	4(1.1%)	13.6	60	107	62.7	0.007	0.007	0.007	119	5.1
23	Metropolitan Riverside County 2	4146	--	--	--	--	--	112	51.6	28.0	2(1.8%)	11.8	59	83	43.8	0.007	0.006	0.006	--	--
23	Mira Loma	4165	59	79	0	25(42%)	41.3	343	56.3	36.6	8(3%)	15.3	--	--	--	--	--	--	58	5.4
24	Perris Valley	4149	60	65	0	3(5%)	29.2	--	--	--	--	--	--	--	--	--	--	--	58	4.4
25	Lake Elsinore	4158	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26	Temecula	4031	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29	Banning Airport	4164	59	51	0	1(2%)	19.3	--	--	--	--	--	--	--	--	--	--	--	59	4.4
30	Coachella Valley 1**	4137	61 g)	42 g)	0 g)	0 g)	18.5 g)	114	26.3	12.5	0	6.1	--	--	--	--	--	--	61	4.4
30	Coachella Valley 2**	4157	119 g)	106 g)	0 g)	3(3%) g)	28.5 g)	111	35.4	15.6	0	7.2	--	--	--	--	--	--	110	5.7
SAN BERNARDINO COUNTY																				
32	Northwest San Bernardino Valley	5175	--	--	--	--	--	--	--	--	--	--	58	94	47.2	0.009	0.008	0.007	--	--
33	Southwest San Bernardino Valley	5817	60	70	0	3(5%)	30.8	118	52.9	35.3	2(1.7%)	13.2	--	--	--	--	--	--	60	5.5
34	Central San Bernardino Valley 1	5197	60	84	0	4(7%)	31.8	109	60.1	28.2	2(1.8%)	12.6	54	131	64.7	--	--	--	59	6.0
34	Central San Bernardino Valley 2	5203	58	56	0	3(5%)	31.5	101	65.0	32.5	2(2%)	12.2	61	97	51.4	0.008	0.007	0.007	59	5.5
35	East San Bernardino Valley	5204	58	71	0	2(3%)	24.9	--	--	--	--	--	--	--	--	--	--	--	57	4.9
37	Central San Bernardino Mountains	5181	59	43	0	0	19.0	--	--	--	--	--	--	--	--	--	--	--	57	4.0
38	East San Bernardino Mountains	5818	--	--	--	--	--	55	30.7	30.6	0	8.5	--	--	--	--	--	--	--	--
	DISTRICT MAXIMUM			106	0	25	41.3		65.0	36.6	8	15.3		155	72.5	0.014	0.011	0.011		8.0
	SOUTH COAST AIR BASIN			84 g)	0	35	41.3		65.0	36.6	17	15.3		155	72.5	0.014	0.011	0.011		8.0

** Salton Sea Air Basin µg/m³ - Micrograms per cubic meter of air AAM = Annual Arithmetic Mean -- - Pollutant not monitored

d) - Federal Reference Method (FRM) PM10 samples were collected every 6 days at all sites except for Stations 4144 and 4157, where samples were collected every 3 days. PM10 statistics listed above are for the FRM data only. Federal Equivalent Method (FEM) PM10 continuous monitoring instruments were operated at some of the above locations. Max 24-hour average PM10 at sites with FEM monitoring was 152 µg/m³, at Mira Loma (155 µg/m³ is needed to exceed the PM10 standard).

e) - Federal annual PM10 standard (AAM > 50 µg/m³) was revoked in 2006. State standard is annual average (AAM) > 20 µg/m³.

f) - PM2.5 samples were collected every 3 days at all sites except for station numbers 069, 072, 077, 087, 3176, 4144 and 4165, where samples were taken daily, and station number 5818 where samples were taken every 6 days. PM2.5 statistics listed above are for the FRM data only. FEM PM2.5 continuous monitoring instruments were operated at some of the above locations. Max 24-hour average PM2.5 concentration recorded at FEM sites was 73.1 µg/m³, at Mira Loma. Federal annual PM2.5 standard is annual average (AAM) > 15.0 µg/m³. State standard is annual average (AAM) > 12.0 µg/m³.

