FINAL EIR APPENDIX B
AIR QUALITY IMPACT ANALYSIS REPORT

FINAL

AIR QUALITY IMPACT ANALYSIS
LOS ANGELES STATE HISTORIC PARK
MASTER DEVELOPMENT PLAN
LOS ANGELES, CALIFORNIA

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SECTION 1.0
INTRODUCTION

The Los Angeles State Historic Park (LASHP) Master Development Plan (proposed project) is located in the northwestern portion of the city of Los Angeles, California, approximately 2 miles northeast of downtown Los Angeles The proposed project site encompasses the entire LASHP (approximately 32 acres), which is bordered by North Broadway to the north and west, and North Spring Street to the south and east. A regional map and a vicinity map of the proposed project site and its vicinity are provided as Figures 1 and 2, respectively.

The LASHP Master Development Plan includes the potential re-creation of more than 10 acres of natural habitats and blends the historical importance and narratives of the site with programs, environments, and built structures to establish a major public open space and destination for future generations to celebrate the past, present, and future of Los Angeles. The site would include gateways, cultural and ecological demonstration projects, a cultural ecology center, civic gathering and play areas, pathways, a lawn with a performance venue, and cultural interpretive theme areas and sites.

The purpose of this air quality analysis is to describe the existing air quality conditions in the project area, identify applicable regulations, and determine potential short-term and long-term air quality impacts due to the proposed project. The methods of analysis for short-term construction, long-term regional (operational), local mobile source, odors, and toxic air contaminant (TAC) emissions are consistent with the recommendations of the South Coast Air Quality Management District (SCAQMD). Mitigation measures are recommended, as necessary, to reduce significant air quality impacts.

Emissions of greenhouse gases (GHGs) have the potential to adversely affect the environment because such emissions contribute, on a cumulative basis, to global climate change. The California Natural Resources Agency has adopted amendments to the California Environmental Quality Act (CEQA) guidelines, which require the evaluation of project-related GHG emissions. This air quality report addresses the project's construction- and operations-related GHG emissions.

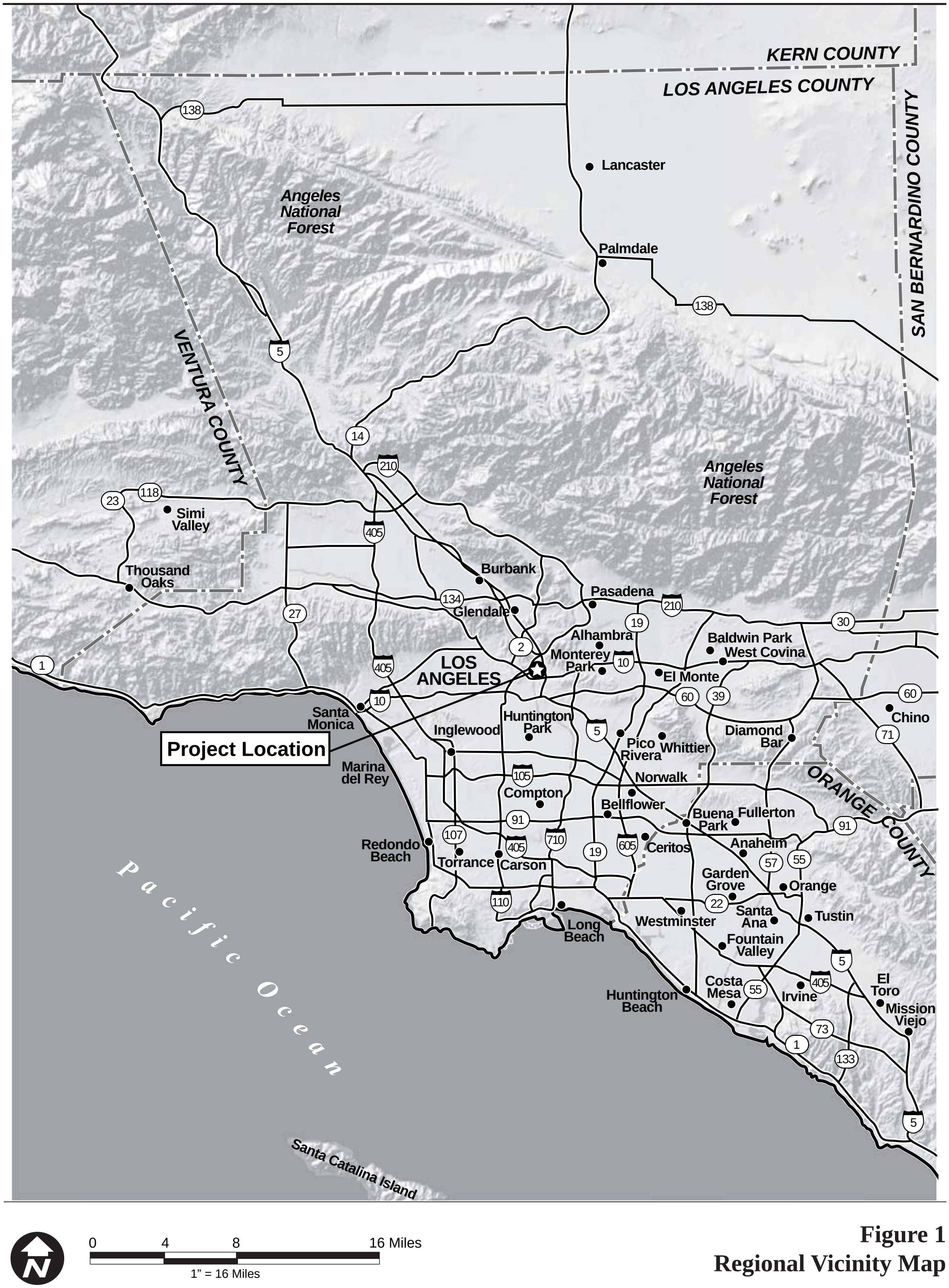

Figure 1
Regional Vicinity Map

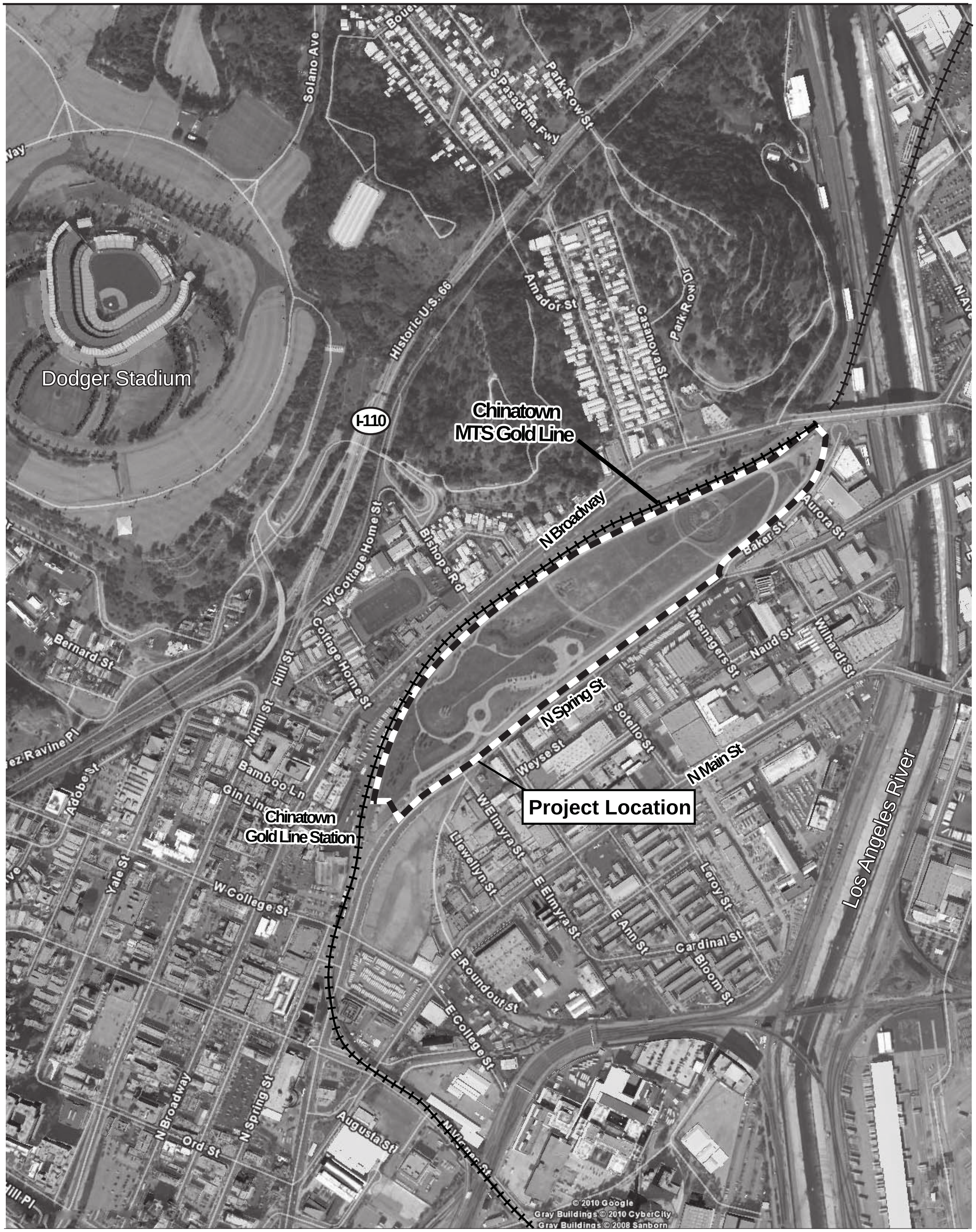

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Figure 2
Local Vicinity Map

SECTION 2.0
PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The proposed project is located in the city of Los Angeles, California. The project site is bordered by North Broadway to the north and west, and North Spring Street to the south and east. Public vehicular access to the park is from North Spring Street at the southwestern end of the site, while administrative office access is from Baker Street to the northwest. Regional access to the site is from the Arroyo Seco Parkway State Route 110/Pasadena Freeway (SR-110) to the northwest, Interstate 5 (I-5) to the east, I-10/Santa Monica Freeway to the southeast, and U.S. Route (U.S. 101) to the southwest.

The Metropolitan Transit Authority (MTA) Gold Line is a light rail line that runs along the northern boundary of the project site. At the time of this writing, the Gold Line runs between East Los Angeles and Pasadena, passing through Boyle Heights, Little Tokyo, Downtown Los Angeles, Highland Park, and South Pasadena. The closest Gold Line station to the LASHP site is the elevated Chinatown Station located just west of the LASHP at the intersection of North Spring Street and College Street. In addition to the Gold Line, MTA and Santa Clarita Transit bus routes serve the area along North Broadway.

The project site is located in the South Coast Air Basin (Basin), which includes all of Orange County and parts of Los Angeles, Riverside, and San Bernardino counties.

2.2 PROJECT DESCRIPTION

The 32-acre proposed project site is located at the foot of the Elysian Hills on the previous site of the historic Southern Pacific River Station Railyard (Railyard), between the channelized Los Angeles River and the downtown core of the city of Los Angeles. Proposed project uses on the site include gateways, cultural and ecological demonstration projects, a cultural ecology center, civic gathering and play areas, a lawn and performance venue, and cultural interpretive theme areas and sites.

The LASHP General Plan/Environmental Impact Report (EIR) was approved by the State Park and Recreation Commission on June 10, 2003. The proposed project synthesizes the General Plan/EIR goals and guidelines into design concepts that will be implemented in phases as funding becomes available. Interim park uses have provided for immediate public use of LASHP as permanent planning and a long-term vision are developed. The LASHP Master Development Plan represents the design footprint of the long-term vision.

The proposed project's scope includes utility infrastructure (water, electricity, sewer, telephone, data), landscaping, irrigation systems, site drainage improvements, a multi-use plaza, flexible outdoor spaces to accommodate a variety and size of public events, a "great lawn" featuring an amphitheater/stage space for special events/performances for up to 25,000 people and for unstructured activities, interpretive paths and portals for engaging historic themes and content using traditional and new technologies, site lighting, site furnishings and signs, permanent restrooms, an operations yard with access road, a "Welcome Station" structure, an interpretive and administration center, shade structures, pedestrian and vehicle circulation systems, an interactive fountain/water feature(s), a children's play area, and cultural gardens. However, due to the current economic climate, the proposed project be built in phases. The first phase will allow LASHP to become fully functional and lay the foundation for work deferred to future phases. As a result, fundraising efforts will continue until enough private funding is raised to construct elements omitted from the first phase.

The proposal for LASHP's organizational structure is derived from the linear grain of the Railyard, with more hardscape park uses grouped closer to downtown and more resource-based uses proposed towards the river. The downtown end of LASHP would include a Welcome Station/café (park orientation and food), a large interactive interpretive fountain, civic gathering area (water play and visual gateway), and an interpretive play area (exercise and education). A "Railyard Plaza" would span the length of the North Spring Street frontage, unifying this long edge of the proposed project as a linear garden environment. LASHP is planned to extend the pedestrian orientation to the street and to accommodate on-site parking and flexible areas for special events, markets, and festivals.

The river end of LASHP draws its inspiration from the Los Angeles River as a center of local biodiversity, with a proposal to create over 5 acres of wetland and riparian habitats and an additional 5 acres of transitional and upland habitats. These wet and dry ecologies would allow visitors to experience the biological richness of the historic river corridor and may incorporate water cleansing bio-swales as a sustainability feature at this natural gateway into the site. Working in concert with these habitat zones, an ecology center along the edge of North Spring Street will facilitate public access to a wide range of indoor and outdoor interpretive, educational, community, and recreational programs as well as provide a possible restaurant venue.

In the center of the LASHP, the proposed project would construct a 5-acre multi-use lawn and performance venue that is oriented to a new plaza stage that would sit above the exact location of the archaeological remains of the historic turntable and roundhouse of the Railyard. Spanning across the LASHP from the top of the Welcome Station to North Broadway, a fountain bridge would be constructed to allow access from the neighborhoods atop the adjacent bluff and Elysian Park, and will provide shade and interpretive viewpoints (CSP 2008).

2.3 EXISTING SITE SETTING

Project Area

The proposed project site is located in an urban area characterized by a mix of residential and non-residential uses. The Gold Line along the project boundary is at grade; however, it is elevated to the south as it approaches the Chinatown Gold Line Station and to the north where it crosses the Los Angeles River.

North of this rail line is a narrow strip of undeveloped land and North Broadway. Bordering North Broadway to the north is a mix of residential, institutional, and commercial uses. To the east lie the Atchison, Topeka, and Santa Fe Rail Line and the channelized Los Angeles River. To the southeast of the park and Spring Street lies an area of predominantly industrial uses, while Chinatown and the Chinatown Community Redevelopment Area lie to the southwest and west.

Farther north and northwest of the project site are bluffs that transition to more than 700 feet above mean sea level (amsl), the hills of Elysian Park, the Solano Canyon residential neighborhood, Radio Hill Gardens, SR-110, Dodger Stadium, and Echo Park. Farther to the east are the Los Angeles River, I-5/Golden State Freeway, and the community of Lincoln Heights. Farther to the south is the William Mead Housing Complex, while farther to the southwest is El Pueblo de Los Angeles, U.S. 101, and downtown Los Angeles.

Project Site

The project site is a 32-acre, flat, linear-shaped, grass-covered, open space area traversed with paved and unpaved walkways. Site elevation ranges from 300 to 325 feet amsl. A long, linear walkway connects the southwestern end of the LASHP with its northeastern end where there is a small park administration building, a maintenance trailer, and a parking area near the terminus of Baker Street. A circular, mandala-like garden (referred to as the Anabolic Monument [CSP 2009]) occupies the northeastern quadrant of the site, while the southwestern 13 acres of the site are developed with a parking lot, curvilinear walkways, trees, and open grass play areas. LASHP amenities include a drinking fountain, benches, picnic tables, an information kiosk, and a small lunch stand at the far southwestern corner of the LASHP.

From a planning perspective, the LASHP is within the Central City North Community Plan Area of the *City of Los Angeles General Plan* Land Use Element, the Draft Cornfied-Arroyo Seco Specific Plan (CASP) area, and the Los Angeles River Revitalization Master Plan area. The Central City North Community Plan designates the LASHP as Industrial; however, it is expected that, once adopted, the CASP designations for the LASHP would become effective.

2.4 SENSITIVE RECEPTORS

Some members of the population are especially sensitive to air pollutant emissions and should be given special consideration when evaluating air quality impacts from projects. These people include children, older adults, persons with preexisting respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather are defined as sensitive receptors by SCAQMD.

