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CHAPTER 4 – ENVIRONMENTAL IMPACT ASSESSMENT

4.3 AIR QUALITY

Would the project:	Potentially Significant Impact	Less-Than-Significant Impact with Mitigation	Less-Than-Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	❒	❒	☑	❒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	❒	❒	☑	❒
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	❒	❒	☑	❒
d) Expose sensitive receptors to substantial pollutant concentrations?	❒	❒	☑	❒
e) Create objectionable odors affecting a substantial number of people?	❒	❒	☑	❒

4.3.0 Introduction

This section describes the existing air quality within the San Diego Gas & Electric Company (SDG&E) South Bay Substation Relocation Project (Proposed Project) area and evaluates the potential air quality impacts associated with construction and operation of the Proposed Project. Although some temporary impacts would result during construction, operation, and maintenance activities, with implementation of the minimization measures listed in Section 4.3.4 Applicant-Proposed Measures, the potential air quality impacts from the Proposed Project would be less than significant.

4.3.1 Methodology

The existing air quality within San Diego County was researched using data obtained from the San Diego Air Pollution Control District's (SDAPCD) network of air quality monitoring stations. Recent regulations and guidance documents from the California Air Resources Board (CARB), California Public Utilities Commission (CPUC), California Energy Commission (CEC), and SDAPCD were also reviewed.

The majority of the Proposed Project's air emissions were assessed by estimating emission rates from construction, operation, and maintenance activities, and then comparing them to established

significance criteria. In other cases, such as the odor and sensitive receptor analysis, the impact assessment was based on subjective criteria, including experience with similar projects. Air pollutant emission rates were estimated using the publicly available software, URBEMIS version 9.2.4 (URBEMIS). This computer model allows users to generate estimates of construction and operational emissions of various pollutants, including inhalable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), carbon monoxide (CO), reactive organic gases (ROG), sulfur oxides (SO_x), oxides of nitrogen (NO_x), and carbon dioxide (CO_2). URBEMIS also allows users to input minimization measures and evaluate their effects on emission rates.

Diesel particulate matter (DPM) and other particulate matter (PM) are expected to be the two pollutants of greatest concern during construction of the Proposed Project, primarily from on- and off-road construction vehicles and soil-disturbing activities. DPM emissions can be inferred from the $PM_{2.5}$ modeling results. In URBEMIS, construction activities can be divided into the following seven components:

- Demolition
- Fine Site Grading
- Mass Site Grading
- Trenching
- Building Construction
- Architectural Coating
- Paving

The primary operation and maintenance emissions would result from maintenance vehicle travel to and from the Proposed Project area and heavy equipment use during repair activities. SDG&E already conducts these operation and maintenance activities within the Proposed Project area at the existing South Bay Substation. This level of effort is not expected to change upon completion of the Proposed Project. Similar to the construction phase, DPM and PM would be the two pollutants of primary concern.

4.3.2 Existing Conditions

Regulatory Background

Federal

The 1970 federal Clean Air Act (CAA) established national ambient air quality standards (AAQS) for six pollutants: CO, ozone (O_3), PM_{10}, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. These six criteria pollutants are known to have adverse impacts on human health and the environment. To protect human health and the environment, the United States (U.S.) Environmental Protection Agency (EPA) has set primary and secondary maximum ambient thresholds. The primary thresholds were set to protect human health, particularly children and the elderly, as well as individuals in the population that suffer from chronic lung conditions (e.g., asthma and emphysema). The secondary standards were set to protect the natural environment and prevent further deterioration of animals, crops, vegetation, and buildings. The combined primary and secondary standards are termed the National AAQS (NAAQS).

The 1977 CAA required each state to develop and maintain a State Implementation Plan (SIP) for each criteria pollutant that exceeds ambient air quality standards. The SIP serves as a tool to reduce pollutants that are known to cause impacts that exceed the ambient thresholds and to achieve compliance with the NAAQS. In 1990, the CAA was amended to strengthen regulation of both stationary and mobile emission sources for the criteria pollutants.

In July 1997, the U.S. EPA developed new health-based NAAQS for O_3 and PM_{10}. However, these standards were not fully implemented until 2001, after the resolution of several lawsuits. The new federal O_3 standard of 0.08 parts per million (ppm), established in 1997, was based on a longer averaging period (eight-hour versus one-hour), recognizing that prolonged exposure to O_3 is more damaging. In March 2008, the EPA further lowered the eight-hour O_3 standard from 0.08 ppm to 0.075 ppm. The new federal PM standard is based on finer particles (2.5 microns and smaller versus 10 microns and smaller), recognizing that finer particles may have a higher residence time in the lungs and contribute to greater respiratory illness. In February 2007, the NO_2 AAQS was amended to lower the existing one-hour standard of 0.25 ppm to 0.18 ppm, not to be exceeded, and established a new annual standard of 0.030 ppm, not to be exceeded. Table 4.3-1: State and Federal Ambient Air Quality Standards contains a list of the NAAQS and California Ambient Air Quality Standards (CAAQS).

State

The California Clean Air Act (CCAA) of 1988 requires air districts to develop and implement strategies to attain CAAQS. For some pollutants, the California standards are more stringent than the national standards. Regional air quality management districts, such as the SDAPCD, had to prepare an air quality plan specifying how federal and state standards would be met.

The CARB enforces the CAAQS and works with the state's Office of Environmental Health Hazard Assessment (OEHHA) in identifying toxic air contaminants (TACs) and enforcing rules related to TACs, including the Air Toxic Hot Spots Information and Assessment Act of 1987. Enacted to identify toxic air contaminant hot spots where emissions from specific sources may expose individuals to an elevated risk of adverse health effects, the act requires that a business or other establishment identified as a significant source of toxic emissions provide the affected population with information about health risks posed by the emissions.