g) - High PM10 and PM2.5 data samples excluded in accordance with the EPA Exceptional Event Regulation due to the special events (i.e., high wind, firework activities, etc.) are as follows: PM10 (FRM) on August 28 at Indio (323 µg/m³); and PM2.5 (FRM) on July 5 at Station 060 (94.6 µg/m³). Also, the following high PM10 FEM data were excluded: July 3 (396 and 344 µg/m³) and August 28 (265 and 375 µg/m³), both dates recorded at Stations 4137 and 4157, respectively.

h) – Federal lead standard is 3-months rolling average > 0.15 µg/m³; state standard is monthly average ≥ 1.5 µg/m³. Lead statistics listed above are for population-oriented sites only; standards were not exceeded at any of these sites. Lead standards were exceeded at source-oriented monitoring sites immediately downwind of stationary lead sources. Maximum monthly and 3-month rolling averages at source-oriented sites were 0.51 µg/m³ and 0.46 µg/m³, respectively.

i) – State sulfate standard is 24-hour ≥ 25 µg/m³. There is no federal standard for sulfate.

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Appendix C

CALIFORNIA EMISSIONS ESTIMATOR MODEL ASSUMPTIONS AND OUTPUT SHEETS

Appendix C
California Emissions Estimator Model Assumptions

4.1 Project Characteristics

Location: SCAQMD/South Coast Air Basin

Climate Zone: 10

Land Use Setting For Trip Lengths: Rural [X] Urban [ ]

Construction Year: 2013

Operational Year: 2014

Utility: Southern California Edison.

4.2 Land Use

Five different types of entertainment events were to be evaluated to determine the annual emissions of criteria pollutants and greenhouse gases.

- Large Music Festivals - Two-day events with 40,000 people on a Saturday and a Sunday held five times per year (ten days total).
- Music Festivals – One-day events with up to 40,000 attendees held on seven days per year.
- Concerts – Held on Friday evenings sixteen times per year with up to 20,000 attendees.
- Minor Events – Held 25 days per year with approximately 1200 attendees.
- Beach Club – Open 307 days per year with an average of 1,500 attendees.

User Defined Arena Land Use - was utilized to address the main activity areas. The trip generation for the project site was included in the Arena land use as described in 4.4 Operational - Mobile Sources below.

User Defined City Park Land Use – was utilized to address the large areas of turf. The trip generation for the City Park land use was assumed to be zero.

Other Asphalt Surfaces– was used to address paved roadways on-site.

Other Non-Asphalt Surfaces – was used to address the primary unpaved parking lots.

Parking Lot – was used to address the VIP paved parking lot.

4.3 Construction

The number and type of construction equipment as well as the number of hours that they will be in operation each day are key parameters affecting construction-related air pollutant emissions. In addition, the size of the area disturbed on a given day during grading activities and the quantity of earthwork as well as whether or not the material will be balanced on-site can have a substantial impact on the air pollutant emissions generated locally and regionally during construction activities. Overlapping construction phases can substantially increase daily air pollutant emissions.

Short-term impacts on air quality would occur during the construction activities required to implement the proposed project. The proposed construction activities would require approximately 65 working days to complete. Construction is expected to begin on September 1, 2013 and be completed within approximately three months. No permanent buildings or structures would be constructed within the site. No architectural coatings would be used. Construction equipment details and scheduling were provided by MSA Consulting, Inc.

Assumptions by Construction Phase Type

Demolition: No demolition will be required.

Site Preparation: No tree or rock removal will be required.

Building Construction: No permanent buildings or structures would be constructed within the site.

Architectural Coating: No architectural coatings would be used.

Grading: Cut and fill will be balanced on-site. The 128.1-acre general parking area would be covered by 40,000 cubic yards (89,100 tons) of decomposed granite or native stones to reduce fugitive dust. A total of 4000 truck loads would be transported approximately 1.5 miles per trip resulting in 12,000 vehicle miles traveled. The total graded area would include 310 acres within the site plus two acres for off-site roadway widening. Off-road equipment included three water trucks.

Trenching Phase: This phase was added based on equipment and schedule information provided by MSA Consulting, Inc.

Paving: Paving includes18 on-site acres plus two off-site acres. Paved areas include the main site access roads and the VIP parking areas.