Residential areas are considered sensitive to air pollution because residents (including children and older adults) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

The proposed project site is surrounded by urban development, consisting of single-family residences to the north of North Broadway, and commercial/industrial land uses to the south, east, and west. The single-family land uses are largely surrounded by undeveloped land. Cathedral High School is located to the west of North Broadway, approximately 200 feet from the project site. The Pacific Alliance Medical Center is located approximately 1,000 feet southwest of the project site. The residences, school, and medical center near the project site are air quality sensitive receptors.

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SECTION 3.0
AIR POLLUTANTS

Concentrations of the following air pollutants are used as indicators of ambient air quality conditions: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less (PM_{10}), fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. These air pollutants are commonly referred to as "criteria air pollutants" because the U.S. Environmental Protection Agency (EPA) regulates them by developing human-health-based and/or environmentally based criteria (science-based guidelines) for setting permissible concentration levels. These air pollutants are the most prevalent air pollutants known to be deleterious to human health, and there is extensive documentation available on the health effects of these pollutants.

A brief description of each criteria air pollutant, including source types, health effects, and future trends, is provided below, along with the most current attainment area designations and monitoring data for the project area and vicinity.

3.1 OZONE (O_3)

Ozone is a photochemical oxidant, a substance whose oxygen combines chemically with another substance in the presence of sunlight, and the primary component of smog. Ozone is not emitted directly into the air but is formed through complex chemical reactions between precursor emissions of reactive organic gases (ROG) and oxides of nitrogen (NO_X) in the presence of sunlight. ROG are volatile organic compounds (VOCs) that are photochemically reactive. It should be noted that the ROG designation includes more chemical compounds than the VOC designation. For purposes of this analysis, ROG and VOC are equivalent and are used interchangeably. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels.

Ozone located in the upper atmosphere (stratosphere) acts in a beneficial manner by shielding the earth from harmful ultraviolet radiation that is emitted by the sun. However, ozone located in the lower atmosphere (troposphere) is a major health and environmental concern. Meteorology and terrain play a major role in ozone formation. Generally, low wind speeds or stagnant air coupled with warm temperatures and clear skies provide the optimum conditions for ozone formation. As a result, observed ozone concentrations are highest during the summer season. Because of the reaction time involved, peak ozone concentrations often occur far downwind of the precursor emissions. Therefore, ozone is a regional pollutant that often affects large areas. In general, ozone concentrations over or near urban and rural areas reflect an interplay of emissions of ozone precursors, transport, meteorology, and atmospheric chemistry (Godish 2004).

The adverse health effects associated with exposure to ozone pertain primarily to the respiratory system. Scientific evidence indicates that ambient levels of ozone affect not only sensitive receptors, such as asthmatics and children, but healthy adults as well. Exposure to ambient levels of ozone ranging from 0.10 to 0.40 part per million (ppm) for 1 or 2 hours has been found to significantly alter lung functions by increasing respiratory rates and pulmonary resistance, decreasing tidal volumes, and impairing respiratory mechanics. Ambient levels of ozone above 0.12 ppm are linked to symptomatic responses that include such symptoms as throat dryness, chest tightness, headache, and nausea. In addition to the above adverse health effects, evidence also exists relating ozone exposure to an increase in the permeability of respiratory epithelia; such increased permeability leads to an increase in the respiratory system's responsiveness to challenges and the interference or inhibition of the immune system's ability to defend against infection (Godish 2004).

Ozone air quality in the Basin has improved substantially over the last 30 years. During the 1960s, maximum 1-hour concentrations were higher than 0.60 ppm. Today, the maximum measured concentrations are less than one-third of that. The 2007 peak 8-hour indicator value was 42% lower than the 1988 value. The 3-year average in 2008 of the maximum 8-hour concentration was more than 41% lower than 1990. The number of days above the standards has also declined dramatically, and the trend for 1-hour ozone is similar to that for 8-hour ozone (ARB 2009a).

Although ozone concentrations have improved substantially over time, progress has leveled off during the last several years. This may be attributable to changes in the mix and reactivity of precursor emissions in the Basin. While the Basin-wide trends show a slower rate of improvement during recent years, progress in some subregions of the Basin (for example, the coastal area and some of the inland valley areas) is still occurring. Continuing implementation of the aggressive emissions control measures will ensure continued progress throughout the Basin (ARB 2009a).

3.2 CARBON MONOXIDE (CO)

CO is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 77% of all CO emissions nationwide. The other 23% consists of CO emissions from wood-burning stoves, incinerators, and industrial sources. Higher levels of CO generally occur in areas with heavy traffic congestion. In cities, 85 to 95% of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are sources of CO indoors. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air (EPA 2009a).

CO enters the bloodstream through the lungs by combining with hemoglobin, which normally supplies oxygen to the cells. However, CO combines with hemoglobin much more readily than oxygen does, resulting in a drastic reduction in the amount of oxygen available to the cells. Adverse health effects associated with exposure to CO concentrations include such symptoms as dizziness, headaches, and fatigue. CO exposure is especially harmful to individuals who suffer from cardiovascular and respiratory diseases (EPA 2009a).

The highest CO concentrations are generally associated with cold, stagnant weather conditions that occur during the winter. In contrast to ozone, which tends to be a regional pollutant, CO tends to cause localized problems.

3.3 NITROGEN DIOXIDE (NO_2)

NO_2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO_2 are combustion devices such as boilers, gas turbines, and mobile and stationary reciprocating internal-combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2 (EPA 2009a). The combined emissions of NO and NO_2 are referred to as NO_X, which are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a particular geographical area may not be representative of the local NO_X emission sources.

Inhalation is the most common route of exposure to NO_2. Because NO_2 has relatively low solubility in water, the principal site of toxicity is in the lower respiratory tract. The severity of the adverse health effects depends primarily on the concentration inhaled rather than the duration of exposure. An individual may experience a variety of acute symptoms, including coughing, difficulty with breathing, vomiting, headache, and eye irritation, during or shortly after exposure. After a period of approximately 4 to 12 hours, an exposed individual may experience chemical pneumonitis or pulmonary edema with breathing abnormalities, cough, cyanosis, chest pain, and rapid heartbeat. Severe, symptomatic NO_2 intoxication after acute exposure has been linked on occasion to prolonged respiratory impairment, with such symptoms as chronic bronchitis and decreased lung functions.

3.4 PARTICULATE MATTER

Respirable particulate matter with an aerodynamic diameter of 10 microns or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust, and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and ROG (EPA 2009a). $PM_{2.5}$ includes a subgroup of finer particles that have an aerodynamic diameter of 2.5 microns or less (ARB 2009a).

The adverse health effects associated with PM_{10} depend on the specific composition of the particulate matter. For example, health effects may be associated with adsorption of metals, polycyclic aromatic hydrocarbons, and other toxic substances onto fine particulate matter (which is referred to as the "piggybacking effect"), or with fine dust particles of silica or asbestos. Generally, adverse health effects associated with PM_{10} may result from both short-term and long-term exposure to elevated concentrations, and may include breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular diseases, alterations to the immune system, carcinogenesis, and premature death (EPA 2009a). $PM_{2.5}$ poses an increased health risk because the particles can deposit deep in the lungs and contain substances that are particularly harmful to human health.

Direct emissions of PM_{10} have been increasing in the Basin since 1975. A decrease in emissions would have been observed if not for growth in emissions from areawide sources, primarily fugitive dust from paved and unpaved roads, dust from construction and demolition operations, and other sources. The increase in activity of these areawide sources reflects the increased growth and vehicle miles traveled in the Basin (ARB 2009a).

PM_{10} concentrations in the Basin have shown an improvement during the years for which reliable data are available. The 3-year average of the annual average decreased about 35% from 1989 to 2007. Despite the overall decrease, ambient concentrations still exceed the state annual and 24-hour PM_{10} standards. Similar to the ambient concentrations, the calculated number of days above the 24-hour PM_{10} standards has also shown an overall drop. During 1989, there were 305 calculated days above the state standard and 34 calculated days above the national standard. By 2007, there were 273 calculated state standard exceedance days and 13 national standard exceedance days. The high 24-hour concentration in 2007 was due to a national windblown dust event. Despite these decreases, PM_{10} continues to pose an issue in the Basin. While emission controls implemented for ozone will also benefit PM_{10}, more controls aimed specifically at reducing PM_{10} will be needed to reach attainment (ARB 2009a).

Direct emissions of $PM_{2.5}$ have decreased slightly in the Basin since 1975. Stationary source emissions have been decreasing, while areawide emissions have been increasing. Annual average $PM_{2.5}$ concentrations have decreased more than 37% from 1999 to 2007. The 98th percentile of 24-hour $PM_{2.5}$ concentrations has also declined during this time period (ARB 2009a).

3.5 SULFUR DIOXIDE (SO_2)

SO_2 is produced by such stationary sources as coal and oil combustion, steel mills, refineries, and pulp and paper mills. The major adverse health effects associated with SO_2 exposure pertain to the upper respiratory tract. SO_2 is a respiratory irritant with constriction of the bronchioles occurring with inhalation of SO_2 at 5 ppm or more. On contact with the moist mucous membranes, SO_2 produces sulfurous acid, which is a direct irritant. Concentration rather than duration of the exposure is an important determinant of respiratory effects. Exposure to high SO_2 concentrations may result in edema of the lungs or glottis and respiratory paralysis.

Improved industrial controls, fuel switching, and lower sulfur content in terrestrial fuel sources helped to reduce 1975 emissions levels 76% by 2005. Increases in shipping activities have reversed this trend; however, the California Air Resources Board (ARB) recently adopted regulation that will lower sulfur content in fuel used by commercial harbor craft to help offset the increase.

3.6 LEAD (Pb)

Lead is a metal found naturally in the environment and manufactured products. The major sources of lead emissions have historically been mobile and industrial sources. As a result of the phase-out of leaded gasoline, as discussed in detail below, metal processing is currently the primary source of lead emissions. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

Twenty years ago, mobile sources were the main contributor to ambient lead concentrations in the air. In the early 1970s, EPA set national regulations to gradually reduce the lead content in gasoline. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. EPA banned the use of leaded gasoline in highway vehicles in December 1995 (EPA 2009a).

As a result of EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector declined by 95% between 1980 and 1999, and levels of lead in the air decreased by 94% between 1980 and 1999. Transportation sources, primarily airplanes, now contribute only 13% of lead emissions. A recent National Health and Nutrition Examination Survey reported a 78% decrease in the levels of lead in people's blood between 1976 and 1991. This substantial decline can be attributed to the move from leaded to unleaded gasoline (EPA 2009a).

Lead emissions and ambient lead concentrations have decreased dramatically in California over the past 25 years. The rapid decrease in lead concentrations can be attributed primarily to phasing out the lead in gasoline. This phase-out began during the 1970s, and subsequent ARB regulations have eliminated virtually all lead from gasoline now sold in California. All areas of the state are currently designated as attainment for the state lead standard (EPA does not designate areas for the national lead standard). Although the ambient lead standards are no longer violated, lead emissions from stationary sources still pose "hot spot" problems in some areas. As a result, ARB has identified lead as a TAC.

3.7 TOXIC AIR CONTAMINANTS

TACs are air pollutants that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air. However, their high toxicity or health risk may pose a threat to public health even at low concentrations. According to *The California Almanac of Emissions and Air Quality*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel PM) (ARB 2009a). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal-combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, ARB has made preliminary concentration estimates based on a particulate matter exposure method. This method uses the ARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies on chemical speciation to estimate concentrations of diesel PM. Of the TACs for which data are available in California, diesel PM, benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene pose the greatest existing ambient risks.

Diesel PM poses the greatest health risk among these 10 TACs. Based on receptor modeling techniques, ARB estimated the diesel PM health risk in the Basin in 2000 to be 720 excess cancer cases per million people. Although the health risk is higher than the statewide average, it represents a 33% drop between 1990 and 2000 (ARB 2009a).

According to the ARB Community Health Air Pollution Information System, there are no major existing stationary sources of TACs within 2 miles of the project site (ARB 2010a). Vehicles on I-5, SR-110, I-10, Highway 101, North Broadway, North Spring Street, and Baker Street are sources of diesel PM and other TACs associated with vehicle exhaust.

3.8 ODORS

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast-food restaurant). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

There are no existing concentrated sources of objectionable odors such as agriculture (farming and livestock), wastewater treatment plants, composting operations, landfills, rendering plants, or dairies within 1 mile of the project area.

3.9 GREENHOUSE GASES

Attributing Climate Change—The Physical Scientific Basis

Certain gases in Earth's atmosphere, classified as GHGs, play a critical role in determining Earth's surface temperature. Solar radiation enters Earth's atmosphere from space. A portion of the radiation is absorbed by Earth's surface, and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from Earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Earth has a much lower temperature than the sun; therefore, Earth emits lower frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on Earth. Without the greenhouse effect, Earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), chlorofluorocarbons (CFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Much of the scientific literature suggests that human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of Earth's climate, known as global climate change or global warming. While there is some debate regarding this issue, it is unlikely that global climate change of the past 50 years can be explained without contribution from human activities (IPCC 2007).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 54% is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within 1 year, whereas the remaining 46% of human-caused CO_2 emissions remains stored in the atmosphere (Seinfeld and Pandis 1998).

Similarly, impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and TACs. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; suffice it to say, the quantity is enormous, and no single project would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

Attributing Climate Change—Greenhouse Gas Emission Sources

According to much of the scientific literature on this topic, emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural sectors (ARB 2009b). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (ARB 2009b). Emissions of CO_2 are byproducts of fossil fuel combustion. CH_4, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, two of the most common processes of CO_2 sequestration.

California is the 12th to 16th largest emitter of CO_2 in the world (CEC 2006). California produced 484 million gross metric tons of CO_2 equivalent (CO_2e) in 2004 (ARB 2009b). CO_2e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. Expressing emissions in CO_2e takes the contributions to the greenhouse effect of all GHG emissions and converts them to the equivalent effect that would occur if only CO_2 were being emitted. This measurement, known as the global warming potential (GWP) of a GHG, is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, as described in Appendix C, Calculation References, of the General Reporting Protocol of the California Climate Action Registry (CCAR) (CCAR 2009), 1 ton of CH_4 has the same contribution to the greenhouse effect as approximately 21 tons of CO_2. Therefore, CH_4 is a much more potent GHG than CO_2.

Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2004, accounting for 38% of total GHG emissions in the state (ARB 2009b). This sector was followed by the electric power sector (including both in-state and out-of-state sources) (19%) and the industrial sector (23%) (ARB 2008a).

SECTION 4.0
APPLICABLE STANDARDS

Air quality in the project area is regulated by EPA, ARB, and SCAQMD. Each of these agencies develops rules, regulations, policies, and/or goals to comply with applicable legislation. Although EPA regulations may not be superseded, both state and local regulations may be more stringent.

4.1 CRITERIA AIR POLLUTANTS

Air quality regulations focus on ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. These air pollutants are commonly referred to as "criteria air pollutants" since they are the most prevalent air pollutants known to be deleterious to human health, and there is extensive documentation available on their health effects.

4.1.1 Federal Plans, Policies, Regulations, and Laws

At the federal level, EPA has been charged with implementing national air quality programs. EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments to the CAA were made by Congress in 1990.

The CAA required EPA to establish National Ambient Air Quality Standards (NAAQS). As shown in Table 1, EPA has established primary and secondary NAAQS for ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The primary standards protect the public health, while the secondary standards protect the public welfare. The CAA also required each state to prepare an air quality control plan, referred to as a state implementation plan (SIP). The federal Clean Air Act Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and to determine whether implementing the SIPs will achieve air quality goals. If EPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area.