The CARB also regulates mobile emission sources in California, such as construction equipment, trucks, and automobiles, and oversees the air districts. Relevant programs related to oversight of mobile source emissions include the Off-Road and On-Road Mobile Sources Reduction programs, the Portable Equipment Registration Program (PERP), and the Airborne Toxic Control Measure for DPM from Portable Engines. The Mobile Sources Emission Reduction programs are aimed at reductions of NO_x, volatile organic compounds (VOCs), CO, and PM_{10}. The CARB has also adopted specific control measures for the reduction of DPM from off-road (in-use) diesel vehicles (rated at 25 horsepower or higher) such as backhoes, dozers, and earthmovers used in construction projects. Additional DPM control measures are also in place for heavy-duty on-road diesel trucks operated by public utilities and municipalities. The PERP and Airborne Toxic Control Measure for DPM (for portable engines) provide for state-wide registration and control of DPM from portable engines rated 50 horsepower and higher.

Table 4.3-1: State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standard	Federal Standard	
			Primary	Secondary
Ozone	1 hour	0.09 ppm (180 micrograms per cubic meter [µg/m^3])	Not Applicable (NA)	NA
	8 hour	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)	0.075 ppm (147 µg/m^3)
PM_{10}	24 hour	50 µg/m^3	150 µg/m^3	150 µg/m^3
	Annual arithmetic mean	20 µg/m^3	50 µg/m^3	50 µg/m^3
$PM_{2.5}$	24 hour	NA	35 µg/m^3	35 µg/m^3
	Annual arithmetic mean	12 µg/m^3	15 µg/m^3	15 µg/m^3
CO	1 hour	20 ppm (23 milligrams per cubic meter [mg/m^3])	35 ppm (40 mg/m^3)	NA
	8 hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	NA
	8 hour (Lake Tahoe)	6 ppm (7 mg/m^3)	NA	NA
NO_2	1 hour	0.18 ppm (339 µg/m^3)	NA	NA
	Annual arithmetic mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	0.053 ppm (100 µg/m^3)
SO_2	1 hour	0.25 ppm (655 µg/m^3)	NA	NA
	3 hour	NA	NA	0.5 ppm (1,300 µg /m^3)
	24 hour	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)	NA
	Annual arithmetic mean	NA	0.030 ppm (80 µg/m^3)	NA

Pollutant	Averaging Time	California Standard	Federal Standard	
			Primary	Secondary
Lead	30 day	1.5 $\mu g/m^3$	NA	NA
	Rolling 3 month	NA	0.15 $\mu g/m^3$	0.15 $\mu g/m^3$
	Quarterly	NA	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$

Sources: CARB, 2008; EPA 2010

Table Notes:

1. California standards for O_3, CO (except Lake Tahoe), SO_2 (one and 24 hour), nitrogen dioxide, suspended particulate matter—PM_{10} and $PM_{2.5}$—and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest eight-hour concentration in a year, averaged over three 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 three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current federal policies.
3. Concentration expressed first in units used to promulgate the standard. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure that can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
8. The CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects established. These actions allow for implementation of control measures at levels below the ambient concentrations specified for these pollutants.
9. National lead standard, rolling three-month average; final rule signed October 15, 2008.

San Diego Air Pollution Control District

The air districts are primarily responsible for regulating stationary emission sources at industrial and commercial facilities within their respective geographic areas and for preparing the air quality plans that are required under the federal and California CAAs. SDAPCD is the primary agency responsible for planning, implementing, and enforcing federal and state ambient standards in San Diego County. The plans, rules, and regulations presented as follows apply to all sources in the jurisdiction of SDAPCD.

San Diego Air Pollution Control District Air Quality Plans

The SDAPCD's air quality plans collectively provide an overview of the region's air quality and air pollution sources and identify the pollution-control measures needed to expeditiously attain and maintain air quality standards. The SDAPCD's air quality plans include the San Diego Regional Air Quality Strategy (RAQS), addressing state requirements, and the San Diego portion of the California SIP, addressing federal requirements.

Ozone Air Quality Management Plan

The SDAPCD SIP predicts that local and state programs will allow San Diego County to reach attainment status for the previously applicable 0.08 ppm federal eight-hour O_3 AAQS (per the SIP submitted to the EPA in June 2007). It is anticipated that the EPA will designate San Diego County as a nonattainment area for the new 0.075 ppm eight-hour O_3 standard in the future. The SDAPCD will have to submit an updated SIP to address the new stringent standard at that time.

The SDAPCD maintains the RAQS, which acts as a road map demonstrating how the district will eventually meet the state O_3 AAQS. The RAQS details the measures and regulations that focus on managing and reducing O_3 precursors, such as NO_x and VOCs. The RAQS control measures concentrate on stationary sources that are under the SDAPCD's jurisdiction; however, all emission sources and control measures, including any under the jurisdiction of the CARB (e.g., on-road motor vehicles, off-road vehicles and equipment, and consumer products) and U.S. EPA (e.g., aircraft, ships, trains, and pre-empted off-road equipment), are included.

Particulate Matter Air Quality Management Plan

The CCAA does not require local districts to establish an air quality management plan for state PM_{10} nonattainment, but the SDAPCD has prepared a report entitled Measures to Reduce Particulate Matter in San Diego County. The SDAPCD is considering rulemaking for source category-specific PM control measures for emissions from residential wood combustion and from fugitive dust generated at construction sites and from unpaved roads.

San Diego Air Pollution Control District Regulation IV – Prohibitions, Rule 50 – Visible Emissions

This rule prohibits any activity that will create air contaminant emissions darker than 20 percent opacity for more than an aggregate of three minutes in any consecutive 60-minute time period.

San Diego Air Pollution Control District Regulation IV – Prohibitions, Rule 51 – Nuisance

This regulation prohibits any activity that will discharge air contaminants that cause or have a tendency to cause injury, detriment, nuisance, or annoyance to people and the public or damage to any business or property.