Landscaping: Landscaping includes vendors that would deliver perimeter fencing, trees required for landscaping, and hydro seed for the turf. The hydro seeding would be delivered to the site in thirty truck loads at a rate of ten loads per day for three days resulting in 1,200 vehicle miles traveled. An eight-foot tall chain link perimeter fence approximately 15,000 linear feet in length would be installed. A total of four truck loads of fencing materials would be delivered to the site at a rate of one truckload per day for four days resulting in 160 vehicle miles traveled.

4.4 Operational - Mobile Sources

User Defined Arena Land Use - assumed a Saturday trip-generation for a two-day music festival of 59,791 two-way daily trips. Per Crain & Associates, it was assumed that 93.66% of the trips were made by attendees with an average trip length of 75 miles per trip; 5.76% of the daily trips are employee trips and 0.59% of the daily trips are vendor trips with an average trip length of 37 miles per trip). The trip lengths for the attendees, employees, and vendors replaced the CalEEMod non-residential commercial-customer, commercial-work, and commercial-nonwork trip lengths. The trip purpose percentages for attendees, employees, and vendors replaced the trip purpose percentages for non-residential commercial-customer, commercial-work, and commercial-nonwork trips. Detailed trip generation information was provided for a two-day music festival and a one-night concert.

Unlike the one-night concerts, the one and two-day music festivals last all day long and may include camping. The trip generation for the one-day music festival was assumed to be one-half of the two-day festival rather than the one-night concert. Therefore, the trip generation associated with the 12 music festivals was assumed to be 59,791 daily trips per 2-day event times (17/2) 2-day festivals, or 508,224 daily festival trips per year.

The trip generation associated with a one-night concert is 16,534 daily two-way trips. The trip generation for the minor events and beach club were assumed to be similar to the one-night concert, but were proportionately adjusted by the number of attendees. There would be 810,500 attendees annually associated with the concert, minor events, and beach club activities. This is equivalent to 40.53 one-night concerts generating a total of 670,040 daily concert equivalent trips per year.

The total annual daily trip generation from the site is projected to be 1,178,264 daily trips. This annual trip generation rate was applied to the arena land use that included 50.7 acres of development on 52 Saturdays per year. The total annual daily trip generation is equivalent to 446.92 Saturday trips per acre.

4.5 Operational - Area Sources

Hearths: No residential uses with stoves or fireplaces.

Architectural Coating: No architectural coatings would be used.

4.6 Energy Use

No Title 24 energy usage because no permanent buildings or structures would be constructed within the site. Electricity usage for two-day large music festival is estimated at 45,600 kilowatt-hours used during a two-day (48-hour) event with up to 40,000 attendees. For a concert event, approximately 8,550 kW hours consumed during for a six-hour event with 20,000 attendees. Source: Remy Garson, Garson Entertainment Group, LLC.

4.7 Water and Wastewater Use

The project will require an estimated 1,221,074 gallons per year of indoor potable water. In addition, the Arena was assumed to use 2,560,700 gallons per year of outdoor water use. The City Park use requires 5,717,382 gallons per year of outdoor water use for the turf.

4.8 Solid Waste

Solid waste projections include 4.36 tons per year per acre for the Arena use and 5.5 tons per year per acre for the City Park use. These projections were based upon the 75 tons per day generated by the Coachella Stagecoach festival that included 765,000 people days.

4.9 Vegetation and Sequestration

The project will include 100 acres of new turf that will be seeded in the landscaping phase. In addition, the project will plant 2,000 new trees that will continue to grow for the next 20 years.

Morongo Outdoor Entertainment

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
Other Asphalt Surfaces	15.5	Acre
Other Non-Asphalt Surfaces	175.4	Acre
Parking Lot	6.5	Acre
Arena	50.7	Acre
City Park	63.9	Acre

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.4	**Utility Company**	Southern California Edison
Climate Zone	10	**Precipitation Freq (Days)**	28		

1.3 User Entered Comments

Project Characteristics -

Land Use - For Electrical Usage

Construction Phase - MSA Projections:

Off-road Equipment - MSA Estimated Equipment and Schedule

Off-road Equipment - Source: MSA

Off-road Equipment - Source: MSA, Landscaping + Paving Equipment

Off-road Equipment -

Off-road Equipment - MSA Identified Equipment and Schedule

Trips and VMT - MSA hydroseeding, fencing, trees, gravel delivered.