Table 1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS[1]		CAAQS[2]
		Primary[3]	Secondary[4]	Concentration[5]
Ozone (O_3)[6]	1-Hour	-	Same as Primary Standard	0.09 ppm (180 $\mu g/m^3$)
	8-Hour	0.075 ppm (147 $\mu g/m^3$)		0.070 ppm (137 $\mu g/m^3$) [7]
Carbon Monoxide (CO)	8-Hour	9 ppm (10 mg/m^3)	None	9.0 ppm (10 mg/m^3)
	1-Hour	35 ppm (40 mg/m^3)		20 ppm (23 mg/m^3)
	8-Hour (Lake Tahoe)	-	-	6 ppm (7 mg/m^3)
Nitrogen Dioxide (NO_2)	Annual Average	0.053 ppm (100 $\mu g/m^3$)	Same as Primary Standard	0.030 ppm (57 $\mu g/m^3$)[8]
	1-Hour	0.100 ppm	0.053 ppm (100 $\mu g/m^3$)	0.18 ppm (339 $\mu g/m^3$)[8]
Sulfur Dioxide (SO_2)	Annual Average	0.030 ppm (80 $\mu g/m^3$)	-	-
	24-Hour	0.14 ppm (365 $\mu g/m^3$)	-	0.04 ppm (105 $\mu g/m^3$)
	3-Hour	-	0.5 ppm (1,300 $\mu g/m^3$)	-
	1-Hour	-	-	0.25 ppm (655 $\mu g/m^3$)
Respirable Particulate Matter (PM_{10})[9]	24-Hour	150 $\mu g/m^3$	Same as Primary Standard	50 $\mu g/m^3$
	Annual Arithmetic Mean	Revoked		20 $\mu g/m^3$ note 9
Fine Particulate Matter ($PM_{2.5}$)[10]	24-Hour	35 $\mu g/m^3$	Same as Primary Standard	-
	Annual Arithmetic Mean	15 $\mu g/m^3$		12 $\mu g/m^3$
Lead (Pb)	30-Day Average	-	-	1.5 $\mu g/m^3$
	Calendar Quarter	1.5 $\mu g/m^3$	Same as Primary Standard	-
	Rolling 3-Month Average[10]	0.15 $\mu g/m^3$	Same as Primary Standard	-
Hydrogen Sulfide (H_2S)	1-Hour	No Federal Standards		0.03 ppm (42 $\mu g/m^3$)
Sulfates (SO_4)	24-Hour			25 $\mu g/m^3$
Visibility Reducing Particles	8-Hour (10 a.m. to 6 p.m., Pacific Standard Time)			Extinction coefficient of 0.23 per km-visibility of 10 miles or more (0.07/30 miles for Lake Tahoe) due to particles when the relative humidity is less than 70%.
Vinyl Chloride[7]	24-Hour			0.01 ppm (26 $\mu g/m^3$)

1 NAAQS (other than O_3, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, 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 $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact EPA for further clarification and current federal policies.

2 California Ambient Air Quality Standards for O_3, CO (except Lake Tahoe), SO_2 (1- and 24-hour), NO_2, PM_{10}, $PM_{2.5}$ and visibility reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

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

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

5 Concentration expressed first in units in which it was promulgated. Ppm in this table refers to ppm by volume or micromoles of pollutant per mole of gas.

6 On June 15, 2005, the 1-hour ozone standard was revoked for all areas except the 8-hour ozone nonattainment Early Action Compact Areas (those areas do not yet have an effective date for their 8-hour designations). Additional information on federal ozone standards is available at http://www.epa.gov/oar/oaqps/greenbk/index.html.

7 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.

8 The nitrogen dioxide ambient air quality standard was amended to lower the 1-hr standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes became effective March 20, 2008.

9 Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, EPA revoked the annual PM_{10} standard on December 17, 2006.

10 Effective December 17, 2006, EPA lowered the $PM_{2.5}$ 24-hour standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$.

ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter; mg/m^3 = milligrams per cubic meter; km = kilometers

Source: ARB 2010b

If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary sources of air pollution in the air basin.

4.1.2 State Plans, Policies, Regulations, and Laws

ARB is responsible for coordination and oversight of state and local air pollution control programs in California and for implementation of the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required ARB to establish California Ambient Air Quality Standards (CAAQS) (Table 1). ARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. In most cases, the CAAQS are more stringent than the NAAQS. Differences in the standards are generally explained through interpretation of the health-effects studies considered during the standard-setting process. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires all local air districts in the state to endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts shall focus particular attention on reducing the emissions from transportation and areawide emission sources, and provides districts with the authority to regulate indirect sources.

Among ARB's other responsibilities are overseeing compliance by local air districts with California and federal laws; approving local air quality plans; submitting SIPs to EPA; monitoring air quality; determining and updating area designations and maps; and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

4.1.3 Local Plans, Policies, Regulations, and Laws

South Coast Air Quality Management District

SCAQMD attains and maintains air quality conditions in the Basin through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of SCAQMD includes preparation of plans for attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. SCAQMD also inspects stationary sources of air pollution and responds to citizen complaints; monitors ambient air quality and meteorological conditions; and implements programs and regulations required by the CAA, CAAA, and CCAA. Air quality plans applicable to the proposed project are discussed below.

Air Quality Management Plan

SCAQMD and the Southern California Association of Governments (SCAG) are responsible for preparing the air quality management plan (AQMP), which addresses federal and state CAA requirements. The AQMP details goals, policies, and programs for improving air quality in the Basin. Two versions (2003 and 2007) of the AQMP are in different stages of approval. The 2003 AQMP is an update to the 1997 AQMP. The 2003 AQMP employs up-to-date science and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. The 2003 AQMP proposes policies and measures to achieve federal and state standards for healthy air quality in the Basin. The 2003 AQMP updates the demonstration of attainment for the federal ozone and PM_{10} standards, replaces the 1997 attainment demonstration for the federal CO standard and provides a basis for a maintenance plan for CO for the future, and updates the maintenance plan for the federal NO_2 standard that the Basin has met since 1992. The 2003 AQMP was adopted by SCAQMD in August 2003 and approved, with modifications, by ARB in October 2003 (SCAQMD 2006). ARB submitted the South Coast SIP to EPA on January 9, 2004; however, this SIP has not been approved, and the 1997 AQMP with 1999 amendments remains the federally approved AQMP.

A draft version of the 2007 AQMP was released to the public, and public workshops were held in October, November, and December 2006 (SCAQMD 2007). The 2007 AQMP was adopted by the SCAQMD Governing Board on June 1, 2007. The purpose of the 2007 AQMP for the Basin is to set forth a comprehensive program that will lead the region into compliance with federal 8-hour ozone and $PM_{2.5}$ air quality standards. ARB adopted the State Strategy for the 2007 SIP and the 2007 AQMP as part of the SIP on September 27, 2007. On November 28, 2007, ARB submitted a SIP revision to EPA for ozone, $PM_{2.5}$, CO, and NO_2 in the Basin; this revision is identified as the 2007 South Coast SIP. The 2007 AQMP/2007 South Coast SIP demonstrates attainment of the federal $PM_{2.5}$ standard in the Basin by 2014, and attainment of the federal 8-hour ozone standard by 2023. The SIP also includes a request of reclassification of the ozone attainment designation from “severe” to “extreme” (ARB 2007). On February 1, 2008, ARB submitted additional technical information relative to the 2007 South Coast SIP to EPA (ARB 2008b). On April 15, 2010, EPA’s Region 9 Regional Administrator signed a final rule to grant requests from the State of California to reclassify the Basin from “severe-17” to “extreme” (Federal Register 2010).

The $PM_{2.5}$ attainment strategy is outlined in the AQMP. Since $PM_{2.5}$ in the Basin is overwhelmingly formed secondarily, the overall draft control strategy focuses on reducing precursor emission of sulfur oxides (SO_X), directly emitted $PM_{2.5}$, NO_X, and VOC instead of fugitive dust (SCAQMD 2007). Based on SCAQMD's modeling sensitivity analysis, SO_X reductions, followed by directly emitted $PM_{2.5}$ and NO_X reductions, provide the greatest benefits in terms of reducing the ambient $PM_{2.5}$ concentrations.

As a result of state and local control strategies, the Basin has not exceeded the federal CO standard since 2002. In March 2005, SCAQMD adopted a CO Redesignation Request and Maintenance Plan that provides for maintenance of the federal CO air quality standard until at least 2015 and commits to revising the Redesignation Request and Maintenance Plan in 2013 to ensure maintenance through 2025 (SCAQMD 2005). SCAQMD also adopted a CO emissions budget that covers 2005 through 2015. On February 24, 2006, ARB transmitted the Redesignation Request and Maintenance Plan (including the CO budgets) to EPA for approval. On June 11, 2007, EPA redesignated the Basin as attainment for the federal CO standard and approved the maintenance plan amendment to the SIP for the Basin (Federal Register 2007).

SCAQMD Rules and Regulations

All projects are subject to SCAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction activities associated with implementation of the proposed project may include the following:

> ***Rule 401 – Visible Emissions.*** A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour which is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.

> ***Rule 402 – Nuisance.*** A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property. The provisions of this rule do not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

> ***Rule 403 – Fugitive Dust.*** This rule is intended to reduce the amount of particulate

matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust.

Rule 1113 – Architectural Coatings. No person shall apply or solicit the application of any architectural coating within the SCAQMD with VOC content in excess of the values specified in a table incorporated in the Rule.

City of Los Angeles

The Air Quality Element of the City of Los Angeles General Plan sets forth the goals, objectives, and policies which will guide the City in the implementation of its air quality improvement programs and strategies. Numerous efforts are underway at the regional, county, and city levels addressing clean air concerns. The Air Quality Element and the Clean Air Program acknowledge the interrelationships among transportation and land use planning in meeting the City's mobility and clean air goals. The Air Quality Element lists the following goals:

- Good air quality and mobility in on environment of continued population growth and healthy economic structure
- Less reliance on single-occupant vehicles with fewer commute and non-work trips
- Efficient management of transportation facilities and system infrastructure using cost-effective system management and innovative demand-management techniques
- Minimal impact of existing land use patterns and future land use development on air quality by addressing the relationship between land use, transportation, and air quality
- Energy efficiency through land use and transportation planning, the use of renewable resources and less polluting fuels, and the implementation of conservation measures including passive methods such as site orientation and tree planting
- Citizen awareness of the linkages between personal behavior and air pollution, and participation in efforts to reduce air pollution

4.2 TOXIC AIR CONTAMINANTS

Air quality regulations also focus on TACs, or in federal parlance, hazardous air pollutants (HAPs). Examples of TACs are discussed in detail in Section 3.7. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no safe level of exposure. This contrasts with the criteria air pollutants, for which acceptable levels of exposure can be determined and for which the ambient standards have been established

(Table 2). Instead, EPA and ARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology for toxics (MACT and BACT) to limit emissions. These statutes and regulations, in conjunction with additional rules set forth by the districts, establish the regulatory framework for TACs.

4.2.1 Federal Hazardous Air Pollutant Programs

EPA has programs for identifying and regulating HAPs. Title III of the CAAA directed EPA to promulgate national emissions standards for HAPs (NESHAP). The NESHAP may differ for major sources than for area sources of HAPs. Major sources are defined as stationary sources with potential to emit more than 10 tons per year (TPY) of any HAP or more than 25 TPY of any combination of HAPs; all other sources are considered area sources. The emissions standards are to be promulgated in two phases. In the first phase (1992–2000), EPA developed technology-based emission standards designed to produce the maximum emission reduction achievable. These standards are generally referred to as requiring MACT. For area sources, the standards may be different, based on generally available control technology. In the second phase (2001–2008), EPA is required to promulgate health-risk-based emissions standards, where deemed necessary, to address risks remaining after implementation of the technology-based NESHAP standards.

The CAAA also required EPA to promulgate vehicle or fuel standards containing reasonable requirements that control toxic emissions of, at a minimum, benzene and formaldehyde. Performance criteria were established to limit mobile-source emissions of toxics, including benzene, formaldehyde, and 1,3-butadiene. In addition, Section 219 required the use of reformulated gasoline in selected areas with the most severe ozone nonattainment conditions to further reduce mobile-source emissions.

4.2.2 State and Local Toxic Air Contaminant Programs

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807 [Chapter 1047, Statutes of 1983]) and the Air Toxics Hot Spots Information and Assessment Act (Hot Spots Act) (AB 2588 [Chapter 1252, Statutes of 1987]). AB 1807 sets forth a formal procedure for ARB to designate substances as TACs. This includes research, public participation, and scientific peer review before ARB can designate a substance as a TAC. To date, ARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. Most recently, diesel PM was added to the ARB list of TACs.

Once a TAC is identified, ARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions.

The Air Toxics Hot Spots Information and Assessment Act requires existing facilities emitting toxic substances above a specified level to prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

ARB has adopted diesel-exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators). In February 2000, ARB adopted a new public-transit bus fleet rule and emissions standards for new urban buses. These new rules and standards provide (1) more stringent emission standards for some new urban bus engines beginning with 2002 model year engines, (2) zero-emission bus demonstration and purchase requirements applicable to transit agencies, and (3) reporting requirements under which transit agencies must demonstrate compliance with the public-transit bus fleet rule. New milestones include the low-sulfur diesel fuel requirement, and tighter emission standards for heavy-duty diesel trucks (2007) and off-road diesel equipment (2011) nationwide. Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than current vehicles. Mobile-source emissions of TACs (e.g., benzene, 1,3-butadiene, diesel PM) have been reduced significantly over the last decade, and they will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of ARB's risk reduction plan, it is expected that diesel PM concentrations will be reduced by 75% in 2010 and 85% in 2020 from the estimated year 2000 level. Adopted regulations are also expected to continue to reduce formaldehyde emissions from cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

ARB published the *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook), which provides guidance concerning land use compatibility with TAC sources (ARB 2005). Although it is not a law or adopted policy, the Handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs—such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities—to help keep children and other sensitive populations out of harm's way. A number of comments on the Handbook were provided to ARB by air districts, other agencies, real estate representatives, and others. The comments included concern about whether ARB was playing a role in local land use planning, the validity of relying on static air quality conditions over the next several decades in light of technological improvements, and support for providing information that can be used in local decision making.

At the local level, air pollution control or management districts may adopt and enforce ARB control measures. Under SCAQMD Regulation XIV (Toxics and Other Non-Criteria Pollutants), and in particular Rule 1401 (New Source Review), all sources that possess the potential to emit TACs are required to obtain permits from SCAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. SCAQMD limits emissions and public exposure to TACs through a number of programs. SCAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

4.3 ODORS

SCAQMD has identified some common types of facilities that have been known to produce odors: agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting operations, refineries, landfills, rendering plants, dairies, rail yards, and fiberglass molding operations. This list is not meant to be entirely inclusive, but to act as general guidance. Because offensive odors rarely cause any physical harm and no requirements for their control are included in federal or state air quality regulations, SCAQMD does not have rules or standards related to odor emissions other than Rule 402 (Nuisance) and Rule 410 (Odors from Transfer Stations and Material Recovery Facilities). Any actions related to odors are based on citizen complaints to local governments and SCAQMD.

Two situations increase the potential for odor problems. The first occurs when a new odor source is located near existing sensitive receptors. The second occurs when new sensitive receptors are developed near existing sources of odor. In the first situation, SCAQMD recommends operational changes, add-on controls, process changes, equipment relocation, or changes in stack heights where feasible to address odor complaints. In the second situation, the potential conflict is considered significant if the project site is at least as close as any other site that has already experienced significant odor problems related to the odor source. For projects locating near a source of odors, and for odor sources locating near existing sensitive receptors, SCAQMD recommends that the determination of potential conflict be based on variables such as wind speed, wind direction, and the distance and frequency at which odor complaints from the public have occurred in the vicinity of the facility (SCAQMD 1993).

4.4 GREENHOUSE GASES (GHGS)

Numerous federal, state, regional, and local laws, rules, regulations, plans, and policies define the framework that regulates or will potentially regulate climate change. The following discussion focuses on climate change requirements applicable to the proposed project.

4.4.1 Federal Plans, Policies, Regulations, and Laws

Supreme Court Ruling

EPA is the federal agency responsible for implementing the federal CAA. The U.S. Supreme Court ruled on April 2, 2007, that CO_2 is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs. However, there are no Federal regulations or policies regarding GHG emissions applicable to the proposed project.

EPA Proposed Regulations

EPA has taken actions to regulate, monitor, and potentially reduce GHG emissions. Although both actions discussed below are still in the proposal stage, they would have implications on the regulation, monitoring, and reduction of GHG emissions from stationary and mobile sources.

Proposed Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, EPA issued a final rule for mandatory reporting of GHGs from large GHG emissions sources in the United States. In general, this national reporting requirement will provide EPA with accurate and timely GHG emissions data from stationary facilities that emit 25,000 metric tons or more of CO_2 per year. This publically available data will allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost effective opportunities to reduce emissions in the future. Reporting is at the facility level, except that certain suppliers of fossil fuels and industrial GHGs, and vehicle and engine manufacturers will report at the corporate level. An estimated 85% of the total U.S. GHG emissions from approximately 10,000 facilities are covered by this final rule.

Endangerment Finding for Greenhouse Gases under the Clean Air Act

On December 7, 2009, EPA adopted its Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA (Endangerment Finding). The Endangerment Finding is based on Section 202(a) of the CAA, which states that the administrator (of EPA) should regulate and develop standards for "emission[s] of air pollution from any class or classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution that may reasonably be anticipated to endanger public health or welfare." The rule addresses Section 202(a) in two distinct findings. The first addresses whether the concentrations of the six key GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations. The second addresses whether the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and, therefore, contribute to the threat of climate change.

The administrator of EPA found that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CAA. The evidence supporting this finding consists of human activity resulting in "high atmospheric levels" of GHG emissions, which are likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wild fires, droughts, sea level rise, higher intensity storms) are a threat to the public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations.

The administrator of EPA also found that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHGs fit within the CAA definition of air pollutants. The findings do not in and of themselves impose any emission-reduction requirements but, rather, allow EPA to finalize the GHG standards proposed earlier in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation.