San Diego Air Pollution Control District Regulation IV – Prohibitions, Rule 55 – Fugitive Dust Control

This regulation prohibits any activity that will discharge visible dust emissions into the atmosphere beyond the property line bounding the activity for more than three minutes during any 60 minute period. This regulation also prohibits visible roadway dust due to track-out or carry-out.

San Diego Air Pollution Control District Rule XV – Federal Conformity

The federal conformity rule prohibits any federal actions that may be inconsistent with SDAPCD efforts to achieve attainment with the NAAQS.

Climate Change Policies and Regulations

Many chemical compounds found in the earth's atmosphere act as "greenhouse gases" (GHG). These gases allow sunlight to enter the atmosphere freely but absorb heat radiated from the surface of the earth and trap the heat in the atmosphere. Many gases exhibit these "greenhouse" properties. Some of them occur in nature—such as water vapor, CO_2, methane (CH_4), and nitrous oxide (N_2O)—and some are man-made—such as gases used for aerosols. Over time, the amount of energy sent from the sun to the earth's surface should be about the same as the amount of energy radiated back into space, keeping the temperature of the earth's surface roughly constant. The generally accepted scientific understanding is that human-caused increases in GHG have and will continue to contribute to global warming; however, the scientific community is still in disagreement over the rate or magnitude of this warming.

Over the past decade, the issue of global warming has developed into a critical issue for consideration in land use planning. The public and political will to address this issue has resulted in recent legislation in California designed to curb emissions and mandate limits and reductions on GHG emissions. The California Climate Action Team's Report to the Governor, published in April 2006, identifies initial strategies that the state should pursue for managing GHG emissions.

California Global Warming Solutions Act of 2006 (Assembly Bill 32)

In response to Executive Order S-3-05 (June 2005), which declared California's particular vulnerability to climate change, the California Global Warming Solutions Act of 2006 Assembly Bill 32 (AB32), was signed into effect on September 27, 2006. In enacting the bill, the California Legislature found that:

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

This law requires the CARB to adopt a statewide GHG emissions limit equivalent to the levels in 1990 to be achieved by 2020. The following six compounds have been defined as GHGs under AB32: CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). To

achieve this reduction goal, the CARB is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG-emission reductions. The CARB established the statewide emissions limit for 2020 at its meeting on December 6, 2007. At the same time, the CARB also adopted regulations that require mandatory GHG emissions reporting.

The CPUC and CEC concluded a lengthy proceeding in October 2008 to provide electricity and natural gas-specific recommendations to the CARB for inclusion in its scoping plan and AB32 regulations and programs. The CARB adopted a comprehensive scoping plan in December 2008 that outlined programs designed to achieve the 2020 GHG reduction goal of 174 million metric tons of CO_2 equivalent ($MMTCO_2E$) emissions through regulations, market mechanisms, and other actions. For the electricity sector, the scoping plan adopted the fundamental recommendations of the CPUC for both investor-owned and publicly owned utilities to continue and increase the implementation of programs designed to reduce emissions, including energy efficiency programs, increasing the use of electricity supplies obtained from renewable generation sources to 33 percent by 2020, and the adoption of a cap and trade system to ensure an overall reduction of emissions from electric generation. As stated in the Final Recommendations:

> *"The electricity and natural gas sectors will play a critical role in achieving this ambitious goal. Indeed, [C]ARB's Climate Change Draft Scoping Plan envisions that the electricity sector will contribute at least 40% of the total statewide GHG reductions, even though the sector currently creates just 25% of California's GHG emissions. This is before considering the additional emissions reductions that are projected to result from a GHG emissions allowance cap-and trade system, if such a system is adopted and implemented. The electricity sector is expected to reduce its emissions further due to its participation in such a market-based system."*

The CPUC/CEC Joint Recommendation Decision adopted on October 16, 2008, details the planned GHG reductions. This document makes three important points. First, GHG emissions from the electricity sector have been essentially flat since 1990. Second, the "reference case" modeled by the CPUC's consultants (the current 20 percent Renewable Portfolio Standard[1] [RPS] and existing energy efficiency programs) would result in continued compliance with the electricity sector's 1990 proportional share of GHG emissions by 2020 despite population growth. Third, the "accelerated policy case" (33 percent RPS plus greater energy efficiency as proposed by the CPUC, CEC, and CARB) would produce about 30 $MMTCO_2E$ of annual reductions or 27 percent below 1990 levels. This is without considering additional reductions expected from a cap and trade program.

Throughout 2009, CARB staff drafted rules to implement the AB32 Scoping Plan and held public workshops on each measure, including market mechanisms. The CARB has identified "Discrete Early Actions" that would be implemented to reduce GHG emissions from the years 2007 to 2012. On January 29, 2009, the CARB also announced its regulatory schedule to adopt 74 separate regulations and other measures including the enhanced energy efficiency programs and 33 percent RPS standard recommended in the Final Recommendations and in the CARB

[1] The requirement imposed on utilities to derive a specified percentage of their power from renewable sources is known as a Renewable Portfolio Standard (RPS).

Scoping Plan. The early action measures identified within the Scoping Plan took effect on January 1, 2010, and the CARB will continue to adopt GHG emissions regulations throughout 2010.

AB32 – Scoping Plan Measure H-6: Reduce Sulfur Hexafluoride from Electrical Generation

The AB32 Scoping Plan measure H-6 is directly applicable to the Proposed Project due to the use of SF_6 in substation equipment. The U.S. EPA estimates that the electric power industry can achieve cost-effective SF_6 emissions reductions through operational improvements and equipment upgrades. This measure calls for SF6-continaing equipment to have a maximum emission rate of 10 percent by 2011. The maximum allowable emission rate will decrease by one percent each year until 2020, where the threshold will remain at one percent. This measure is expected to take regulatory effect in 2012.