On-road Fugitive Dust -

Grading - Parking lot rock

Vehicle Trips - Adjusted input to reflect the size and frequency of events on an annual basis.

Land Use Change -

Sequestration -

Construction Off-road Equipment Mitigation - MSA

Mobile Land Use Mitigation -

Energy Use - Source: MSA

Solid Waste - Per Coachella Festival

Water And Wastewater - Coachella Festival

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2013	0.82	6.34	3.18	0.01	0.58	0.27	0.85	0.12	0.27	0.39	0.00	687.28	687.28	0.06	0.00	688.54
Total	**0.82**	**6.34**	**3.18**	**0.01**	**0.58**	**0.27**	**0.85**	**0.12**	**0.27**	**0.39**	**0.00**	**687.28**	**687.28**	**0.06**	**0.00**	**688.54**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2013	0.82	6.34	3.18	0.01	0.31	0.27	0.58	0.05	0.27	0.31	0.00	687.28	687.28	0.06	0.00	688.54
Total	**0.82**	**6.34**	**3.18**	**0.01**	**0.31**	**0.27**	**0.58**	**0.05**	**0.27**	**0.31**	**0.00**	**687.28**	**687.28**	**0.06**	**0.00**	**688.54**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	213.53	213.53	0.01	0.00	214.86
Mobile	1.03	1.59	6.96	0.00	0.00	0.02	0.02	0.00	0.02	0.02	0.00	141.47	141.47	0.02	0.00	141.99
Waste						0.00	0.00		0.00	0.00	62.13	0.00	62.13	3.67	0.00	139.23
Water						0.00	0.00		0.00	0.00	0.00	31.39	31.39	0.04	0.00	32.66
Total	**1.03**	**1.59**	**6.96**	**0.00**	**0.00**	**0.02**	**0.02**	**0.00**	**0.02**	**0.02**	**62.13**	**386.39**	**448.52**	**3.74**	**0.00**	**528.74**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	213.53	213.53	0.01	0.00	214.86
Mobile	1.03	1.59	6.96	0.00	0.00	0.02	0.02	0.00	0.02	0.02	0.00	141.47	141.47	0.02	0.00	141.99
Waste						0.00	0.00		0.00	0.00	62.13	0.00	62.13	3.67	0.00	139.23
Water						0.00	0.00		0.00	0.00	0.00	31.39	31.39	0.04	0.00	32.66
Total	**1.03**	**1.59**	**6.96**	**0.00**	**0.00**	**0.02**	**0.02**	**0.00**	**0.02**	**0.02**	**62.13**	**386.39**	**448.52**	**3.74**	**0.00**	**528.74**

2.3 Vegetation

Vegetation

	ROG	NOx	CO	SO2	CO2e
Category	tons				MT
New Trees					1,381.00
Vegetation Land Change					431.00
Total					**1,812.00**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Grading - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.35	0.00	0.35	0.12	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.55	4.79	2.10	0.00		0.19	0.19		0.19	0.19	0.00	506.73	506.73	0.04	0.00	507.66
Total	**0.55**	**4.79**	**2.10**	**0.00**	**0.35**	**0.19**	**0.54**	**0.12**	**0.19**	**0.31**	**0.00**	**506.73**	**506.73**	**0.04**	**0.00**	**507.66**

3.2 Grading - 2013

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.05	0.43	0.34	0.00	0.21	0.01	0.22	0.00	0.01	0.01	0.00	37.47	37.47	0.00	0.00	37.52
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.01	0.06	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	9.18	9.18	0.00	0.00	9.20
Total	**0.05**	**0.44**	**0.40**	**0.00**	**0.22**	**0.01**	**0.23**	**0.00**	**0.01**	**0.01**	**0.00**	**46.65**	**46.65**	**0.00**	**0.00**	**46.72**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.13	0.00	0.13	0.05	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.55	4.79	2.10	0.00		0.19	0.19		0.19	0.19	0.00	506.73	506.73	0.04	0.00	507.66
Total	**0.55**	**4.79**	**2.10**	**0.00**	**0.13**	**0.19**	**0.32**	**0.05**	**0.19**	**0.24**	**0.00**	**506.73**	**506.73**	**0.04**	**0.00**	**507.66**