4.4.2 State Plans, Policies, Regulations, and Laws

ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the CCAA, which was adopted in 1988. Various statewide and local initiatives to reduce the state's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way, and there is a real potential for severe adverse environmental, social, and economic effects in the long term. Because every nation emits GHGs and, therefore, makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of

GHG emissions to a level that can help to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Assembly Bill 1493 (2002)

In 2002, then-Governor Gray Davis signed AB 1493. AB 1493 requires that ARB develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is noncommercial personal transportation in the state."

To meet the requirements of AB 1493, in 2004, ARB approved amendments to the California Code of Regulations (CCR) adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1) require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily for the transportation of persons), beginning with the 2009 model year. For passenger cars and light-duty trucks with a loaded vehicle weight (LVW) of 3,750 pounds or less, the GHG emission limits for the 2016 model year are approximately 37% lower than the limits for the first year of the regulations, the 2009 model year. For light-duty trucks with LVW of 3,751 pounds to gross vehicle weight (GVW) of 8,500 pounds, as well as medium-duty passenger vehicles, GHG emissions would be reduced approximately 24% between 2009 and 2016.

On September 15, 2009, EPA and the Department of Transportation's National Highway Safety Administration (NHTSA) proposed a national program to reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States. The combined EPA and NHTSA standards that make up the proposed national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, equivalent to 35.5 miles per gallon (MPG) if the automobile industry were to meet this CO_2 level solely through fuel economy improvements. Under the proposed national program, automobile manufacturers would be able to build a single light-duty national fleet that satisfies all requirements under both the national program and the standards of California and other states, while ensuring that consumers still have a full range of vehicle choices. To promote the adoption of the national program, ARB has adopted amendments to the GHG emissions standards for new passenger vehicles from 2009 through 2016.

Executive Order S-3-05 (2005)

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Mountain's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80% below the 1990 level by 2050.

Assembly Bill 32, California Global Warming Solutions Act of 2006

In September 2006, Governor Arnold Schwarzenegger signed AB 32, the California Global Warming Solutions Act of 2006 (See Stats. 2006, ch. 488, enacting Health & Safety Code, Sections 38500–38599.) AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs ARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if AB 1493 regulations cannot be implemented, then ARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires that ARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves the reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

AB 32 Climate Change Scoping Plan

In December 2008, ARB adopted its Climate Change Scoping Plan (Scoping Plan), which contains the main strategies California will implement to achieve reduction of approximately 169 million metric tons (MMT) of CO_2e, or approximately 30% from the state's projected 2020 emission level of 596 MMT of CO_2e under a business-as-usual scenario (this is a reduction of 42 MMT CO_2e, or almost 10%, from 2002–2004 average emissions). The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of the state's GHG inventory. The Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e),
- the Low-Carbon Fuel Standard (15.0 MMT CO_2e),
- energy efficiency measures in buildings and appliances and the widespread development of combined heat and power systems (26.3 MMT CO_2e), and
- a renewable portfolio standard for electricity production (21.3 MMT CO_2e).

Senate Bill 97

Senate Bill (SB) 97, signed August 2007, directs the California Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010. On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the State CEQA Guidelines for GHG emissions, as required by SB 97. On February 16, 2010, the Office of Administrative Law (OAL) approved the amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The amendments became effective on March 18, 2010.

Executive Order S-01-07 (2007)

Executive Order S-1-07, which was signed by Governor Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, at more than 40% of statewide emissions. It establishes a goal that the carbon intensity of transportation fuels sold in California should be reduced by a minimum of 10% by 2020. This order also directed ARB to determine if this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early action measure after meeting the mandates in AB 32. ARB adopted the LCFS on April 23, 2009.

Senate Bill 375 (2008)

SB 375 was established to require regional transportation planning agencies to meet the goals of AB 32, create regional targets for GHG emissions reductions tied to land use, align regional transportation and housing planning, and create CEQA exemptions for projects that conform to the new regional plans.

Senate Bill 7 (2009)

SB 7 mandates the state to achieve a 20% reduction in urban per capita water use by 2020. The state is required to make incremental progress towards this goal by reducing per capita water use by at least 10% by 2015. SB 7 requires each urban retail water supplier to develop both long-term urban water use targets and an interim urban water use target. SB 7 also creates a framework for future planning and actions for urban and agricultural users to reduce per capita water consumption 20% by 2020.

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SECTION 5.0
EXISTING CONDITIONS

5.1 ENVIRONMENTAL SETTING

The project area is located within the Basin, a 6,600-square-mile coastal plain bounded by the Pacific Ocean to the southwest and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The Basin includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. The ambient concentrations of air pollutants are determined by the amount of emissions released by sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources, as discussed separately below.

Topography, Meteorology, and Climate

The distinctive climate of the Basin is determined by its terrain and geographic location. The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the southwest and high mountains around the rest of its perimeter. The general region lies in the semipermanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climatological pattern is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds.

Winds in the project area are usually driven by the dominant land/sea breeze circulation system. Regional wind patterns are dominated by the daytime onshore sea breezes. At night, the wind generally slows and reverses direction, traveling toward the sea. Local canyons can also alter wind direction, with wind tending to flow parallel to the canyons.

The vertical dispersion of air pollutants in the Basin is hampered by the presence of persistent temperature inversions. High-pressure systems, such as the semipermanent high-pressure zone in which the Basin is located, are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler, marine-influenced air near the ground surface, and resulting in the formation of subsidence inversions. Such inversions restrict the vertical dispersion of air pollutants released into the marine layer and, together with strong sunlight, can produce worst-case conditions for the formation of photochemical smog. The Basinwide occurrence of inversions at 3,500 feet amsl or less averages 191 days per year (SCAQMD 1993).

The atmospheric pollution potential of an area is largely dependent on winds, atmospheric stability, solar radiation, and terrain. The combination of low wind speeds and low inversions produces the greatest concentration of air pollutants. On days without inversions, or on days of winds averaging faster than 15 miles per hour (mph), smog potential is greatly reduced.

5.2 MONITORING STATION DATA AND ATTAINMENT DESIGNATIONS

Criteria air pollutant concentrations are measured at 37 monitoring stations in the Basin. The project area is located in Source Receptor Area (SRA) 1 – Central Los Angeles County. The most representative monitoring station in the project area is the Los Angeles – North Main Street, located less than 1,000 feet south of the project site. The North Main Street monitoring station reports data for ozone, CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. Table 2 summarizes the air quality data from this station for the most recent 3 years.

Both ARB and EPA use this type of monitoring data to designate the attainment status of areas for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. If an area is designated from nonattainment to attainment for a criteria air pollutant, it needs to demonstrate the maintenance of the redesignation through a maintenance plan. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment.

The Basin is currently classified as a federal nonattainment area for ozone (extreme), PM_{10} (serious), and the $PM_{2.5}$ standard, and a federal attainment/maintenance area for CO (EPA 2009b). The Basin is classified as a state nonattainment area for ozone, PM_{10}, and $PM_{2.5,}$ and an attainment area for CO. The Basin currently meets the federal and state standards for NO_2, SO_2, and lead, and is classified as an attainment area for these pollutants (ARB 2009c).

Table 2
Los Angeles – North Main Street Monitoring Station – Ambient Air Quality

Pollutant	Averaging Time	Federal Primary Standards	California Air Quality Standards	Maximum Concentrations[1]			Number of Days Exceeding Federal Standard[2]			Number of Days Exceeding State Standard[2]		
				2008	2009	2010	2008	2009	2010	2008	2009	2010
Ozone	1 hour	0.12 ppm[3]	0.09 ppm	0.109	0.139	0.098	0	1	0	3	3	1
	8 hour	0.075 ppm	0.070 ppm	0.090	0.100	0.080	3	2	1	6	5	1
Carbon Monoxide	1 hour	35 ppm	20 ppm	3	*	–	0	*	–	0	*	–
	8 hour	9 ppm	9.0 ppm	1.96	2.17	2.32	0	0	0	0	0	0
Sulfur Dioxide	24 hours	0.14 ppm	0.04 ppm	0.003	0.002	0.002	0	0	0	0	0	0
	Annual	0.030 ppm	none	0.000	0.000	0.000	0	0	0	–	–	–
Nitrogen Dioxide	1 hour	0.100 ppm	0.18 ppm	0.122	0.115	0.089	–	–	–	0	0	0
	Annual	0.053 ppm	0.030 ppm	0.027	0.028	0.025	0	0	0	0	0	0
PM_{10}[4]	24 hours	150 $\mu g/m^3$	50 $\mu g/m^3$	66.0	72.0	42.0	0	0	0	2	4	*
	Annual	Revoked	20 $\mu g/m^3$	24.0	33.1	27.1	–	–	–	–	–	–
$PM_{2.5}$	24 hours	35 $\mu g/m^3$	none	78.3	61.6	48.6	10	7	5	0	0	0
	Annual	15 $\mu g/m^3$	12 $\mu g/m^3$	16.0	14.4	12.6	–	–	–	–	–	–

"–" = data not available or applicable.
"*" = there were insufficient data to determine the value.
(1) Concentration units for ozone, carbon monoxide, and nitrogen dioxide are in parts per million (ppm). Concentration units for PM_{10} and $PM_{2.5}$ are in micrograms per cubic meter ($\mu g/m^3$).
(2) For annual standards, a value of 1 indicates that the standard has been exceeded.
(3) The federal 1-hour ozone standard was revoked in June 2005.
(4) PM_{10} data are recorded separately for federal and state purposes because the EPA and California methods are slightly different. Federal values are shown. PM_{10} is measured every 6 days; the number of days exceeding standards is projected to a 365-day base from the measurements.
Sources: ARB 2010c; SCAQMD 2009a

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SECTION 6.0
PROJECT AIR QUALITY IMPACTS

6.1 ANALYSIS METHODOLOGY

Criteria Air Pollutant Emissions

The project's construction-generated emissions of criteria air pollutants and ozone precursors were assessed in accordance with methods recommended by SCAQMD. Where quantification is required, emissions were modeled using the URBEMIS 2007 Version 9.2.4 computer program (Rimpo and Associates 2008). URBEMIS was used to determine whether construction-related emissions of criteria air pollutants associated with the proposed project would exceed applicable thresholds and where mitigation would be required. URBEMIS modeling was based on project-specific data, when available. However, when project-specific information (e.g., amount of land to be disturbed/graded per day, types of equipment to be used, number of construction employees) was not available, reasonable assumptions and default settings in URBEMIS were used to estimate criteria air pollutant and ozone precursor emissions. A detailed list of modeling assumptions is provided in Appendix A. Predicted construction-generated emissions were compared with applicable SCAQMD thresholds for determining significance.

The project's operational emissions of criteria air pollutants and precursors, including mobile- and area-source emissions, were also quantified using the URBEMIS computer model (Rimpo and Associates 2008). It was assumed that full buildout of the proposed project would occur in 2030 and the first phase of project improvements would be completed in 2014. Area-source emissions were modeled according to the size and type of on-site uses proposed under the proposed project. Mobile-source emissions were modeled based on the net increase in daily vehicle trips that would result from full buildout of the proposed project. Project trip generation rates were available from the transportation impact analysis prepared for the project (Fehr & Peers 2011). Predicted project operational emissions were compared with applicable SCAQMD thresholds for determining significance.

TAC Emissions

At this time, SCAQMD has not adopted a methodology for analyzing short-term construction-related emissions of TACs and/or exposure to short-term construction-related TACs. Therefore, construction-related emissions of TACs were assessed in a qualitative manner.

The ARB Handbook provides guidance concerning land use compatibility with sources of TAC emissions (ARB 2005). The Handbook offers recommendations for the siting of sensitive receptors near uses associated with TACs such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities. The Handbook is advisory and not regulatory, but it offers the recommendation identified below that is pertinent to the proposed project:

- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads carrying 100,000 vehicles per day, or rural roads carrying 50,000 vehicles per day.

The land use compatibility with TAC-generating traffic volumes on area roadways is assessed according to guidance provided by ARB's Handbook. It is important to note that ARB's Handbook is considered screening-level guidance and does not contain recommended thresholds of significance.

All other air quality impacts (i.e., local mobile-source emissions, exposure of sensitive receptors to TACs, and odorous emissions) were assessed in accordance with methodologies recommended by SCAQMD.

GHG Emissions

At the time of writing, neither ARB nor SCAQMD has formally adopted a recommended methodology for evaluating GHG emissions associated with new development. Pursuant to full disclosure and according to OPR's CEQA Guidelines that state, "A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project," the construction and operational emissions associated with the proposed project have been quantified using methods described below.

Construction-related GHG emissions were estimated using similar methodology to that described above for criteria air pollutants. URBEMIS 2007 Version 9.2.4 also estimates CO_2 emissions associated with construction-related GHG sources such as off-road construction equipment, material delivery trucks, soil haul trucks, and construction worker vehicles (Rimpo and Associates 2008).

Operational emissions of GHGs, including GHGs generated by direct and indirect sources, are estimated according to the recommended methodologies from ARB and CCAR. Direct sources include emissions such as vehicle trips, natural gas consumption, and landscape maintenance. Indirect sources include off-site emissions occurring as a result of the project's operations such as electricity and water consumption. Direct emissions associated with area and mobile sources were estimated using URBEMIS2007 (Rimpo and Associates 2008). Modeling was based on project-specific data and vehicle trip information from the transportation impact analysis prepared for the Project (Fehr & Peers 2011).

Indirect emissions associated with energy consumption were estimated using electricity consumption rates at similar facilities. GHG emission factors associated with electricity production were obtained from the CCAR General Reporting Protocol (CCAR 2009). Indirect GHG emissions associated with the consumption of water were calculated based on the estimated level of electricity required to convey, treat, and distribute the project's estimated water usage and the aforementioned emission factors for electricity production from CCAR. Water demand for the project was obtained from the Bay Area Air Quality Management District's (BAAQMD's) estimate of water consumption for a similar facility (BAAQMD GHG Model [BGM]) in the absence of information from SCAQMD. The project site, although not part of the Los Angeles River channel, is located nearby and at a higher elevation. It is anticipated that the river will be utilized as a water source for the proposed wetland and riparian interpretive area on the project site and water would be piped onto the site from a location upstream (CSP 2008). Electricity use associated with water consumption was estimated using an electricity consumption rate from the California Energy Commission's (CEC's) Refining Estimates of Water-Related Energy Use in California report (CEC 2007).

The methodology used in this report to analyze the proposed project's contribution to global climate change includes a calculation of GHG emissions and a discussion about the context in which they can be evaluated. The purpose of calculating the project's GHG emissions is for informational and comparison purposes, as neither ARB nor SCAQMD have adopted a quantifiable threshold for evaluating whether project-generated GHGs would be considered a significant impact.

6.2 THRESHOLDS OF SIGNIFICANCE

Criteria Air Pollutants and TAC Thresholds

The thresholds for determining the significance of impacts for this analysis are based on the environmental checklist in Appendix G of the State CEQA Guidelines and guidance from SCAQMD. The proposed project would result in a significant impact related to air quality if it would do any of the following:

- conflict with or obstruct implementation of the applicable air quality plan,

- violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable NAAQS or CAAQS (including releasing emissions that exceed quantitative thresholds for ozone precursors),
- expose sensitive receptors to substantial pollutant concentrations, or
- create objectionable odors affecting a substantial number of people.

As stated in Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. SCAQMD has established thresholds, as shown in Table 3.

Table 3
SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds [a]		
Pollutant	**Construction [b]**	**Operation [c]**
NO_X	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_X	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

Toxic Air Contaminants (TACs) and Odor Thresholds	
TACs (including carcinogens and noncarcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Hazard Index ≥ 1.0 (project increment)
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402
Ambient Air Quality for Criteria Pollutants [d]	
NO_2 1-hour average annual average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state)
PM_{10} 24-hour average annual average	 $10.4\ \mu g/m^3$ (construction)[e] & $2.5\ \mu g/m^3$ (operation) $1.0\ \mu g/m^3$
$PM_{2.5}$ 24-hour average	 $10.4\ \mu g/m^3$ (construction)[e] & $2.5\ \mu g/m^3$ (operation)

Sulfate 24-hour average	1 μg/m^3
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) 9.0 ppm (state/federal)

[a] Source: SCAQMD 2009b
[b] Construction thresholds apply to both the South Coast Air Basin and Coachella Valley (Salton Sea Air Basin and Mojave Desert Air Basin).
[c] For Coachella Valley, the mass daily thresholds for operation are the same as the construction thresholds.
[d] Ambient air quality thresholds for criteria pollutants are based on SCAQMD Rule 1303, Table A-2 unless otherwise stated.
[e] Ambient air quality threshold is based on SCAQMD Rule 403.