Executive Order S14-08

Senate Bill (SB) 1078, passed in 2002, initially required electricity providers to obtain 20 percent of their power from renewable sources by 2020. The current RPS requirement of 20 percent renewable electricity sources by 2010 was established by 2006 legislation (SB107). On November 17, 2008, Governor Schwarzenegger signed an Executive Order requiring California's investor and publicly owned utilities to obtain 33 percent of their electric power from renewable sources by 2020.

California Public Utilities Commission Greenhouse Gas Emissions Performance Standard

The Electricity GHG Emission Standards Act (SB1368) was enacted in 2006. At the CPUC meeting on January 25, 2007, the CPUC adopted GHG requirements in the form of an emissions performance standard for any long-term power commitments made by the state's electrical utilities. Utilities are not allowed to enter into a long-term commitment to buy base-load power from power plants that emit more than 1,100 pounds of CO_2 (0.5 metric ton) per megawatt-hour. This standard is approximately the amount emitted by a combined-cycle turbine fueled with natural gas. The GHG emissions performance standard applies to new power plants, new investments in existing power plants, and new or renewed contracts with terms of five years or more, including contracts with power plants located outside of California. On May 23, 2007, the CEC also adopted a performance standard consistent with those of the CPUC.

Regional Climate and Meteorology

Climate in the San Diego Air Basin (SDAB) is generally warm, with low annual rainfall, occurring mostly during the winter months. Climate plays an important role in the air quality of the SDAB. When cool, moist air from the coast travels toward the higher elevations, a temperature inversion can occur. This inversion layer prevents polluted air from rising and dispersing. According to the SDAPCD, most air quality exceedances are recorded on the lower mountain slopes that experience an inversion layer.

Local meteorological conditions in the vicinity of the proposed Bay Boulevard Substation site conform to the regional pattern of strong onshore winds by day (especially in summer) and weak offshore winds at night (particularly during the winter). These local wind patterns are driven by the temperature difference between the ocean and the warm interior topography. In the summer, moderate breezes between eight and twelve miles per hour blow onshore and up through the

valley from the southwest by day. Light onshore breezes may continue overnight when the land remains warmer than the ocean. In the winter, the onshore flow is weaker and the wind flow reverses to blow from the northeast in the evening as the land becomes cooler than the ocean.

The climate of Chula Vista, as with all of Southern California, is largely controlled by the strength and position of the Pacific High. This high-pressure ridge over the west coast creates a repetitive pattern of frequent early morning cloudiness, hazy afternoon shine, clean daytime onshore breezes and little temperature change throughout the year. Limited rainfall occurs in the winter as the fringes of mid-latitude storms occasionally move through the area. Average temperatures in January range from 47 degrees Fahrenheit (°F) at night to 63 °F during the day. The warmest month is August, when the high temperatures average 74 °F. Annual rainfall is approximately 10 inches in the Proposed Project area.

Air Quality

Criteria Air Pollutants

O_3, CO, NO_2, SO_2, lead, PM_{10}, and $PM_{2.5}$ are all criteria air pollutants (CAPs) that are regulated in California. Non methane ethane VOCs, also referred to as ROGs, are also regulated as precursors to the formation of O_3. These criteria pollutants and their effects on humans are discussed in the following sections.

Ozone

O_3 is a colorless gas that is not directly emitted as a pollutant, but is formed when hydrocarbons and NO_x react in the presence of sunlight. Low wind speeds or stagnant air mixed with warm temperatures typically provide optimum conditions for the formation of O_3. Because O_3 formation does not occur quickly, O_3 concentrations often peak downwind of the emission source. As a result, O_3 is of regional concern, impacting a larger area. When inhaled, O_3 irritates and damages the respiratory system.

Particulate Matter

PM—defined as particles suspended in a gas—is often a mixture of substances, including metals, nitrates, organic compounds, and complex mixtures such as diesel exhaust and soil. PM can be traced back to both man-made and natural sources. The most common sources of natural PM are dust and fires, while the most common man-made source is the combustion of fossil fuels.

PM causes irritation to the human respiratory system when inhaled. The extent of the health risks due to PM exposure can be determined by the size of the particles. The smaller the particles, the deeper they can be deposited in the lungs. PM is often grouped into two categories—inhalable PM less than 10 microns in diameter (PM_{10}) and fine PM less than 2.5 microns in diameter ($PM_{2.5}$).

Carbon Monoxide

CO is a colorless, odorless, and tasteless gas that is directly emitted as a by-product of combustion. CO concentrations tend to be localized to the source with the highest concentrations being associated with cold, stagnant weather conditions. CO is readily absorbed through the lungs into the blood, where it reduces the ability of the blood to carry oxygen.

Nitrogen Oxides

NO_x is a generic name for the group of highly reactive gases that contain nitrogen and oxygen in varying amounts. Many of the NO_x are colorless and odorless. However, one common pollutant, NO_2, along with particles in the air can often be seen as a reddish-brown layer over many urban areas.

NO_x form when fuel is burned at high temperatures. Typical manmade sources of NO_x include motor vehicles, fossil-fueled electricity generation utilities, and other industrial, commercial, and residential sources that burn fuels. NO_x can harm humans by affecting the respiratory system. Small particles can penetrate the sensitive parts of the lungs and can cause or worsen respiratory disease and can aggravate existing heart conditions.

As discussed previously, O_3 is formed when NO_x and VOCs react with sunlight.

Sulfur Oxides

SO_x are formed when sulfur-containing materials are processed or burned. SO_2 sources include industrial facilities—such as petroleum refineries and cement manufacturing and metal processing facilities—locomotives, large ships, and some non-road diesel equipment.

A wide variety of health and environmental impacts is associated with SO_2 because of the way it reacts with other substances in the air. People with asthma, children, the elderly, and people with heart or lung disease are particularly sensitive to SO_x emissions. When inhaled, these particles gather in the lungs and contribute to increased respiratory symptoms and disease, difficulty in breathing, and premature death.