3.2 Grading - 2013

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.05	0.43	0.34	0.00	0.16	0.01	0.17	0.00	0.01	0.01	0.00	37.47	37.47	0.00	0.00	37.52
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.01	0.06	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	9.18	9.18	0.00	0.00	9.20
Total	**0.05**	**0.44**	**0.40**	**0.00**	**0.17**	**0.01**	**0.18**	**0.00**	**0.01**	**0.01**	**0.00**	**46.65**	**46.65**	**0.00**	**0.00**	**46.72**

3.3 Trenching - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.11	0.81	0.44	0.00		0.04	0.04		0.04	0.04	0.00	100.41	100.41	0.01	0.00	100.59
Total	**0.11**	**0.81**	**0.44**	**0.00**		**0.04**	**0.04**		**0.04**	**0.04**	**0.00**	**100.41**	**100.41**	**0.01**	**0.00**	**100.59**

3.3 Trenching - 2013

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	3.84	3.84	0.00	0.00	3.85
Total	**0.00**	**0.00**	**0.03**	**0.00**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**3.84**	**3.84**	**0.00**	**0.00**	**3.85**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.11	0.81	0.44	0.00		0.04	0.04		0.04	0.04	0.00	100.41	100.41	0.01	0.00	100.59
Total	**0.11**	**0.81**	**0.44**	**0.00**		**0.04**	**0.04**		**0.04**	**0.04**	**0.00**	**100.41**	**100.41**	**0.01**	**0.00**	**100.59**

3.3 Trenching - 2013

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.84	3.84	0.00	0.00	3.85
Total	**0.00**	**0.00**	**0.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**3.84**	**3.84**	**0.00**	**0.00**	**3.85**

3.4 Paving - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.03	0.19	0.12	0.00		0.02	0.02		0.02	0.02	0.00	15.37	15.37	0.00	0.00	15.42
Paving	0.03					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.06**	**0.19**	**0.12**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**15.37**	**15.37**	**0.00**	**0.00**	**15.42**

3.4 Paving - 2013

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.28	1.28	0.00	0.00	1.28
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.28**	**1.28**	**0.00**	**0.00**	**1.28**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.03	0.19	0.12	0.00		0.02	0.02		0.02	0.02	0.00	15.37	15.37	0.00	0.00	15.42
Paving	0.03					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.06**	**0.19**	**0.12**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**15.37**	**15.37**	**0.00**	**0.00**	**15.42**

3.4 Paving - 2013

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.28	1.28	0.00	0.00	1.28
Total	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**1.28**	**1.28**	**0.00**	**0.00**	**1.28**

3.5 Landscaping - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.01	0.09	0.07	0.00		0.01	0.01		0.01	0.01	0.00	9.37	9.37	0.00	0.00	9.39
Paving	0.03					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.04**	**0.09**	**0.07**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**9.37**	**9.37**	**0.00**	**0.00**	**9.39**

3.5 Landscaping - 2013

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.70	2.70	0.00	0.00	2.70
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	0.93	0.00	0.00	0.93
Total	**0.00**	**0.02**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**3.63**	**3.63**	**0.00**	**0.00**	**3.63**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.01	0.09	0.07	0.00		0.01	0.01		0.01	0.01	0.00	9.37	9.37	0.00	0.00	9.39
Paving	0.03					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.04**	**0.09**	**0.07**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**9.37**	**9.37**	**0.00**	**0.00**	**9.39**

3.5 Landscaping - 2013

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.70	2.70	0.00	0.00	2.70
Worker	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.93	0.93	0.00	0.00	0.93
Total	**0.00**	**0.02**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**3.63**	**3.63**	**0.00**	**0.00**	**3.63**

4.0 Mobile Detail

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.03	1.59	6.96	0.00	0.00	0.02	0.02	0.00	0.02	0.02	0.00	141.47	141.47	0.02	0.00	141.99
Unmitigated	1.03	1.59	6.96	0.00	0.00	0.02	0.02	0.00	0.02	0.02	0.00	141.47	141.47	0.02	0.00	141.99
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Arena	0.00	22,657.83	0.00		
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	0.00	22,657.83	0.00		