KEY: lbs/day = pounds per day
ppm = parts per million
μg/m^3 = micrograms per cubic meter
≥ greater than or equal to

GHG Thresholds

ARB and SCAQMD have not identified a significance threshold for analyzing GHG emissions associated with land use development projects such as the proposed project, or a methodology for analyzing impacts related to GHG emissions or global climate change. By adopting AB 32, the state identified GHG emission-reduction goals and the effect of GHG emissions as they relate to global climate change. While the emissions of one single project will not cause global climate change, GHG emissions from multiple projects throughout the world could result in a cumulative impact with respect to global climate change.

To meet AB 32 goals, California would need to generate less GHG emissions than current levels. It is recognized, however, that for most projects, there is no simple metric available to determine if a single project would substantially increase or decrease overall GHG emission levels.

Although AB 32 did not amend CEQA, it identifies the myriad of environmental problems in California caused by global warming (California Health and Safety Code, Section 38501[a]). SB 97, however, did amend CEQA by directing OPR to prepare revisions to the State CEQA Guidelines addressing the mitigation of GHGs or their consequences. As an interim step toward development of required guidelines, in June 2008, OPR published a technical advisory, entitled *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review* (OPR 2008). In this technical advisory, OPR recommends that the lead agencies under CEQA make a good-faith effort, based on available information, to estimate the quantity of GHG emissions that would be generated by a proposed project, including the emissions associated with vehicular traffic, energy consumption, water usage, and construction activities, to determine whether the impacts have the potential to result in a project or cumulative impact, and to mitigate the impacts where feasible mitigation is available.

OPR's technical advisory also acknowledges that "perhaps the most difficult part of the climate change analysis will be the determination of significance," and noted that "OPR has asked ARB technical staff to recommend a method for setting thresholds which will encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the state." ARB has not yet completed this task at the time of writing this report.

OPR provided amendments to the State CEQA Guidelines, including Appendix G, to address impacts of GHG emissions, as directed by SB 97 (2007). These amendments were approved by the California Natural Resources Agency (CNRA) on December 30, 2009, and were codified in the California Code of Regulations on March 18, 2010. The thresholds for determining the significance of the impact of projected GHG emissions generated by the project for this analysis are based on OPR's additions to Appendix G of the State CEQA Guidelines, as follows:

The proposed project would result in a significant adverse impact related to GHG emissions if it would do the following:

- Generate GHG emissions, either directly or indirectly, that may have a significant effect on the environment
- Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs

Due to the lack of a numerical threshold established by SCAQMD or ARB, the following thresholds are used to provide context:

- Facilities (i.e., stationary, continuous sources of GHG emissions) that generate greater than 25,000 metric tons of CO_2 per year are mandated to report their GHG emissions to ARB pursuant to AB 32 and EPA's General Reporting Protocol.
- Stationary sources that generate greater than 10,000 metric tons of CO_2 per year may be required to participate in the cap-and-trade program through the Western Climate Initiative.
- SCAQMD's significance screening level of 3,000 metric tons of CO_2 per year (SCAQMD 2010).

- BAAQMD significance threshold for operational emissions of 1,100 metric tons CO_2e per year in its adopted Air Quality Guidelines (BAAQMD 2010).

This information is presented for informational purposes only and it is not the intention of the lead agency to adopt any of the above-listed emission levels as a numeric threshold. Rather, the purpose is to put the proposed project's GHG emissions in the appropriate statewide context in order to evaluate whether the project's contribution to the global impact of climate change would have a significant impact on the environment.

6.3 IMPACT ANALYSIS

6.3.1 Regional Impacts

Construction Emissions

Construction emissions are considered short-term and temporary in duration but have the potential to represent a significant impact with respect to air quality. PM_{10} and $PM_{2.5}$ are among the pollutants of greatest localized concern with respect to construction activities. Particulate emissions from construction activities can lead to adverse health effects and nuisance concerns such as reduced visibility and soiling of exposed surfaces. Particulate emissions can result from a variety of construction activities, including excavation, grading, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction emissions of particulate matter can vary greatly depending on the level of activity, the specific operations taking place, the number and types of equipment operated, local soil conditions, weather conditions, and the amount of earth disturbance (e.g., site grading, excavation, cut-and-fill).

Emissions of ozone precursors, ROG and NO_X, are primarily generated from mobile sources and vary as a function of vehicle trips per day associated with delivery of construction materials, importing and exporting soil, vendor trips, and worker commute trips, and the types and number of heavy-duty, off-road equipment used and the intensity and frequency of their operation. A large portion of construction-related ROG emissions also result from the application of asphalt and architectural coatings and vary depending on the amount of coatings and paving applied each day.

A detailed schedule describing the timing and location of construction activities associated with the proposed project is not available at the time of this writing. Due to the current economic conditions, the proposed project will be built in phases. The first phase would allow LASHP to become fully functional and lay the foundation for work deferred to future phases. It was assumed that buildout of the proposed project would likely begin with a revenue-creating project, such as the large amphitheater. Worst-case emissions were estimated for construction of the celebratory plaza, welcome pavilion/restrooms, two driveways, permeable parking and overflow parking to represent the maximum intensity of construction that could occur. Construction of these uses was assumed to overlap to account for the worst day for comparison with SCAQMD's daily thresholds. The on-site uses analyzed represent the most construction-intensive development anticipated under the proposed project. It is anticipated that construction emissions associated with future phases would be less than or similar to those of Phase 1 improvements.

Project-generated emissions were modeled based on information provided in Section 2.2 "Project Description". Where specific information was not known, engineering judgment and default URBEMIS settings and parameters were used. Compliance with SCAQMD rules is required; specifically, it is assumed that the construction would be performed in accordance with Rule 403, Fugitive Dust, and Rule 1113, Architectural Coatings. Therefore, emissions reductions consistent with those Rules have been included in the estimate of construction emissions. The required actions of Rules 403 and 1113 are discussed in Section 7.0 of this report as Standard Conditions AIR-1 and AIR-2.

Table 4 summarizes the modeled emissions for the proposed project's construction phases. Construction-related air quality impacts were determined by comparing these modeling emissions with applicable SCAQMD significance thresholds. Refer to Appendix A of this report for detailed modeling assumptions, input parameters, and results.

Table 4
Estimated Construction-Related Daily Emissions of Criteria Air Pollutants and Precursors (Unmitigated)

Phase (Year)	**Emissions Pounds Per Day (lb/day)**				
	VOC	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Celebratory Plaza					
2013					
Mass Grading	2.80	23.27	12.98	20.86	4.75
Fine Grading	2.58	20.61	11.94	20.80	4.70
Welcome Pavilion/Restrooms, Two Driveways, Permeable Parking					
2013					
Demolition	1.39	10.42	6.70	21.15	5.01

Grading[1]	2.80	23.27	12.98	20.86	4.75
Trenching	1.25	9.75	4.65	0.54	0.50
Construction[2]	2.70	9.34	32.03	0.93	0.75
Architectural Coating	4.87	0.00	0.04	0.00	0.00
2014					
Asphalt Paving	5.08	44.91	22.83	2.20	2.01
Overflow Parking					
2014					
Grading	2.80	23.27	12.98	20.86	4.75
Construction	2.46	8.78	30.15	0.86	0.69
Worst-Case Total Daily Emissions (Unmitigated) - 2013	*6.62*	*53.64*	*32.03*	*83.86*	*19.38*
Worst-Case Total Daily Emissions (Unmitigated) - 2014	*12.41*	*53.69*	*53.02*	*3.06*	*2.70*
SCAQMD Significance Threshold; see Table 4	***75***	***100***	***550***	***150***	***55***
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**

[1] Includes grading for the celebratory plaza
[2] Includes construction of the concrete sidewalk for the celebratory plaza
It was assumed that construction of the overflow parking would begin after construction of the other project components is completed.
Worst-case totals may not appear as the sum of applicable phases due to rounding.
Calculations assume compliance with SCAQMD Rules 403 and 1113; see Standard Conditions AIR-1 and AIR-2.
Refer to Appendix A for detailed assumptions and modeling output files.
Source: Data modeled by AECOM 2011.

Based on the modeling conducted, the proposed project's construction-related activities would not result in criteria air pollutant and ozone precursor emissions that exceed SCAQMD's significance thresholds. Worst-case daily emissions from construction of future phases would not be expected to exceed the emissions reported in Table 4 since Phase 1 represents the most development-intense phase based on the uses anticipated on-site. Thus, project-generated construction-related emissions of criteria air pollutants and precursor emissions would not violate or contribute substantially to an existing or projected air quality violation. In addition, compliance with SCAQMD Rule 403 will ensure that onsite dust emissions would not be allowed to disperse beyond the project's boundary. As a result, construction-generated emissions would be ***less than significant***.

Operational Emissions

Operation of the proposed project would result in long-term regional emissions of criteria air pollutants and ozone precursors associated with area sources such as landscaping, applications of architectural coatings, and consumer products, in addition to operational vehicle-exhaust emissions. According to the transportation impact analysis, full buildout of the proposed project would result in approximately 640 additional vehicle trips per day (Fehr & Peers 2011).

Operations emissions were modeled using URBEMIS (Rimpo and Associates 2008), as recommended by SCAQMD. Modeled operations emissions for the proposed project are presented in Table 5. Refer to Appendix A for a detailed summary of the URBEMIS modeling assumptions, inputs, and outputs.

Based on the modeling conducted, and as summarized in Table 5, implementation of the proposed project would not result in long-term regional emissions of criteria air pollutants or ozone precursors that exceed SCAQMD's applicable thresholds. Operational area- and mobile-source emissions of criteria air pollutants and ozone precursors for the proposed project would not result in or substantially contribute to emissions concentrations that exceed the NAAQS or CAAQS.

Table 5
Estimated Project-Generated Operations Emissions

Source	**Emissions Pounds Per Day (lbs/day)**				
	ROG	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**
Area Sources	0.12	0.02	1.55	0.01	0.01
Mobile Sources	1.87	2.13	19.46	10.02	1.94
Total Emissions	**1.87**	**2.13**	**21.01**	**10.03**	**1.95**
SCAQMD Significance Threshold; see Table 4	***55***	***55***	***550***	***150***	***55***
Exceeds Threshold?	*No*	*No*	*No*	*No*	*No*

Bold indicates an exceedance of SCAQMD CEQA significance thresholds.
Totals may not add due to rounding.
Maximum daily emissions of VOC, NO_X, PM_{10}, and $PM_{2.5}$ occur in winter; maximum daily emissions of CO occur in summer. Total emissions shown are the maximum during a particular season and may not be a direct sum of are source and mobile source emissions.
Refer to Appendix A for detailed assumptions and modeling output files.
Source: Data modeled by AECOM 2010.

Consistency with AQMP

In preparation of the AQMP, SCAQMD and SCAG use land use designations contained in General Plan documents to forecast, inventory, and allocate regional emissions from land use and development-related sources. For purposes of analyzing consistency with the AQMP, it may be assumed that if a proposed project would have vehicle trip generation substantially greater than anticipated in the General Plan, then the proposed project would conflict with the AQMP.

From a planning perspective, the LASHP is within the Central City North Community Plan Area of the *City of Los Angeles General Plan* Land Use Element, the Draft CASP area, and the Los Angeles River Revitalization Master Plan area. The Central City North Community Plan designates the site as Industrial; however, it is expected that, once adopted, the CASP designations for the site would become effective.

The 663-acre Draft CASP area is located just 1 mile north of downtown Los Angeles and includes the communities of Lincoln Heights, Cypress Park, and Chinatown, including the areas around the Chinatown and Lincoln/Cypress Metro Gold Line stations. The purpose of the Draft CASP is to facilitate the transformation of the area from vehicle-oriented and primarily industrial uses to a pedestrian and multi-modal-oriented mixed-use community that would ultimately accommodate 10,000 residential units and 24.7 million square feet of light industrial and commercial space. Within the Draft CASP, the LASHP is commonly referred to as the “Cornfield” or the “Cornfields Rail Yard.”

The Draft CASP designates the LASHP and the strip of land between the Gold Line and North Broadway as “Greenway.” The Greenway designation is for recreation or open space, with linkages to Elysian Park, Taylor Yards, and Griffith Park. The AQMP relies on currently adopted General Plans and Community Plans for its emissions forecast. Therefore, the AQMP assumptions would assess the proposed project site as an industrial use based on its current designation in the Central City North Community Plan. The project site’s designation of Greenway would be in effect once the CASP is adopted. In addition, the proposed project represents the design footprint of the long-term vision under the adopted General Plan for LASHP. The trip generation rates for industrial land uses are much higher than for open space/recreational uses, including a high percentage of heavy-duty truck traffic. Therefore, the proposed project’s trip generation rate would be lower than what was assumed in the AQMP.

Thus, the proposed project would not conflict with air quality planning efforts in the Basin. In addition, operational area- and mobile-source emissions from implementation of the proposed project would not result in or substantially contribute to emissions concentrations that exceed the NAAQS or CAAQS. As a result, this impact is considered ***less than significant***.

Special Events

At project buildout, the LASHP would continue to host special events that would attract individuals from outside of the area. As many as four daytime/evening/nighttime special events per year are expected with attendance of up to 25,000 people. Smaller events of 500 to 5,000 people are expected to occur monthly at the LASHP.

Evening special events are expected to include live and recorded music concerts and classical symphony orchestras with the potential for fireworks and would require a special event permit from the California Department of Parks and Recreation (CDPR). Special events have the potential to impact air quality due to additional traffic from the increased number of visitors and fireworks.

As shown in Table 5, the project's operational emissions are significantly lower than SCAQMD's daily thresholds. The smaller special events of 500 to 5,000 people would not increase vehicle trips to a level above average daily attendance that would cause an exceedance of SCAQMD's thresholds. The occasional increase in congestion that may result from a large special event at the LASHP may require traffic mitigation through the implementation of improved traffic management. Los Angeles Police Department (LAPD) personnel and traffic control officers may be required, in the future, to provide sufficient level of traffic management needed by such an event. In addition, collaboration with the City of Los Angeles Department of Transportation (LADOT), California Department of Transportation (Caltrans), and the California Highway Patrol may also be required. CDPR will be responsible for creating a traffic management plan for special events, and for approving any and all modifications to the plan by the individual event organizer.

The project's transportation impact analysis lists a series of mitigation measures that can form the framework of a Traffic Management Plan (Fehr & Peers 2011). These measures must be used together to combat the additional traffic generated by the special events at the LASHP. They are designed to work together to have a maximum effect on mitigating the impacts of a planned event. A potential measure that would reduce vehicle trips to the LASHP includes providing incentives for carpooling during a special event. Carpooling would be encouraged through the public information program associated with the event. Similar information about mass transit options such as the Gold Line, buses, and bicycles would also be disseminated through the public information program for the special event. Such measures have been shown to be successful at the LASHP in the past. For example, the park held a concert where the promoter offered discount tickets to visitors using a bicycle to attend the event. The incentive resulted in approximately 5,000 visitors using their bikes to attend the event. Therefore, it is likely that not all of the 25,000 park visitors would attend the special event using single occupancy vehicles. Even if daily trips during a special event were 25-30 times the average daily trips generated at the LASHP, SCAQMD's daily thresholds would not be exceeded. It is unlikely that daily trips would reach this level given that multiple park visitors are likely to walk, bike, carpool, or take mass transit to attend the special events. In addition, large special events are expected to occur only 4 times per year.

SCAQMD prepared a White Paper on regulations affecting fireworks in the Basin (SCAQMD 2004). With respect to emissions from fireworks and pyrotechnic displays, Rule 401 – Visible Emissions and State Health and Safety Code 41701 prohibit a person from discharging into the atmosphere visible emissions, from any single source for any period aggregating more than 3 minutes in any 1 hour, which are as dark or darker in shade as that designated Number 1 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to a degree equal to or greater than smoke of 20% opacity. There is no exemption for fireworks or pyrotechnics displays contained in the Rule. However, as summarized in the White Paper, although aerial and ground fireworks displays may include bursts of smoke from exploding pyrotechnic materials, it is difficult to properly apply EPA Method Nine, which is the appropriate visible emissions evaluation method, to the sources. SCAQMD field inspectors have been unsuccessful in applying EPA Method Nine due to the height and duration of emissions, their distance and angle from the plume and the evening hours when the fireworks displays occur. As such, no violation of SCAQMD Rule 401 has ever been established in the Basin due to fireworks displays (SCAQMD 2004). Emissions from fireworks would be instantaneous and intermittent and would not lead to result in or substantially contribute to emissions concentrations that exceed the NAAQS or CAAQS. Air quality impacts during a special event would be ***less than significant***.

6.3.2 Toxic Air Contaminant Emissions

Construction-Related TAC Emissions

The proposed project would result in short-term emissions of diesel exhaust from heavy-duty construction equipment. Diesel PM was identified as a TAC by ARB in 1998. Construction activities would result in the generation of diesel PM emissions from the use of off-road diesel equipment required for site grading and excavation, construction, paving, and other construction activities. According to ARB, the potential cancer risk from the inhalation of diesel PM, which is discussed below, outweighs the potential noncancer health impacts (ARB 2003).