Volatile Organic Compounds

VOCs (or ROGs) are a group of chemicals that react with NO_x and hydrocarbons in the presence of heat and sunlight to form O_3. Examples of VOCs include gasoline fumes and oil-based paints. This group of chemicals does not include CH_4 or other compounds determined by the U.S. EPA to have negligible photochemical reactivity.

Air Quality Designations

Three air quality designations can be given to an area for a particular pollutant:

- Nonattainment: This designation applies when air quality standards have not been consistently achieved.
- Attainment: This designation applies when air quality standards have been achieved.
- Unclassified: This designation applies when insufficient monitoring data exists to determine a nonattainment or attainment designation.

The current CAAQS, NAAQS, and SDAPCD attainment status is provided in Table 4.3-2: SDAPCD Attainment Status. The SDAPCD is currently designated as a nonattainment area for O_3 and PM.

Table 4.3-2: SDAPCD Attainment Status

Criteria Air Pollutants	State	Federal
O_3 (eight hour)	Nonattainment	Nonattainment
$PM_{2.5}$	Nonattainment	Unclassified/Attainment
PM_{10}	Nonattainment	Unclassified
CO	Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Attainment
Sulfates	Attainment	Not Applicable (NA)
Lead	Attainment	Attainment
Hydrogen Sulfide	Unclassified	NA
Visibility Reducing Particle	Unclassified	NA

Source: CARB, 2010c

Toxic Air Contaminants

TACs are the listed toxic pollutants as established by OEHHA. Under AB 1807, the CARB is required to use certain criteria in prioritizing, identifying, and controlling air toxics. In selecting substances for review, the CARB must consider pollutants that may pose a threat to human health or cause or contribute to serious illnesses or death. For many TACs, no threshold level exists below which adverse health impacts may not be expected to occur. This contrasts with the CAPs, for which acceptable levels of exposure can be determined and for which the state and federal governments have set ambient air quality standards.

As mentioned previously, PM emissions generated by diesel combustion, or DPM, are of particular concern in California. In 1998, the California EPA OEHHA completed a 10-year comprehensive human health assessment of diesel exhaust. The results of this assessment formed the basis for the CARB to formally identify DPM as a TAC that poses a threat to human health. Because no established AAQS exist for TACs, they are managed on a case-by-case basis, depending on the quantity and type of emissions and the proximity of potential receptors. DPM emissions result from a wide variety of sources, including on-road and off-road vehicles and stationary and portable internal combustion engines. In California, diesel internal combustion engines were estimated to generate 28,000 tons of PM emissions in 2000. Table 4.3-3: Estimated Ambient Exposure to DPM in California presents estimated outdoor ambient DPM exposure based on more strict regulation and the associated potential inhalation cancer risks in a population of one million over a 70-year lifetime.

Table 4.3-3: Estimated Ambient Exposure to DPM in California

Year	Ambient Exposure Concentration and Potential Risk ($\mu g/m^3$)	Potential Inhalation Risk (excess cancers per million)
2000	1.8	540
2010	1.5	450
2020	1.2	360

Source: CARB, 2000

Ambient Air Quality

Violations of NAAQS and CAAQS for O_3, PM, and CO have occurred historically in the Proposed Project area. The frequency of violations and current air quality conditions at the two monitoring sites nearest[2] to the Proposed Project area are summarized for O_3, PM_{10}, and $PM_{2.5}$ in Table 4.3-4: Recent Air Quality Concentrations and Table 4.3-5: Frequency of Air Quality Standard Violation. As shown in these tables, the air quality in the surrounding areas has been relatively stable over the past five years and has improved in some cases.

Greenhouse Gas Emissions Inventory

CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6 are all GHGs that contribute to global climate change. Emissions of CO_2 occur largely from combustion of fossil fuels. The major categories of fossil fuel combustion sources can be broken into the following five sectors: residential, commercial, industrial, transportation, and electricity generation. GHG emissions, such as CH_4 and N_2O, which occur in smaller quantities, are also tracked by state inventories.

California is responsible for approximately 500 $MMTCO_2E$, or more than one percent of the 49,000 $MMTCO_2E$ emitted globally. Electricity generation within California is responsible for about 55 $MMTCO_2E$ (depending on yearly variations) or 11 percent of the total statewide CO_2 emissions and about one percent of statewide CH_4 emissions.

The use of SF_6 in power transformers and circuit breakers at power plants poses a concern because of its extremely high global warming potential (GWP) of 23,900.[3] Within the electricity production industry, emissions of SF_6 generally occur from losses through poor gas handling practices during equipment installation, maintenance and decommissioning, and leakage from SF_6-containing equipment. Older equipment has been found to have a higher rate of SF_6 leakage, while newer equipment is often guaranteed minimal to zero leak rates by equipment manufacturers.

[2] The Chula Vista monitoring station is located approximately 2.3 miles east-northeast of the Proposed Project area at 80 East J Street in Chula Vista. The Beardsley monitoring station is located approximately 6.5 miles north-northwest of the Proposed Project area at 1110A Beardsley Street in San Diego.

[3] GWP is a measurement of how much a GHG will contribute to global warming. This relative scale compares the emission of any GHG to that of CO_2—which has a warming potential of one.