4.3 Trip Type Information

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
Arena	37.00	75.00	37.00	4.10	95.40	0.50

	Miles			Trip %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW
City Park	37.00	75.00	37.00	0.00	0.00	0.00
Other Asphalt Surfaces	12.60	15.40	9.60	0.00	0.00	0.00
Other Non-Asphalt Surfaces	12.60	15.40	9.60	0.00	0.00	0.00
Parking Lot	12.60	15.40	9.60	0.00	0.00	0.00

5.0 Energy Detail

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.00	0.00		0.00	0.00	0.00	213.53	213.53	0.01	0.00	214.86
Electricity Unmitigated						0.00	0.00		0.00	0.00	0.00	213.53	213.53	0.01	0.00	214.86
NaturalGas Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NaturalGas Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Arena	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City Park	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU	tons/yr										MT/yr					
Arena	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City Park	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parking Lot	0	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total		**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Arena	734095					213.53	0.01	0.00	214.86
City Park	0					0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Parking Lot	0					0.00	0.00	0.00	0.00
Total						**213.53**	**0.01**	**0.00**	**214.86**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	kWh	tons/yr				MT/yr			
Arena	734095					213.53	0.01	0.00	214.86
City Park	0					0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Parking Lot	0					0.00	0.00	0.00	0.00
Total						**213.53**	**0.01**	**0.00**	**214.86**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unmitigated	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.00**	**0.00**	**0.00**	**0.00**		**0.00**	**0.00**		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

7.0 Water Detail

7.1 Mitigation Measures Water

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr				MT/yr			
Mitigated					31.39	0.04	0.00	32.66
Unmitigated					31.39	0.04	0.00	32.66
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Arena	1.22107 / 2.5607					12.91	0.04	0.00	14.06
City Park	0 / 5.71738					18.48	0.00	0.00	18.59
Other Asphalt Surfaces	0 / 0					0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0 / 0					0.00	0.00	0.00	0.00
Parking Lot	0 / 0					0.00	0.00	0.00	0.00
Total						**31.39**	**0.04**	**0.00**	**32.65**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr				MT/yr			
Arena	1.22107 / 2.5607					12.91	0.04	0.00	14.06
City Park	0 / 5.71738					18.48	0.00	0.00	18.59
Other Asphalt Surfaces	0 / 0					0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0 / 0					0.00	0.00	0.00	0.00
Parking Lot	0 / 0					0.00	0.00	0.00	0.00
Total						**31.39**	**0.04**	**0.00**	**32.65**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	tons/yr				MT/yr			
Mitigated					62.13	3.67	0.00	139.23
Unmitigated					62.13	3.67	0.00	139.23
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Arena	306.06					62.13	3.67	0.00	139.23
City Park	0					0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Parking Lot	0					0.00	0.00	0.00	0.00
Total						**62.13**	**3.67**	**0.00**	**139.23**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr				MT/yr			
Arena	306.06					62.13	3.67	0.00	139.23
City Park	0					0.00	0.00	0.00	0.00
Other Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Other Non-Asphalt Surfaces	0					0.00	0.00	0.00	0.00
Parking Lot	0					0.00	0.00	0.00	0.00
Total						**62.13**	**3.67**	**0.00**	**139.23**

9.0 Vegetation

	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
Category	tons				MT			
Unmitigated					1,812.00	0.00	0.00	1,812.00
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

9.1 Vegetation Land Change

Vegetation Type

	Initial/Final	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
	Acres	tons				MT			
Grassland	0 / 100					431.00	0.00	0.00	431.00
Total						**431.00**	**0.00**	**0.00**	**431.00**

9.1 Net New Trees

Species Class

	Number of Trees	ROG	NOx	CO	SO2	Total CO2	CH4	N2O	CO2e
		tons				MT			
Miscellaneous	1500					1,062.00	0.00	0.00	1,062.00
Pine	500					319.00	0.00	0.00	319.00
Total						**1,381.00**	**0.00**	**0.00**	**1,381.00**

Appendix D

CALINE4 Assumptions and Output Sheets

Appendix D
CALINE4 ASSUMPTIONS

Traffic Data -- was taken from the *Draft Traffic Impact Analysis for the Proposed Morongo Outdoor Entertainment Project* (February, 2013) prepared by Crain & Associates. Traffic volumes were provided representing future conditions in the year 2014 with and without the proposed project. Cumulative traffic was included in the traffic projections and evaluated with the CALINE 4 model.