It is important to note that emissions from construction equipment would be reduced over the period of buildout of the proposed project. In January 2001, EPA promulgated a final rule to reduce emissions standards for heavy-duty diesel engines in 2007 and subsequent model years. These emissions standards represent a 90% reduction in NO_X emissions, 72% reduction of nonmethane hydrocarbon emissions, and 90% reduction of particulate matter emissions in comparison to the emissions standards for the 2004 model year. In December 2004, ARB adopted a fourth phase of emission standards (Tier 4) in the Clean Air Non-road Diesel Rule that are nearly identical to those finalized by EPA on May 11, 2004. As such, engine manufacturers are now required to meet after-treatment-based exhaust standards for NO_X and PM starting in 2011 that are more than 90% lower than current levels, putting emissions from off-road engines virtually on par with those from on-road heavy-duty diesel engines.

More specifically, the dose to which receptors are exposed (a function of concentration and duration of the exposure period) is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the project (Salinas, pers. comm., 2004). Thus, because the use of off-road heavy-duty diesel equipment would be temporary, combined with the highly dispersive properties of diesel PM (Zhu et al. 2002) and further reductions in exhaust emissions due to EPA and ARB regulations, and that construction-related activities would be typical to similar development-type projects, construction-related TAC emissions would not expose sensitive receptors to substantial emissions of TACs. As a result, this impact would be **less than significant.**

Operations-Related TAC Emissions

The proposed project would not involve the development of any major stationary or area sources of emissions on-site. Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations.

The project site is located close to I-5, SR-110, I-10, and Highway 101 . Implementation of the proposed project would develop a recreational use that would be frequented by sensitive receptors. In April 2005, ARB published a guidance document entitled *Air Quality and Land Use Handbook: A Community Health Perspective*, which includes the recommendation to avoid siting new sensitive land uses within 500 feet of freeways, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day (ARB 2005). The project site is not located within 500 feet of I-5, SR-110, I-10, or U.S. 101. In addition, the projected 2035 average daily traffic volumes on the roadways adjacent to the project site are less than ARB's specified criteria (Fehr & Peers 2011). There are no major stationary sources of criteria air pollutants or TACs located within 2 miles of the project site. The MTA Gold Line is a light rail service that operates using electricity. The adjacent rail traffic would not expose sensitive receptors to criteria air pollutants or TACs. Therefore, the location of the proposed sensitive uses would be in concurrence with ARB recommendations.

SCAQMD's White Paper on fireworks also reviewed the Disneyland Resorts' AB 2588 Health Risk Assessment, which was updated in 1998 and in subsequent years to include all fireworks related activities conducted at the resort. The 1998 and 2000 assessments both indicated that the facility cancer risks and non-cancer hazard index values were well below any notification requirements of AB 2588 or SCAQMD's threshold levels. SCAQMD also conducted air sampling downwind of Disneyland Resort during firework display activities in 2002. The samples showed no exceedance of the State's Reference Exposure Levels (RELs). The volume of fireworks displays and use of pyrotechnic materials at the LASHP is likely to be much lower and less frequent than those at the Disneyland Resort. As such, it is reasonable to assume that any fireworks displays at the LASHP would not exceed applicable cancer risks and non-cancer hazard index thresholds.

Based on the findings in the ARB guidance document, it can be ascertained that the proposed project would not have the potential to expose sensitive receptors to TACs to an extent that health risks could result (ARB 2005). This impact is considered ***less than significant***.

6.3.3 Local Impacts

Operation-Related Local Carbon Monoxide Emissions

CO concentration is a direct function of motor vehicle activity (e.g., idling time and traffic flow conditions), particularly during peak commute hours, and meteorological conditions. Under specific meteorological conditions (e.g., stable conditions that result in poor dispersion), CO concentrations may reach unhealthy levels with respect to local sensitive land uses such as residential areas, schools, and hospitals. As a result, SCAQMD recommends project analysis of CO emissions at a local and a regional level.

An appropriate qualitative screening procedure for localized CO concentrations is provided in the procedures and guidelines contained in *Transportation Project-Level Carbon Monoxide Protocol* (the Protocol) to determine whether a project poses the potential to create a CO hotspot (UCD ITS 1997). A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. According to the Protocol, projects may worsen air quality if they increase the percentage of vehicles in cold start modes by 2% or more; significantly increase traffic volumes (by 5% or more) over existing volumes; or worsen traffic flow, defined for signalized intersections as increasing average delay at intersections operating at Level of Service (LOS) E or F or causing an intersection that would operate at LOS D or better without the project to operate at LOS E or F.

The project's transportation impact analysis (Fehr & Peers 2011) indicates that all signalized intersections that were analyzed would operate at LOS C or better under 2035 cumulative conditions with the project. In addition, the project would not lead to a significant increase in traffic volumes or percentage of vehicles in cold start mode, based on the transportation impact analysis. Congestion during special events would be managed through the preparation of a Traffic Management Plan. The Sacramento Metropolitan Air Quality Management District (SMAQMD) reports that CO hotspots are expected to occur at an intersection that experiences more than 31,600 vehicles per hour (SMAQMD 2009). Intersections affected by the proposed project are not anticipated to experience this level of traffic during a large special event. Therefore, project-generated local mobile-source CO emissions would not result in or substantially contribute to concentrations that exceed the 1-hour or 8-hour ambient air quality standards for CO. As a result, this impact would be ***less than significant***.

6.3.4 Odors

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

The exposure of sensitive receptors to odorous emissions from construction and operation of the proposed project is discussed under separate headings below.

Construction

Project construction activities associated with the development of on-site uses could result in odorous emissions from diesel exhaust generated by construction equipment. However, because of the temporary nature of these emissions and the highly diffusive properties of diesel exhaust (as discussed under Section 6.3.2), nearby receptors would not be affected by diesel exhaust odors associated with project construction. The impact would be ***less than significant***.

Operation

No common sources of nuisance odors, such as wastewater treatment facilities, waste-disposal facilities, or agricultural operations, are proposed as part of the proposed project. With regular maintenance, recreational land uses are typically not considered a major source of odors. Odors generated during fireworks displays would be temporary and would dissipate quickly. Therefore, the proposed project would not expose sensitive receptors to odors from on-site operations. As a result, this impact would be considered ***less than significant***.

6.3.5 Greenhouse Gases

Construction and operation of the proposed project would generate emissions of GHGs. Construction-related emissions would be generated from off-road equipment and on-road vehicle exhaust emissions. Operational emissions would be generated from vehicles trips to and from the proposed project, and area sources such as landscape maintenance equipment. In addition, the proposed project would consume electricity and water, both of which would generate GHG emissions associated with electricity production. The following analysis quantifies and evaluates the impact of the proposed project's construction emissions and direct and indirect operational emissions.

GHG emissions generated by the proposed project would predominantly be in the form of CO_2. While emissions of other GHGs, such as CH_4 and N_2O, are important with respect to global climate change, the emission levels of these other GHGs for the sources considered for this project are relatively small compared with CO_2 emissions. Table 6 shows the construction and operational GHG emissions associated with the proposed project.

As shown in Table 6, estimated GHG emissions from project construction would be approximately 700 metric tons of CO_2. Note that construction emissions are reported as a finite quantity, since construction would occur over a finite period of time. Estimated GHG emissions associated with operation of the proposed project would be approximately 1,000 metric tons per year. The proposed project's annual construction and operational emissions would be less than all of the thresholds presented in Section 6.2. This information is presented for informational purposes only and it is not the intention of the lead agency to adopt any of the above-listed emission levels as a numeric threshold. Rather, the purpose is to put the project's GHG emissions in the appropriate statewide context to evaluate whether the project's contribution to the global impact of climate change would have a significant impact on the environment. Thus, the project's GHG emissions fall well below all adopted levels above which the emissions could be considered substantial. It is concluded that the proposed project's GHG emissions would not have a significant impact, either directly or indirectly, on the environment and would not conflict with California's GHG-reduction goals or the strategies of AB 32. This impact would be ***less than significant***.

Table 6
Summary of Modeled Greenhouse Gas Emissions (CO_2e)

Source	CO_2e Emissions[1]
Construction Emissions (metric tons)	
2013	334
2014	349
Total Construction Emissions	**683**
Operational Emissions at Full Buildout (Year 2035) (metric tons/year)	
Area Sources	0.5
Mobile Sources	959
Electricity Consumption	46
Water Consumption	29
Total Operational Emissions	**1,035**

CO_2e = carbon dioxide equivalent

[1] The values presented do not include the full life cycle of GHG emissions that would occur over the production/transport of materials used during the construction of development envisioned under the project or used during the operational life of the project, solid waste that would be generated over the life of the project, or the end of life for the materials and processes that would occur as an indirect result of the project. Estimating the GHG emissions associated with these processes would be too speculative for meaningful consideration, would require analysis beyond the current state of the art in impact assessment, and may lead to a false or misleading level of precision in reporting operational GHG emissions. Furthermore, indirect emissions associated with in-state energy production and generation of solid waste would be regulated under AB 32 directly at the source or facility that would handle these processes. The emissions associated with off-site facilities in California would be closely controlled, reported, capped, and traded under AB 32 and California ARB programs, as recommended by ARB's Scoping Plan (ARB 2008a). Therefore, it is assumed that GHG emissions associated with these life-cycle stages would be consistent with AB 32 requirements.

Refer to Appendix B for detailed modeling assumptions.

Source: Modeling performed by AECOM in 2011

SECTION 7.0
MITIGATION MEASURES

The emissions of the proposed project would not exceed applicable significance thresholds; therefore, would not be significant, and would not require mitigation measures. However, measures to reduce and/or minimize project emissions are provided below.

7.1 CONSTRUCTION EMISSIONS

7.1.1 Dust Control

Standard Condition AIR-1. The following measures are required to reduce emissions of fugitive dust, including PM_{10} and $PM_{2.5}$, below SCAQMD thresholds. These measures are compliant with SCAQMD Rule 403 for Best Available Control Measures. Because these measures are required by rule, they are not mitigation measures in the context of CEQA.

- Land disturbance shall be minimized to the extent feasible.
- Haul trucks shall be covered when loaded with fill.
- Paved streets shall be swept at least once per day where there is evidence of dirt that has been carried onto the roadway.
- Watering trucks shall be used to minimize dust. Watering should be sufficient to confine dust plumes to the project work areas.
- Active disturbed areas shall have water applied to them three times daily.
- Inactive disturbed areas shall be revegetated as soon as feasible to prevent soil erosion.
- For disturbed surfaces to be left inactive for 4 or more days and that will not be revegetated, a chemical stabilizer shall be applied per manufacturer's instructions.
- For unpaved roads, chemical stabilizers shall be applied or the roads shall be watered once per hour during active operation.
- Vehicle speed on unpaved roads shall be limited to 15 miles per hour (mph).
- For open storage piles that will remain on-site for 2 or more days, water shall be applied once per hour or coverings shall be installed.

- For paved road track-out, all haul vehicles shall be covered or shall comply with vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
- During high wind conditions (wind speeds in excess of 25 mph), all earthmoving activities shall cease or water shall be applied to soil not more than 15 minutes prior to disturbing such soil.

7.1.2 VOC Emission Reduction

Standard Condition AIR-2. The following mitigation measure shall be incorporated into the project as an element of compliance with SCAQMD Rule 1113 to minimize emissions of VOC:

- Architectural coatings for nonresidential uses shall be selected so that the average VOC content of the coatings does not exceed 125 grams per liter. Where Rule 1113 requires VOC content less than 125 grams per liter, the Rule shall take precedence over this measure.

7.2 OPERATION EMISSIONS

No measures are required for project operation emissions.

SECTION 8.0
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APPENDIX A

URBEMIS OUTPUT DATA SHEETS

11/14/2011 8:16:04 AM

Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Users\WeirichJ\AECOM Projects\LA SHP\LASHP Phase I Construction.urb924

Project Name: LASHP Phase I Construction

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2013 TOTALS (tons/year unmitigated)	0.35	2.66	1.81	0.00	3.54	0.13	3.67	0.74	0.12	0.86	368.42
2013 TOTALS (tons/year mitigated)	0.35	2.66	1.81	0.00	1.94	0.03	1.97	0.41	0.03	0.43	368.42
Percent Reduction	0.00	0.00	0.00	0.00	45.18	78.94	46.40	45.14	79.03	49.96	0.00
2014 TOTALS (tons/year unmitigated)	0.30	1.46	2.13	0.00	0.01	0.09	0.10	0.00	0.08	0.08	385.44
2014 TOTALS (tons/year mitigated)	0.29	1.46	2.13	0.00	0.01	0.02	0.03	0.00	0.02	0.02	385.44
Percent Reduction	1.80	0.00	0.00	0.00	0.00	78.74	70.64	0.00	79.23	75.80	0.00

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Urbemis 2007 Version 9.2.4

Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: C:\Users\WeirichJ\AECOM Projects\LA SHP\LASPH Phase II Construction 11142011.urb924

Project Name: LASHP Phase II Construction

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2014	0.28	2.51	1.27	0.00	0.54	0.11	0.65	0.11	0.10	0.21	347.66
Fine Grading 03/01/2014-06/30/2014	0.10	0.82	0.50	0.00	0.54	0.04	0.58	0.11	0.04	0.15	101.98
Fine Grading Dust	0.00	0.00	0.00	0.00	0.54	0.00	0.54	0.11	0.00	0.11	0.00
Fine Grading Off Road Diesel	0.10	0.82	0.46	0.00	0.00	0.04	0.04	0.00	0.04	0.04	96.63
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.35
Asphalt 07/01/2014-10/31/2014	0.17	1.69	0.78	0.00	0.00	0.07	0.07	0.00	0.07	0.07	245.68
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.17	1.69	0.72	0.00	0.00	0.07	0.07	0.00	0.07	0.07	236.00
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.68

Phase Assumptions

Phase: Fine Grading 3/1/2014 - 6/30/2014 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 5

Maximum Daily Acreage Disturbed: 1.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 0 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

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Off-Road Equipment:

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

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

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

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

Phase: Paving 7/1/2014 - 10/31/2014 - Default Paving Description

Acres to be Paved: 0

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (549 hp) operating at a 0.74 load factor for 8 hours per day

1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 8 hours per day

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

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

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

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Users\WeirichJ\AECOM Projects\LA SHP\LASPH Phase II Construction 11142011.urb924

Project Name: LASHP Phase II Construction

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 3/3/2014-6/30/2014 Active Days: 86	2.44	19.12	11.52	0.00	**12.51**	0.89	**13.40**	**2.61**	0.82	**3.43**	2,371.64
Fine Grading 03/01/2014-06/30/2014	2.44	19.12	11.52	0.00	12.51	0.89	13.40	2.61	0.82	3.43	2,371.64
Fine Grading Dust	0.00	0.00	0.00	0.00	12.50	0.00	12.50	2.61	0.00	2.61	0.00
Fine Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.04	0.79	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.32
Time Slice 7/1/2014-10/31/2014 Active Days: 89	**3.91**	**37.95**	**17.50**	**0.00**	0.01	**1.60**	1.61	0.00	**1.48**	1.48	**5,521.00**
Asphalt 07/01/2014-10/31/2014	3.91	37.95	17.50	0.00	0.01	1.60	1.61	0.00	1.48	1.48	5,521.00
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.87	37.87	16.12	0.00	0.00	1.60	1.60	0.00	1.47	1.47	5,303.44
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.04	0.08	1.38	0.00	0.01	0.01	0.02	0.00	0.01	0.01	217.56

Phase Assumptions

Phase: Fine Grading 3/1/2014 - 6/30/2014 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 5

Maximum Daily Acreage Disturbed: 1.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 0 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

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On Road Truck Travel (VMT): 0

Off-Road Equipment:

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

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

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

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

Phase: Paving 7/1/2014 - 10/31/2014 - Default Paving Description

Acres to be Paved: 0

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (549 hp) operating at a 0.74 load factor for 8 hours per day

1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 8 hours per day

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

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

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

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Users\WeirichJ\AECOM Projects\LA SHP\LASHP Phase I Construction 11142011.urb924