Table 4.3-4: Recent Air Quality Concentrations

Monitoring Site	Year	Ozone, Max 8-hour (parts per million)	PM_{10}, Max 24-hour ($\mu g/m^3$)	$PM_{2.5}$, Max 24-hour ($\mu g/m^3$)
Chula Vista	2008	0.084	54.0	32.9
	2007	0.087	58.0	77.8
	2006	0.069	52.0	30.2
	2005	0.081	53.0	34.3
Beardsley	2008	0.073	59.0	42.0
	2007	0.073	111.0	71.4
	2006	0.071	74.0	63.3
	2005	0.063	78.0	44.1

Source: CARB, 2010g

Table 4.3-5: Frequency of Air Quality Standard Violation

Monitoring Site	Year	Number of Days in Exceedance of Standard				
		State 1-Hour O_3	National 1-Hour O_3	State 24 Hour PM_{10}	National 24-Hour PM_{10}	National 24-Hour $PM_{2.5}$
Chula Vista	2008	1	0	6.1	0	0
	2007	2	0	12.2	0	9.9
	2006	0	0	11.7	0	0
	2005	0	0	13.1	0	0
Beardsley	2008	0	0	23.6	0	3.5
	2007	0	0	24.4	0	8.9
	2006	0	0	64.5	0	2.1
	2005	0	0	– –	– –	– –

Notes: "– –" = insufficient or unavailable data. Days over PM_{10} CAAQS are based on monitoring every sixth day.
Source: CARB, 2010g

In a recent EPA study, leak rates were established as a percentage of nameplate capacity and both a lower bound and an upper bound estimate of average circuit breaker leak rates were produced. All estimates are defined as the weighted average of circuit breaker annual leak rates as a percentage of SF_6 nameplate capacity. For the lower bound estimate (best-case scenario), the weighted-average circuit breaker leak rate is approximately 0.2 percent per year. For the upper bound estimates (worst-case scenario), the weighted-average leak rate is estimated to be between 2.4 and 2.5 percent per year. The approximate annual leak rate provided by SDG&E for SF_6 is approximately 0.29 percent for circuit breakers and cylinders. SDG&E's circuit breaker annual leak rate corresponds with the lower bound leak rate estimate from the EPA study.

The California Climate Action Registry (CCAR) offers protocols to facilitate the preparation of inventories of GHG emissions. The registry is a non-profit public corporation that records GHG emissions inventories that California entities voluntarily report. SDG&E has been a CCAR member since 2003 and has provided voluntary reports of "entity-wide" GHG emissions since 2004.

SDG&E has been engaged in programs to increase energy efficiency for many years. They have also increased the portion of their electricity generation portfolio devoted to renewable sources of energy. SDG&E is required to submit long term procurement plans (LTPP) to the CPUC that describe their strategy for meeting forecasted load during the coming 10 years. These plans must be consistent with the Energy Action Plan prescribed "loading order" to first meet growth with conservation, then with renewable sources of electricity, and finally with new fossil-fueled sources to the extent necessary. New generation sources must be consistent with the LTPP. SDG&E's LTPP was approved by the CPUC in September 2008 and provides for a substantial forecasted additional reduction in GHG emissions by 2016 through the following programs:

- Energy efficiency, which will reduce needed capacity by 487 megawatts (MW)
- Demand response, which will reduce needed capacity by 249 MW
- Renewables, which will provide 318 MW in 2010 and 727 MW in 2016
- New peaker plants to back up intermittent renewables and support retirement of older plants

Forecasted reductions from these programs are greater than 1.5 $MMTCO_2E$ per year. Approval by the CPUC will be required for future expenditures to implement these programs. These efforts will result in a carbon intensity reduction of one-third while accommodating continued population growth.

While SDG&E is not a member of the EPA SF_6 Emission Reduction Partnership for Electric Power Systems, SDG&E's SF_6 reporting procedure utilizes the industry standard, mass-balance approach also used by the partnership. SDG&E is also taking careful consideration of all technically and economically feasible options available as required by the partnership.

Sensitive Receptors

Some exposed population groups, including children, the elderly, and the ill, can be especially vulnerable to airborne chemicals and irritants and are termed "sensitive receptors." Additionally, due to sustained exposure durations, all persons located within residential areas are considered to

be sensitive receptors. The Proposed Project area is dominated by light-industrial land uses. The Bay Boulevard Substation site is bounded to the south and east by industrial parks and to the north by the existing South Bay Substation and South Bay Power Plant. The nearest sensitive receptors to the Proposed Project site are residential neighborhoods located approximately 800 feet east of SDG&E's existing 300-foot-wide easement. Interstate 5, a major transportation corridor in San Diego County, separates the Proposed Project site from these receptors. Refer to Section 4.9 Land Use for more information about residences in close proximity to the Proposed Project components.

4.3.3 Impacts

Significance Criteria

San Diego Air Pollution Control District Thresholds

To determine whether a significant impact would occur during construction, the SDAPCD informally recommends quantifying construction emissions and comparing them to significance thresholds (pounds per day) found in the SDAPCD regulations for stationary sources (pursuant to Rule 20.1, *et seq.*) and shown in Table 4.3-6: Air Quality Significance Thresholds – Construction Activities. If emissions during Proposed Project construction would exceed the thresholds that apply to stationary sources, then construction activities would have the potential to violate air quality standards or contribute substantially to existing violations.

Table 4.3-6: Air Quality Significance Thresholds – Construction Activities

Pollutant	Significance Threshold (pounds per day)
$PM_{2.5}$	55
PM_{10}	100
NO_x	250
SO_x	250
CO	550
VOCs	75

Note: In the absence of pounds per day VOC significance thresholds in the SDAPCDs rules, VOC thresholds were derived from the County of San Diego Land Use and Environment Group's Draft Guidelines for Determining Significance and Report Format and Content Report Format and Content Guidance Requirements Air Quality, 2007.
Source: SDAPCD, 2008

California Environmental Quality Act Guidelines

In addition to the previously mentioned criteria, Appendix G of the CEQA Guidelines determines project impacts to be significant if they would:

- 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 classified as nonattainment under an applicable federal or state ambient air quality standard