Roadway Speeds -- Average speeds for the approach and departure segments were developed from Table B.13 and Table B.14 from the *Transportation Project-Level Carbon Monoxide Protocol,* revised December, 1997. The percent red time and traffic volume were taken from the traffic study.

Meteorological Conditions -- included 0.5 mph winds, stability class G for one-hour values, a persistence factor of 0.60 for eight-hour values and wind directions determined by iterative runs of the computer model to insure that carbon monoxide concentrations are maximized (greatest concentration for the nearest receptor).

Highway Widths -- were derived for existing roadway cross-sections. Future cross-sections were based upon the master planned classifications. The widths included 3 meters per side as specified for the CALINE 4 model input.

Receptor Placement and Height – the receptors modeled was located on the northwest corner of the intersection. The height assumed was 1.8 meters, as specified by the EPA and Caltrans receptor height guidance presented in the *Transportation Project-Level Carbon Monoxide Protocol,* revised December, 1997.

Emission Factors -- were developed from EMFAC 2007 Version 2.3 using the procedures detailed in the *Transportation Project-Level Carbon Monoxide Protocol,* revised December, 1997.

Background Concentrations -- for the year 2014 were taken from the AQMD website *CEQA Air Quality Handbook* CO html for CO hotspots analysis (updated March 11, 2005). The background concentration, when added to the CO concentration near the intersection, yields the total CO concentration projected to occur in the vicinity.

Title : MOE Year 2013
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2013/03/14 02:32:46
Scen Year: 2013 -- All model years in the range 1969 to 2013 selected
Season : Annual
Area : South Coast
****
*****

Year: 2013 -- Model Years 1969 to 2013 Inclusive -- Annual
Emfac2007 Emission Factors: V2.3 Nov 1 2006

South Coast Basin Average Basin Average

Table 1: Running Exhaust Emissions (grams/mile)

Pollutant Name: Total Organic Gases Temperature: 75F Relative Humidity: 40%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
3	0.334	0.487	0.790	6.112	4.239	5.050	0.725
4	0.306	0.447	0.745	6.112	4.239	5.050	0.693
5	0.281	0.411	0.704	6.112	4.239	5.050	0.663
6	0.258	0.378	0.647	5.510	3.914	4.770	0.606
7	0.238	0.349	0.597	4.947	3.619	4.514	0.554
8	0.219	0.323	0.551	4.422	3.353	4.281	0.506
9	0.203	0.299	0.510	3.935	3.111	4.067	0.462
10	0.188	0.278	0.473	3.486	2.892	3.872	0.422
15	0.133	0.197	0.333	1.790	2.056	3.120	0.272
30	0.063	0.095	0.154	0.684	0.942	2.191	0.126

Pollutant Name: Carbon Monoxide Temperature: 75F Relative Humidity: 40%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
3	3.356	5.112	7.118	17.099	29.039	25.955	5.166
4	3.261	4.955	6.943	17.099	29.039	25.955	5.046
5	3.171	4.807	6.779	17.099	29.039	25.955	4.933
6	3.085	4.666	6.458	15.836	26.529	24.976	4.739
7	3.004	4.533	6.164	14.677	24.292	24.076	4.558
8	2.926	4.407	5.894	13.611	22.295	23.249	4.390
9	2.853	4.288	5.646	12.631	20.509	22.490	4.233
10	2.783	4.175	5.417	11.730	18.910	21.792	4.087
15	2.477	3.687	4.507	8.229	13.043	19.090	3.483
30	1.859	2.734	3.071	4.241	6.036	16.396	2.486

Pollutant Name: Oxides of Nitrogen Temperature: 75F Relative Humidity: 40%

Speed MPH	LDA	LDT	MDT	HDT	UBUS	MCY	ALL
3	0.237	0.482	0.864	17.816	27.825	1.043	1.205
4	0.230	0.466	0.847	17.816	27.825	1.043	1.194