Project Name: LASHP Phase I Construction

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 4/1/2013-7/31/2013 Active Days: 88	4.19	33.69	19.68	0.01	40.63	1.67	42.30	8.49	1.54	10.03	4,280.02
Demolition 04/01/2013-07/31/2013	1.39	10.42	6.70	0.00	0.01	0.58	0.59	0.00	0.53	0.53	1,395.61
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	1.36	10.36	5.65	0.00	0.00	0.57	0.57	0.00	0.53	0.53	1,240.19
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.41
Mass Grading 04/01/2013-10/30/2013	2.80	23.27	12.98	0.01	40.62	1.09	41.72	8.49	1.00	9.49	2,884.41
Mass Grading Dust	0.00	0.00	0.00	0.00	40.60	0.00	40.60	8.48	0.00	8.48	0.00
Mass Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Mass Grading On Road Diesel	0.22	2.66	1.03	0.00	0.02	0.10	0.12	0.01	0.09	0.10	512.76
Mass Grading Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.33
Time Slice 8/1/2013-8/30/2013 Active Days: 22	2.80	23.27	12.98	0.01	40.62	1.09	41.72	8.49	1.00	9.49	2,884.41
Mass Grading 04/01/2013-10/30/2013	2.80	23.27	12.98	0.01	40.62	1.09	41.72	8.49	1.00	9.49	2,884.41
Mass Grading Dust	0.00	0.00	0.00	0.00	40.60	0.00	40.60	8.48	0.00	8.48	0.00
Mass Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Mass Grading On Road Diesel	0.22	2.66	1.03	0.00	0.02	0.10	0.12	0.01	0.09	0.10	512.76
Mass Grading Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.33

Time Slice 9/2/2013-9/30/2013 Active Days: 21	6.62	53.64	29.57	0.01	**81.23**	2.62	**83.86**	**16.97**	2.41	**19.38**	6,324.97
Fine Grading 09/01/2013-09/30/2013	2.58	20.61	11.94	0.00	40.61	0.99	41.60	8.48	0.91	9.39	2,371.65
Fine Grading Dust	0.00	0.00	0.00	0.00	40.60	0.00	40.60	8.48	0.00	8.48	0.00
Fine Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.33
Mass Grading 04/01/2013-10/30/2013	2.80	23.27	12.98	0.01	40.62	1.09	41.72	8.49	1.00	9.49	2,884.41
Mass Grading Dust	0.00	0.00	0.00	0.00	40.60	0.00	40.60	8.48	0.00	8.48	0.00
Mass Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Mass Grading On Road Diesel	0.22	2.66	1.03	0.00	0.02	0.10	0.12	0.01	0.09	0.10	512.76
Mass Grading Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.33
Trenching 09/01/2013-09/30/2013	1.25	9.75	4.65	0.00	0.00	0.54	0.54	0.00	0.50	0.50	1,068.90
Trenching Off Road Diesel	1.23	9.72	4.02	0.00	0.00	0.54	0.54	0.00	0.49	0.49	975.66
Trenching Worker Trips	0.02	0.04	0.63	0.00	0.00	0.00	0.01	0.00	0.00	0.00	93.25
Time Slice 10/1/2013-10/30/2013 Active Days: 22	2.80	23.27	12.98	0.01	40.62	1.09	41.72	8.49	1.00	9.49	2,884.41
Mass Grading 04/01/2013-10/30/2013	2.80	23.27	12.98	0.01	40.62	1.09	41.72	8.49	1.00	9.49	2,884.41
Mass Grading Dust	0.00	0.00	0.00	0.00	40.60	0.00	40.60	8.48	0.00	8.48	0.00
Mass Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Mass Grading On Road Diesel	0.22	2.66	1.03	0.00	0.02	0.10	0.12	0.01	0.09	0.10	512.76
Mass Grading Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.33
Time Slice 12/2/2013-12/31/2013 Active Days: 22	2.70	9.34	32.03	0.04	0.17	0.75	0.93	0.06	0.68	0.75	4,566.67
Building 12/01/2013-05/30/2014	2.70	9.34	32.03	0.04	0.17	0.75	0.93	0.06	0.68	0.75	4,566.67
Building Off Road Diesel	1.96	7.90	7.03	0.00	0.00	0.65	0.65	0.00	0.60	0.60	877.17
Building Vendor Trips	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.24
Building Worker Trips	0.74	1.40	24.96	0.04	0.17	0.10	0.27	0.06	0.08	0.15	3,679.25

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Time Slice 1/1/2014-3/31/2014 Active Days: 64	2.46	8.78	30.15	0.04	0.17	0.69	0.86	0.06	0.63	0.69	4,566.30
Building 12/01/2013-05/30/2014	2.46	8.78	30.15	0.04	0.17	0.69	0.86	0.06	0.63	0.69	4,566.30
Building Off Road Diesel	1.78	7.46	6.87	0.00	0.00	0.58	0.58	0.00	0.53	0.53	877.17
Building Vendor Trips	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.24
Building Worker Trips	0.67	1.29	23.25	0.04	0.17	0.11	0.28	0.06	0.09	0.15	3,678.89
Time Slice 4/1/2014-4/30/2014 Active Days: 22	**12.41**	**53.69**	**53.02**	**0.04**	0.19	**2.87**	3.06	0.07	**2.63**	2.70	**10,881.52**
Asphalt 04/01/2014-05/31/2014	5.08	44.91	22.83	0.00	0.02	2.18	2.20	0.01	2.01	2.01	6,308.15
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	4.98	44.71	20.63	0.00	0.00	2.17	2.17	0.00	2.00	2.00	5,948.99
Paving On Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.29
Paving Worker Trips	0.06	0.12	2.16	0.00	0.02	0.01	0.03	0.01	0.01	0.01	341.88
Building 12/01/2013-05/30/2014	2.46	8.78	30.15	0.04	0.17	0.69	0.86	0.06	0.63	0.69	4,566.30
Building Off Road Diesel	1.78	7.46	6.87	0.00	0.00	0.58	0.58	0.00	0.53	0.53	877.17
Building Vendor Trips	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.24
Building Worker Trips	0.67	1.29	23.25	0.04	0.17	0.11	0.28	0.06	0.09	0.15	3,678.89
Coating 04/01/2014-04/30/2014	4.87	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.06
Architectural Coating	4.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.06

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Time Slice 5/1/2014-5/30/2014 Active Days: 22	7.54	53.69	52.98	0.04	0.19	2.87	3.06	0.07	2.63	2.70	10,874.46
Asphalt 04/01/2014-05/31/2014	5.08	44.91	22.83	0.00	0.02	2.18	2.20	0.01	2.01	2.01	6,308.15
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	4.98	44.71	20.63	0.00	0.00	2.17	2.17	0.00	2.00	2.00	5,948.99
Paving On Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.29
Paving Worker Trips	0.06	0.12	2.16	0.00	0.02	0.01	0.03	0.01	0.01	0.01	341.88
Building 12/01/2013-05/30/2014	2.46	8.78	30.15	0.04	0.17	0.69	0.86	0.06	0.63	0.69	4,566.30
Building Off Road Diesel	1.78	7.46	6.87	0.00	0.00	0.58	0.58	0.00	0.53	0.53	877.17
Building Vendor Trips	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.24
Building Worker Trips	0.67	1.29	23.25	0.04	0.17	0.11	0.28	0.06	0.09	0.15	3,678.89

Phase Assumptions

Phase: Demolition 4/1/2013 - 7/31/2013 - Default Demolition Description

Building Volume Total (cubic feet): 2000

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

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

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

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

Phase: Fine Grading 9/1/2013 - 9/30/2013 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 16.23

Maximum Daily Acreage Disturbed: 4.06

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 0 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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

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

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

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

Phase: Mass Grading 4/1/2013 - 10/30/2013 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 16.23

Maximum Daily Acreage Disturbed: 4.06

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 0 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 120.98

Off-Road Equipment:

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

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

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

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

Phase: Trenching 9/1/2013 - 9/30/2013 - Default Trenching Description

Off-Road Equipment:

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

1 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Paving 4/1/2014 - 5/31/2014 - Default Paving Description

Acres to be Paved: 0.5

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

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

1 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (549 hp) operating at a 0.74 load factor for 8 hours per day

1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 8 hours per day

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

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

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

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

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

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Phase: Building Construction 12/1/2013 - 5/30/2014 - Default Building Construction Description

Off-Road Equipment:

1 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

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

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

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

Phase: Architectural Coating 4/1/2014 - 4/30/2014 - Default Architectural Coating Description

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

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

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

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

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

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

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Urbemis 2007 Version 9.2.4

Detail Report for Winter Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Users\WeirichJ\AECOM Projects\LA SHP\LASPH Phase II Construction 11142011.urb924

Project Name: LASHP Phase II Construction

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Winter Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 3/3/2014-6/30/2014 Active Days: 86	2.44	19.12	11.52	0.00	**12.51**	0.89	**13.40**	**2.61**	0.82	**3.43**	2,371.64
Fine Grading 03/01/2014-06/30/2014	2.44	19.12	11.52	0.00	12.51	0.89	13.40	2.61	0.82	3.43	2,371.64
Fine Grading Dust	0.00	0.00	0.00	0.00	12.50	0.00	12.50	2.61	0.00	2.61	0.00
Fine Grading Off Road Diesel	2.41	19.08	10.74	0.00	0.00	0.89	0.89	0.00	0.82	0.82	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.04	0.79	0.00	0.01	0.00	0.01	0.00	0.00	0.01	124.32
Time Slice 7/1/2014-10/31/2014 Active Days: 89	**3.91**	**37.95**	**17.50**	**0.00**	0.01	**1.60**	1.61	0.00	**1.48**	1.48	**5,521.00**
Asphalt 07/01/2014-10/31/2014	3.91	37.95	17.50	0.00	0.01	1.60	1.61	0.00	1.48	1.48	5,521.00
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	3.87	37.87	16.12	0.00	0.00	1.60	1.60	0.00	1.47	1.47	5,303.44
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.04	0.08	1.38	0.00	0.01	0.01	0.02	0.00	0.01	0.01	217.56

Phase Assumptions

Phase: Fine Grading 3/1/2014 - 6/30/2014 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 5

Maximum Daily Acreage Disturbed: 1.25

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 0 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

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On Road Truck Travel (VMT): 0

Off-Road Equipment:

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

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

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

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

Phase: Paving 7/1/2014 - 10/31/2014 - Default Paving Description

Acres to be Paved: 0

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

1 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (549 hp) operating at a 0.74 load factor for 8 hours per day

1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 8 hours per day

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

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

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

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Urbemis 2007 Version 9.2.4

Detail Report for Winter Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Users\WeirichJ\AECOM Projects\LA SHP\LASHP Phase I Construction 11142011.urb924

Project Name: LASHP Phase I Construction

Project Location: South Coast AQMD

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Winter Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 4/1/2013-7/31/2013 Active Days: 88	4.19	33.69	19.68	0.01	40.63	1.67	42.30	8.49	1.54	10.03	4,280.02
Demolition 04/01/2013-07/31/2013	1.39	10.42	6.70	0.00	0.01	0.58	0.59	0.00	0.53	0.53	1,395.61
Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Off Road Diesel	1.36	10.36	5.65	0.00	0.00	0.57	0.57	0.00	0.53	0.53	1,240.19
Demo On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demo Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.41
Mass Grading 04/01/2013-10/30/2013	2.80	23.27	12.98	0.01	40.62	1.09	41.72	8.49	1.00	9.49	2,884.41
Mass Grading Dust	0.00	0.00	0.00	0.00	40.60	0.00	40.60	8.48	0.00	8.48	0.00
Mass Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Mass Grading On Road Diesel	0.22	2.66	1.03	0.00	0.02	0.10	0.12	0.01	0.09	0.10	512.76
Mass Grading Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.33
Time Slice 8/1/2013-8/30/2013 Active Days: 22	2.80	23.27	12.98	0.01	40.62	1.09	41.72	8.49	1.00	9.49	2,884.41
Mass Grading 04/01/2013-10/30/2013	2.80	23.27	12.98	0.01	40.62	1.09	41.72	8.49	1.00	9.49	2,884.41
Mass Grading Dust	0.00	0.00	0.00	0.00	40.60	0.00	40.60	8.48	0.00	8.48	0.00
Mass Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Mass Grading On Road Diesel	0.22	2.66	1.03	0.00	0.02	0.10	0.12	0.01	0.09	0.10	512.76
Mass Grading Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.33

Time Slice 9/2/2013-9/30/2013 Active Days: 21	6.62	53.64	29.57	0.01	**81.23**	2.62	**83.86**	**16.97**	2.41	**19.38**	6,324.97
Fine Grading 09/01/2013-09/30/2013	2.58	20.61	11.94	0.00	40.61	0.99	41.60	8.48	0.91	9.39	2,371.65
Fine Grading Dust	0.00	0.00	0.00	0.00	40.60	0.00	40.60	8.48	0.00	8.48	0.00
Fine Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.33
Mass Grading 04/01/2013-10/30/2013	2.80	23.27	12.98	0.01	40.62	1.09	41.72	8.49	1.00	9.49	2,884.41
Mass Grading Dust	0.00	0.00	0.00	0.00	40.60	0.00	40.60	8.48	0.00	8.48	0.00
Mass Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Mass Grading On Road Diesel	0.22	2.66	1.03	0.00	0.02	0.10	0.12	0.01	0.09	0.10	512.76
Mass Grading Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.33
Trenching 09/01/2013-09/30/2013	1.25	9.75	4.65	0.00	0.00	0.54	0.54	0.00	0.50	0.50	1,068.90
Trenching Off Road Diesel	1.23	9.72	4.02	0.00	0.00	0.54	0.54	0.00	0.49	0.49	975.66
Trenching Worker Trips	0.02	0.04	0.63	0.00	0.00	0.00	0.01	0.00	0.00	0.00	93.25
Time Slice 10/1/2013-10/30/2013 Active Days: 22	2.80	23.27	12.98	0.01	40.62	1.09	41.72	8.49	1.00	9.49	2,884.41
Mass Grading 04/01/2013-10/30/2013	2.80	23.27	12.98	0.01	40.62	1.09	41.72	8.49	1.00	9.49	2,884.41
Mass Grading Dust	0.00	0.00	0.00	0.00	40.60	0.00	40.60	8.48	0.00	8.48	0.00
Mass Grading Off Road Diesel	2.55	20.56	11.10	0.00	0.00	0.99	0.99	0.00	0.91	0.91	2,247.32
Mass Grading On Road Diesel	0.22	2.66	1.03	0.00	0.02	0.10	0.12	0.01	0.09	0.10	512.76
Mass Grading Worker Trips	0.02	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.33
Time Slice 12/2/2013-12/31/2013 Active Days: 22	2.70	9.34	32.03	0.04	0.17	0.75	0.93	0.06	0.68	0.75	4,566.67
Building 12/01/2013-05/30/2014	2.70	9.34	32.03	0.04	0.17	0.75	0.93	0.06	0.68	0.75	4,566.67
Building Off Road Diesel	1.96	7.90	7.03	0.00	0.00	0.65	0.65	0.00	0.60	0.60	877.17
Building Vendor Trips	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.24
Building Worker Trips	0.74	1.40	24.96	0.04	0.17	0.10	0.27	0.06	0.08	0.15	3,679.25

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Time Slice 1/1/2014-3/31/2014 Active Days: 64	2.46	8.78	30.15	0.04	0.17	0.69	0.86	0.06	0.63	0.69	4,566.30
Building 12/01/2013-05/30/2014	2.46	8.78	30.15	0.04	0.17	0.69	0.86	0.06	0.63	0.69	4,566.30
Building Off Road Diesel	1.78	7.46	6.87	0.00	0.00	0.58	0.58	0.00	0.53	0.53	877.17
Building Vendor Trips	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.24
Building Worker Trips	0.67	1.29	23.25	0.04	0.17	0.11	0.28	0.06	0.09	0.15	3,678.89
Time Slice 4/1/2014-4/30/2014 Active Days: 22	**12.41**	**53.69**	**53.02**	**0.04**	0.19	**2.87**	3.06	0.07	**2.63**	2.70	**10,881.52**
Asphalt 04/01/2014-05/31/2014	5.08	44.91	22.83	0.00	0.02	2.18	2.20	0.01	2.01	2.01	6,308.15
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	4.98	44.71	20.63	0.00	0.00	2.17	2.17	0.00	2.00	2.00	5,948.99
Paving On Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.29
Paving Worker Trips	0.06	0.12	2.16	0.00	0.02	0.01	0.03	0.01	0.01	0.01	341.88
Building 12/01/2013-05/30/2014	2.46	8.78	30.15	0.04	0.17	0.69	0.86	0.06	0.63	0.69	4,566.30
Building Off Road Diesel	1.78	7.46	6.87	0.00	0.00	0.58	0.58	0.00	0.53	0.53	877.17
Building Vendor Trips	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.24
Building Worker Trips	0.67	1.29	23.25	0.04	0.17	0.11	0.28	0.06	0.09	0.15	3,678.89
Coating 04/01/2014-04/30/2014	4.87	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.06
Architectural Coating	4.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.06