- Expose sensitive receptors to substantial pollutant concentrations

- Create objectionable odors affecting a substantial number of people

Greenhouse Gas Significance Thresholds

California Governor's Office of Planning and Research

The Office of Planning and Research (OPR) is the state-wide, comprehensive planning agency that is responsible for making policy recommendations and coordinating land use planning efforts. The OPR also coordinates the state-level review of environmental documents pursuant to CEQA. Currently, the OPR's stance on GHG significance thresholds has been to allow each lead agency to determine their own level of significance. OPR issued a Technical Advisory recommending an approach to evaluating greenhouse emissions in CEQA documents and is currently developing amendments to the CEQA Guidelines concerning GHG emission assessment. One of the principal elements of the proposed approach to determining significance of emissions in the Code of Regulations, Section 15064.4 follows:

> *"(a) A lead agency should consider the following, where applicable, in assessing the significance of impacts from greenhouse gas emissions, if any, on the environment:*
>
> > *(1) The extent to which the project could help or hinder attainment of the state's goals of reducing greenhouse gas emissions to 1990 levels by the year 2020 as stated in the Global Warming Solutions Act of 2006. A project may be considered to help attainment of the state's goals by being consistent with an adopted statewide 2020 greenhouse gas emissions limit or the plans, programs, and regulations adopted to implement the Global Warming Solutions Act of 2006."*

On October 24, 2008, the CARB released their interim CEQA significance thresholds for GHG, stating that a zero threshold is not required. The guidance divides projects analyzed under CEQA into two categories—industrial and residential/commercial—and provides significance criteria for each. The Proposed Project qualifies as an industrial project and, as a result, would be considered less than significant if the following two conditions are met:

- The project meets minimum performance standards or includes equivalent mitigation measures:
  - Construction – Meets an interim CARB performance standard for construction-related emissions
  - Transportation – Meets an interim CARB performance standard for transportation-related emissions
- The project with mitigation would emit no more than approximately 7,000 $MMTCO_2E$ per year from operation of non-transportation-related GHG sources. These sources include:
  - Combustion-related components/equipment

- Process losses
- Purchased electricity

South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) has issued a proposed approach to evaluation of GHG emissions and suggested significance thresholds until a state-wide approach and thresholds are adopted. The SCAQMD proposal calls for a tiered approach to evaluation of emissions with one of the significance thresholds being that GHG emissions from industrial projects total less than 10,000 $MTCO_2E$ per year. Construction emissions are evaluated by amortizing them over 30 years and adding them to the operational emissions. The SCAQMD is the closest local air district to the Proposed Project that has prepared such a threshold.

Question 4.3a – Applicable Air Quality Plan Conflicts

Construction – Less-than-Significant Impact

Emissions for the Proposed Project were simulated with the URBEMIS model using site-specific information to generate emission rates based on the Proposed Project's anticipated size, schedule, land use, construction methods, and operation and maintenance activities. Using this data, the model calculated the maximum daily and yearly emissions for a range of pollutants. URBEMIS model input and output are provided in Attachment 4.3-A: Proposed Project Emissions Calculation Methodology.

PM and NO_x are generally the primary air pollutants resulting from construction activities. The simulated PM emissions are the composite of two types of sources—fugitive dust and tailpipe emissions. Typical fugitive dust sources include earth-moving activities (such as grading of the substation pad, excavation of the underground duct bank trenches), the loading and unloading of fill and spoil materials, and vehicle travel across unpaved roads. Tailpipe emissions result from the combustion of fossil fuels in both off-road construction equipment and on-road vehicles. The results of the URBEMIS simulations included in Attachment 4.3-A: Proposed Project Emissions Calculation Methodology indicate that the peak unmitigated PM_{10} emissions would be approximately 198.3 pounds per day. In order to reduce these emissions to the less-than-significant level, applicant-proposed measure (APM)-AIR-01 through APM-AIR-03 were implemented and the URBEMIS model was rerun. These APM's—described in detail in Section 4.3.4 Applicant-Proposed Measures—require the watering of disturbed areas within the project area, limiting vehicle speeds to 15 miles per hour or less on unpaved areas, and limiting the actively graded area at the Bay Boulevard Substation to eight acres or less during site development activities. Table 4.3-7: Peak Daily Mitigated Construction Emissions presents these mitigated emission rates. With the implementation of these APMs, all emission rates would be below the applicable SDAPCD thresholds and impacts would be reduced to a less-than-significant level.

Table 4.3-7: Peak Daily Mitigated Construction Emissions

Pollutant	Simulated Emission Rate (pounds per day)	Significance Threshold (pounds per day)	Threshold Exceeded?
$PM_{2.5}$	27.0	55	No
PM_{10}	98.9	100	No
NO_x	231.1	250	No
SO_x	2.2	250	No
CO	120.3	550	No
VOC	19.2	75	No

Operation and Maintenance – No Impact

SDG&E currently owns and operates the South Bay Substation and existing transmission lines within the Proposed Project area. Because the South Bay Substation is being relocated and no new transmission lines would be added as part of the Proposed Project, the existing operation and maintenance activities would not differ as a result of constructing the Proposed Project. In addition, no generators or other emission-generating equipment would be operated at the Bay Boulevard Substation during operations. As a result, there would be no additional operational emissions and no impact.

Question 4.3b – Air Quality Standard Violations

Construction – Less-than-Significant Impact

Criteria Air Pollutant Emissions

As described in the response to Question 4.3a, with implementation of the dust and vehicle minimization measures—APM-AIR-01 through APM-AIR-03—provided in Section 4.3.4 Applicant-Proposed Measures, the simulated emission levels that may result from construction of the Proposed Project would remain below the significance thresholds recommended by the SDAPCD. These APMs include the application of water to control fugitive dust, limiting of actively graded areas during site development, and enforcing speed limits for off-road vehicle travel. The peak emission levels for each Proposed Project component from the simulation are provided in Table 4.3-7: Peak Daily Mitigated Construction Emissions. As demonstrated previously, construction of the Proposed Project wound not exceed daily (pounds per day) significance thresholds and are therefore not expected to trigger any exceedances of the CAAQS or NAAQS. SDG&E's Water Quality Construction Best Management Practices (BMP) Manual would also be implemented during construction activities. The BMPs contained within the manual, including the control and cleanup of track-out onto public roads, would further reduce fugitive dust emissions. Due to their low levels, the emissions from construction would not contribute substantially to any existing air quality violations. As a result, impacts to existing air quality standards would be less than significant.