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: MOE W/Proj - Apache Drive @ Seminole Roa
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5	M/S	Z0=	100.	CM	ALT=	0. (M)
BRG=	WORST CASE		VD=	.0	CM/S		
CLAS=	7	(G)	VS=	.0	CM/S		
MIXH=	1000.	M	AMB=	.0	PPM		
SIGTH=	20.	DEGREES	TEMP=	7.0	DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NTA	313	300	315	150	AG	563	4.9	.0	21.0
B. NWA	300	300	450	250	AG	293	4.9	.0	13.0
C. SD	288	300	285	150	AG	136	3.5	.0	21.0
D. STA	288	300	290	450	AG	222	4.1	.0	17.0
E. NWAE	450	250	600	250	AG	293	4.1	.0	10.0
F. ND	313	300	310	450	AG	161	4.9	.0	17.0
G. WDE	150	250	0	250	AG	506	2.5	.0	19.0
H. EDE	450	287	600	287	AG	455	4.9	.0	19.0
I. WD	300	313	150	250	AG	506	3.5	.0	19.0
J. WTA	300	313	450	313	AG	313	4.1	.0	14.0
K. WAE	450	313	600	313	AG	313	4.1	.0	19.0
L. ED	300	287	450	287	AG	455	4.9	.0	14.0
M. NAE	315	150	315	0	AG	563	4.1	.0	21.0
N. NDE	310	450	310	600	AG	161	3.5	.0	17.0
O. SAE	290	450	290	600	AG	222	4.1	.0	17.0
P. SDE	285	150	285	0	AG	136	2.5	.0	14.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	330	330	1.8
2. Recpt 2	361	361	1.8
3. Recpt 3	391	391	1.8

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: MOE W/Proj - Apache Drive @ Seminole Roa
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	191.	.3	.1	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	201.	.2	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	205.	.2	.0	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P
1. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	.0	.0	.0	.0	.0	.0	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: MOE W/Proj - Apache Drive @ Seminole Roa
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U=	.5	M/S	Z0=	100.	CM	ALT=	0. (M)
BRG=	WORST	CASE	VD=	.0	CM/S		
CLAS=	7	(G)	VS=	.0	CM/S		
MIXH=	1000.	M	AMB=	.0	PPM		
SIGTH=	20.	DEGREES	TEMP=	7.0	DEGREE (C)		

II. LINK VARIABLES

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. NTA	313	300	315	150	AG	2553	4.9	.0	21.0
B. NWA	300	300	450	250	AG	293	4.9	.0	13.0
C. SD	288	300	285	150	AG	136	3.5	.0	21.0
D. STA	288	300	290	450	AG	222	4.1	.0	17.0
E. NWAE	450	250	600	250	AG	293	4.1	.0	10.0
F. ND	313	300	310	450	AG	2284	4.9	.0	17.0
G. WDE	150	250	0	250	AG	506	2.5	.0	19.0
H. EDE	450	287	600	287	AG	455	4.9	.0	19.0
I. WD	300	313	150	250	AG	506	3.5	.0	19.0
J. WTA	300	313	450	313	AG	313	4.1	.0	14.0
K. WAE	450	313	600	313	AG	313	4.1	.0	19.0
L. ED	300	287	450	287	AG	455	4.9	.0	14.0
M. NAE	315	150	315	0	AG	2553	4.1	.0	21.0
N. NDE	310	450	310	600	AG	2284	3.5	.0	17.0
O. SAE	290	450	290	600	AG	222	4.1	.0	17.0
P. SDE	285	150	285	0	AG	136	2.5	.0	14.0

III. RECEPTOR LOCATIONS

RECEPTOR	COORDINATES (M) X	Y	Z
1. Recpt 1	330	330	1.8
2. Recpt 2	361	361	1.8
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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: MOE W/Proj - Apache Drive @ Seminole Roa
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	196.	.9	.5	.0	.0	.0	.0	.1	.0	.0
2. Recpt 2	204.	.5	.3	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	209.	.4	.2	.0	.0	.0	.0	.0	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P
1. Recpt 1	.0	.0	.0	.0	.0	.0	.0	.0
2. Recpt 2	.0	.0	.0	.0	.0	.0	.0	.0
3. Recpt 3	.0	.0	.0	.0	.0	.0	.0	.0