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Time Slice 5/1/2014-5/30/2014 Active Days: 22	7.54	53.69	52.98	0.04	0.19	2.87	3.06	0.07	2.63	2.70	10,874.46
Asphalt 04/01/2014-05/31/2014	5.08	44.91	22.83	0.00	0.02	2.18	2.20	0.01	2.01	2.01	6,308.15
Paving Off-Gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	4.98	44.71	20.63	0.00	0.00	2.17	2.17	0.00	2.00	2.00	5,948.99
Paving On Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.29
Paving Worker Trips	0.06	0.12	2.16	0.00	0.02	0.01	0.03	0.01	0.01	0.01	341.88
Building 12/01/2013-05/30/2014	2.46	8.78	30.15	0.04	0.17	0.69	0.86	0.06	0.63	0.69	4,566.30
Building Off Road Diesel	1.78	7.46	6.87	0.00	0.00	0.58	0.58	0.00	0.53	0.53	877.17
Building Vendor Trips	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.24
Building Worker Trips	0.67	1.29	23.25	0.04	0.17	0.11	0.28	0.06	0.09	0.15	3,678.89

Phase Assumptions

Phase: Demolition 4/1/2013 - 7/31/2013 - Default Demolition Description

Building Volume Total (cubic feet): 2000

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 8 hours per day

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

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day

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

Phase: Fine Grading 9/1/2013 - 9/30/2013 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 16.23

Maximum Daily Acreage Disturbed: 4.06

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 0 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

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

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

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

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

Phase: Mass Grading 4/1/2013 - 10/30/2013 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 16.23

Maximum Daily Acreage Disturbed: 4.06

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 0 cubic yards/day; Offsite Cut/Fill: 0 cubic yards/day

On Road Truck Travel (VMT): 120.98

Off-Road Equipment:

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

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

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

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

Phase: Trenching 9/1/2013 - 9/30/2013 - Default Trenching Description

Off-Road Equipment:

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

1 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Paving 4/1/2014 - 5/31/2014 - Default Paving Description

Acres to be Paved: 0.5

Off-Road Equipment:

1 Air Compressors (106 hp) operating at a 0.48 load factor for 8 hours per day

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

1 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (549 hp) operating at a 0.74 load factor for 8 hours per day

1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 8 hours per day

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

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

1 Sweepers/Scrubbers (91 hp) operating at a 0.68 load factor for 8 hours per day

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

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

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Phase: Building Construction 12/1/2013 - 5/30/2014 - Default Building Construction Description

Off-Road Equipment:

1 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

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

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

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

Phase: Architectural Coating 4/1/2014 - 4/30/2014 - Default Architectural Coating Description

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

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

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

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

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

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

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Urbemis 2007 Version 9.2.4

Detail Report for Winter Area Source Unmitigated Emissions (Pounds/Day)

File Name: C:\Users\WeirichJ\AECOM Projects\LA SHP\LASHP Operations.urb924

Project Name: LASHP Operations

Project Location: Los Angeles County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Winter Pounds Per Day, Unmitigated)

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

Area Source Changes to Defaults

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Area Source Unmitigated Emissions (Pounds/Day)

File Name: C:\Users\WeirichJ\AECOM Projects\LA SHP\LASHP Operations.urb924

Project Name: LASHP Operations

Project Location: Los Angeles County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth - No Summer Emissions							
Landscape	0.12	0.02	1.55	0.00	0.01	0.01	2.81
Consumer Products	0.00						
Architectural Coatings	0.00						
TOTALS (lbs/day, unmitigated)	0.12	0.02	1.55	0.00	0.01	0.01	2.81

Area Source Changes to Defaults

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: C:\Users\WeirichJ\AECOM Projects\LA SHP\LASHP Operations.urb924

Project Name: LASHP Operations

Project Location: Los Angeles County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
City park	1.69	1.77	19.46	0.06	10.02	1.94	5,984.88
TOTALS (lbs/day, unmitigated)	1.69	1.77	19.46	0.06	10.02	1.94	5,984.88

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
City park		20.00	acres	32.00	640.00	5,812.80
					640.00	5,812.80

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.7	0.0	100.0	0.0
Light Truck < 3750 lbs	6.7	0.0	100.0	0.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	23.5	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.5	32.0	68.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

Travel Conditions

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

Operational Changes to Defaults

11/14/2011 10:18:58 AM

Urbemis 2007 Version 9.2.4

Detail Report for Winter Operational Unmitigated Emissions (Pounds/Day)

File Name: C:\Users\WeirichJ\AECOM Projects\LA SHP\LASHP Operations.urb924

Project Name: LASHP Operations

Project Location: Los Angeles County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Winter Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
City park	1.87	2.13	18.20	0.05	10.02	1.94	5,404.04
TOTALS (lbs/day, unmitigated)	1.87	2.13	18.20	0.05	10.02	1.94	5,404.04

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2030 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
City park		20.00	acres	32.00	640.00	5,812.80
					640.00	5,812.80

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.7	0.0	100.0	0.0
Light Truck < 3750 lbs	6.7	0.0	100.0	0.0

11/14/2011 10:18:58 AM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	23.5	0.0	100.0	0.0
Med Truck 5751-8500 lbs	10.6	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.5	32.0	68.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	0.0	90.0	10.0

Travel Conditions

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

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Users\WeirichJ\AECOM Projects\LA SHP\LASHP Operations.urb924

Project Name: LASHP Operations

Project Location: Los Angeles County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.02	0.00	0.28	0.00	0.00	0.00	0.51

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.32	0.35	3.48	0.01	1.83	0.35	1,056.91

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.34	0.35	3.76	0.01	1.83	0.35	1,057.42

URBEMIS Input Summary

Construction: 18 Months from April 1, 2013 through October 31, 2014

- Phase I: April 1, 2013 through May 31, 2014
- Phase II: March 1, 2014 through October 31, 2014

Assume URBEMIS Construction Defaults Plus Common Sense

Phase I, Celebratory Plaza

Total 6 Months

Grading/Trenching:

Total graded area: 5 acres
Import 14,760 CY
740 double-loaded haul trucks
Mass Grading and hauling-6 months
Fine Grading -1 month

.5-Acre Concrete Sidewalk Construction:

1 month

Phase I: Welcome Pavilion/Restrooms, Two Driveways, Permeable Parking

Total 14 Months

Demolition:

2000 CY of demolition debris
100 haul trips 3 months
3 months

Grading:

Total graded area: 5 acres
3,740 CY moved on site
2 months concurrent with Plaza grading

Trenching:

11 CY replaced
1 month

Construction of Pavillion, Sidewalks, and Permeable Parking Surface –

5000 square foot structure
7,500 square feet of concrete sidewalk
100,000 square feet of pavers
6 months

Architectural Coating:

5,000 square feet and 15 feet in height
1 month **Asphalt Paving:**
20,400 square feet
2 months

Phase II: Overflow Parking

Total 8 Months

Grading:

Total graded area: 4.5 acres
4,200 CY moved elsewhere on site
4 months

Construction:

150,000 square feet of pavers
4 months

Assumptions

Buildout of the project would likely begin with a revenue creating project, such as the large amphitheater. In order to have this usable, certain elements would need to be constructed, detailed below, along with estimates of square footage and construction phases that would be necessary.

Phase	Element	Square Footage (acreage)	URBEMIS Construction Phases
I	Celebratory Plaza	100,000 (2.3)	Grading Trenching Paving
I	Welcome Pavilion/Restrooms Two Driveways Permeable Parking	5,000 (0.11) 100,000 (2.3)	Demolition Grading Buidling Construction Laying Pavers Architectural Coating Paving
II	Overflow Parking	150,000 (3.4)	Grading Laying Pavers

General Project Construction Assumptions for the Air Quality Impact Analysis

All Construction would use URBEMIS Equipment Defaults

Phase I, Celebratory Plaza

Per the site plan, the plaza looks like a grassy concave disc tilted at an angle.

Grading:

Assumptions:

The plaza is assumed to be 100,000 square feet based on an amphitheater constructed by J. B. Coxwell Contracting Inc. in Florida. That project had an occupancy of 6,000 people, was constructed with a 9 percent slope to maximize viewing, and took 3 months to construct.

Using the 9 percent slope of the Coxwell plaza, the highest point within a 100,000 square foot site would be 9 feet, which is reasonable for safety reasons at a public park. A 10-foot maximum height of the plaza is assumed for the LASHP.

No significant on-site excavation is assumed. Per the 2005 LASHPGP EIR, the depth to groundwater is about 30 feet. The water is contaminated and CDPR does not want to divert river water to the site. Furthermore, soil remediation at the site was completed in 2003. For reasons of health risk, soil for the plaza would be from shallow excavations during Phase I Pavillion/Driveway/Parking Area construction (3,740 CY), with the remaining soil being imported.

Total graded area: 5 acres

Calculations:

18, 500 CY - 3,740 CY = **14,760 CY** of fill would be Imported requiring **740 double-loaded haul trucks**.

Duration:

Mass Grading and hauling-**3 months**

Fine Grading -**1 month**

Trenching:

Assumptions:

Utilities already surround and extend onto the site, including a waterline for a drinking fountain. It is assumed that the park would be irrigated with domestic water rather than recycled water due to potential for human contact, and that waterlines within North Spring Street would not need to be upgraded.

Calculations:

Irrigation lines would be shallow and associated trenching is factored into the plaza grading
Duration:
1 month concurrent with plaza grading

Construction:
Assumptions:
A maximum of .5 acre would be paved with concrete for sidewalks.
Calculations:
None
Duration:
1 month

Asphalt Paving:
Assumptions:
No asphalt paving would occur during plaza construction.

Phase I: Welcome Pavilion/Restrooms, Two Driveways, Permeable Parking

Demolition:
Demolish existing driveway, which is approximately 1800 feet long and 30 feet wide.
Demolish existing parking lot, which are approximately 225 long and 80 feet wide
Assumptions:
Existing pavement thickness is assumed to be 0.75 feet thick
Calculations:
2000 CY of demolition debris and approximately **100 haul trips**.
Duration:
3 months

Grading:
Assumptions:
Buidling footprint would be 5,000 square feet, and excavated to 1 foot deep to accommodate water and sewer lines. Excavated soil would be used to build up the plaza.
The new driveways are assumed to be 24 feet wide, each for two lanes of vehicle path, 75 feet long, and excavated to a depth of 1 foot. Excavated soil would be used to build up the plaza
The parking area would excavated to 8 inches inches, covered with a bed of sand, pavers placed, and then sand/soil tamped down over surface. Excavated soil would be used to build up the plaza
Total graded area: 5 acres
Calculations:
Building Excavated soil: 185 CY.
Driveway Excavated soil: 755 CY
Parking Area Excavated soil: 2,800 CY
Total Excavated Soil to Build Up Plaza: **3,740 CY**
Duration:
2 months concurrent with Plaza grading

Trenching:
Assumptions:
It assumed that this facility would be located between the two driveways off North Spring Street, and that sewer, water and electrical lines would not need to be upgraded.
It assumed that on-site trenching would be 50 feet long, 1 foot wide, and 6 feet deep (sewer lies below waterline) and that all excavated soil would be replaced and compacted.
Calculations:
11 CY of soil movement

Duration:
1 month

Construction of Pavillion, Sidewalks, and Permeable Parking Surface:
Assumptions:
Facility would be 5,000 square feet, 15 feet in height, with water and sewer lines connecting to North Spring Street.
Concrete sidewalks 150 feet long and 8-feet wide would be constructed along the driveways.
Concrete sidewalks 150 feet long and 8-feet wide would be constructed along LASHP frontage with North Spring Street.
2.3 acres (100,000 square feet) of site would be for overflow parking with permeable parking surface using a lattice-work of concrete pavers.
Calculations:
None
Duration:
6 months

Architectural Coating:
Assumptions:
Facility would be 5,000 square feet and 15 feet in height.
Calculations:
None
Duration:
.5 month

Asphalt Paving:
Assumptions:
Assuming the pavilion would be located between the driveways, the two access driveways would be constructed at the same time.
The driveways are assumed to be 24 feet wide, each for two lanes of vehicle path, 75 feet long, and one side of each driveway would be flanked by an 8-foot wide sidewalk for strollers, wheelchairs, etc.
The driveways would loop around the northern side of the pavilion with a length of 700 feet (the distance between driveways which would align with Sotello and Mesnegars Streets.
Only the driveways would be asphalt.
Calculations:
Total paved area: 27,500 square feet
Total asphalt area: 20,400 square feet
Duration:
4 months

Phase II
Permeable Overflow Parking
Assumptions:
Assume 3.4 acres (150,000 square feet) of site would be for overflow parking.

Grading:
Assumptions:
The parking area would excavated to 8 inches, covered with a bed of sand, pavers placed, and then sand/soil tamped down over surface.
Plaza is assumed to be complete at project Phase II, so excavated soil would be used elsewhere on site.

Total graded area: 4.5 acres
Calculations:
Excavated Soil: **4,200 CY**
Duration:
4 months

Paving:
Assumptions:
No asphalt paving would be used.

Construction:
Assumptions:
Parking area is assumed to be 150,000 square feet of a lattice-work of concrete pavers.
Calculations:
None
Duration:
4 months

Mitigation: as required by the GP EIR, water 2x daily and replace ground cover quickly

The following mitigation measure is identified in the GP EIR for Air Quality.

Mitigation Measure Air-1. Potential construction-related emissions impacts should be reviewed at the project level for specific facilities or management plans proposed under the General Plan and mitigation measures shall be considered, including but not limited to:

- Phase construction projects in such a manner that minimizes the area of surface disturbance (e.g., grading and excavation), the number of vehicle trips on unpaved surfaces, and concurrent use of diesel equipment and other equipment or activities that release emissions.

- Minimizing these effects may entail clustering certain construction activities or performing them in a particular order. Implement a compliance-monitoring program in order to stay within the parameters of project-specific compliance documents. The compliance-monitoring program would oversee these mitigation measures and would include reporting protocols.

- Comply with SCAQMD Rule 403 (Fugitive Dust Abatement). Standard dust abatement measures could include the following elements: water or otherwise stabilize soils; cover haul trucks; employ speed limits on unpaved roads; minimize vegetation clearing; and revegetate disturbed areas post-construction.

- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.

- Ensure that any stationary motor sources (such as generators and compressors) located within 100 feet of any residence or public facilities (sensitive receptors) are equipped with supplementary exhaust pollution control systems as required by the California Air Resources Board.

- Take appropriate measures to control pedestrian access to active construction areas. Recreational users should be kept a minimal distance from the operation of all construction equipment, except trucks hauling materials to and from the Park.

All of these measures might not apply at each construction site. Generally, larger, more intensive construction projects require more comprehensive dust abatement programs and mitigation practices than smaller, less intensive projects. Implementation of the practices described above would reduce the potential program-level construction-related emissions impacts associated with the implementation of the General Plan to a level of less than significant. However, the Department would require examination of any specific facilities and management plans included in the General Plan at the time they are proposed for implementation to determine if further environmental review at a more detailed project-specific and site-specific level were necessary.

Significance After Mitigation: Less than significant at the Program level.

APPENDIX B

GREENHOUSE GAS CALCULATIONS

Appendix LASHP GHG Calculations

Air Quality Modeling Output	CO_2 Estimates		Conversion Factors		Total CO_2 Emissions	
Construction Emissions (Source: URBEMIS)						
Season						
2011	643	English tons	0.907	MT/ton	583	MT/yr
2012	481.6	English tons	0.907	MT/ton	437	MT/yr
Total Construction-Generated Emissions					**1,020**	MT
Area-Source Emissions (Source: URBEMIS)						
Operational Year 2030	0.51	English tons	0.907	MT/ton	0	MT/yr
Mobile-Source Emissions (Source: URBEMIS)						
Operational Year 2030	1,057.42	English tons	0.907	MT/ton	959	MT/yr
Total Direct Operational Emissions					**960**	MT/yr

Indirect Emissions from Energy Consumption

Total KWh	MWh	Region	Emission Factor (lb CO_2/MWh)	GWP	Emission Factor (lb CH_4/MWh)	GWP	Emission Factor (lb N_2O/MWh)	GWP	Total CO_2e (Metric Tons/year)
126,000	126	CALI	804.54	1	0.0067	21	0.0037	310	**46**

Indirect Emissions from Municipal Water Use (includes conveyance, treatment, distribution, and wastewater treatment)

KWh/million gallons/year*	KWh/acre-ft/year	acre-ft/year	Total KWh	MWh	Region	Emission Factor (lb CO_2/MWh)	GWP	Emission Factor (lb CH_4/MWh)	GWP	Emission Factor (lb N_2O/MWh)	GWP	Total CO_2e (Metric Tons/year)
12,700	4138	19	78,625	79	CALI	804.54	1	0.0067	23	0.0037	296	**29**

*for Southern California

Total Indirect Emissions (MT CO_2e/yr)	**75**
Total Direct & Indirect Emissions (MT CO_2e/yr)	**1,035**

Assumptions:

3.069 acre-ft = 1 Million gallon

0.135 acre-ft/yr

Sources:

California Climate Action Registry [CCAR] General Reporting Protocol v 3.1 January 2009

California Energy Commission [CEC] 2006. California Energy - Water Relationship Staff Report CEC-700-2005-011-SF. Available: http://www.energy.ca.gov/2007publications/CEC-999-2007-008/CEC-999-2007-008.PDF