Greenhouse Gas Emissions

GHG emissions were simulated for the construction phase of the Proposed Project using URBEMIS and emissions factors from the CCAR General Reporting Protocol (GRP) version 3.1. These GHG emissions would occur as a result of burning the fuel required to operate the on-site construction equipment and mobilize work crews to and from the Proposed Project site. Emissions of CO_2 were initially simulated using URBEMIS and the resulting emissions were then used in conjunction with the methods from the CCAR GRP version 3.1 and data from the California Statewide GHG Inventory to develop estimated CH_4, and N_2O emissions. Each chemical's GWP—CO_2, CH_4, and N_2O have GWPs of one, 21, and 310, respectively—were multiplied by their emission rate to produce CO_2E emission rates. Table 4.3-8: GHG Emissions from Construction and Table 4.3-9: CO_2E GHG Emissions from Construction present the total CO_2, CH_4, N_2O, and CO_2E emissions from construction. A detailed description of the methodology used for this calculation is presented in Attachment 4.3-A: Proposed Project Emissions Calculation Methodology.

As described previously, the CARB, SDAPCD, and SCAQMD have not developed quantitative GHG emission thresholds for construction. The Proposed Project non-transportation construction emissions, when summed across the three-year construction schedule, would be approximately 6,567.11 $MTCO_2E$. Both the Proposed Project-wide emissions and the average annual emission—approximately 2,189.04 $MTCO_2E$—would be below the CARB's annual operational threshold of 7,000 $MTCO_2E$ for non-transportation sources. The Proposed Project-wide GHG emissions when summed across the entire construction schedule—approximately 7,506.08 $MTCO_2E$—would also be below the SCAQMD's annual operational threshold. As a result, the GHG emissions related to construction would be less than significant.

Operation and Maintenance – Less-than-Significant Impact

Criteria Air Pollutant Emissions

As described previously in the response to Question 4.3a, the existing operation and maintenance activities within the Proposed Project area would not change following construction. As a result, there would be no impact from operation and maintenance activities.

Greenhouse Gas Emissions

Similar to the construction phase of the Proposed Project, GHG emissions during operation and maintenance would be the result of burning fuel during vehicle and equipment operation and electrical generation used to power the Bay Boulevard Substation. In addition, fugitive emissions of SF_6—a potent GHG with a GWP of 23,900—would result from the operation of transmission line equipment that would be installed at the Bay Boulevard Substation. As described previously, the operation and maintenance activities at the Bay Boulevard Substation would not change from the existing activities performed at the South Bay Substation. As a result, there would be no increase in GHG emissions from the operation of heavy equipment or vehicles used to maintain the substation.

Table 4.3-8: GHG Emissions from Construction

Equipment Type	CO_2 Emissions (metric tons)	CH_4 Emissions (metric tons)	N_2O Emissions (metric tons)
2011			
Off-Road	2,318.86	0.133	0.059
On-Road	316.13	0.007	0.011
Helicopter	– –	– –	– –
2012			
Off-Road	2,258.18	0.129	0.058
On-Road	340.36	0.008	0.011
Helicopter	7.06	< 0.001	< 0.001
2013			
Off-Road	1,923.53	0.110	0.049
On-Road	272.62	0.006	0.009
Helicopter	– –	– –	– –
Total	**7,436.73**	**0.393**	**0.197**

Table 4.3-9: CO_2E GHG Emissions from Construction

Project Component	CO_2 Emissions (metric tons)	CH_4 Emissions (CO_2E metric tons)	N_2O Emissions (CO_2E metric tons)	CO_2E Emissions (metric tons)
2011	2,634.99	2.94	21.62	2,659.54
2012	2,605.60	2.87	21.45	2,629.92
2013	2,196.14	2.43	18.04	2,216.62
Total	**7,436.73**	**8.24**	**61.11**	**7,506.08**

The changes in emissions due to the electrical consumption required to operate the relocated substation and the on-site SF_6-containing equipment have been calculated and are presented in Table 4.3-10: GHG Emission Changes from Operation and Maintenance. A detailed description of the calculation methodology for these emissions is presented in Attachment 4.3-A: Proposed Project Emissions Calculation Methodology.

Table 4.3-10: GHG Emission Changes from Operation and Maintenance

Project Component	CO_2 Emissions (metric tons)	CH_4 Emissions (CO_2E metric tons)	N_2O Emissions (CO_2E metric tons)	SF_6 Emissions (CO_2E metric tons)	Total CO_2E Emissions (metric tons)
Electrical Consumption					
Bay Boulevard Substation	164.23	143.83	569.49	– –	877.55
South Bay Substation	82.11	71.92	284.74	– –	438.77
Change in Emissions	**82.11**	**71.92**	**284.74**	**– –**	**438.77**
Fugitive SF_6 Emissions					
Bay Boulevard Substation*	– –	– –	– –	104.06	104.06
South Bay Substation	– –	– –	– –	5.06	5.06
Change in Emissions	**– –**	**– –**	**– –**	**99.00**	**99.00**
Total Change	**82.11**	**71.92**	**284.74**	**99.00**	**537.77**

* Figures for the ultimate arrangement at the Bay Boulevard Substation are presented. Annual emissions for the initial arrangement would be approximately 53.07 $MTCO_2E$.

To put the potential maximum GHG emissions and net increase from the Proposed Project into context, the County of San Diego emissions of GHGs are estimated to be 38.7 $MMTCO_2E$ per year. This value was derived by proportioning the 2004 State of California GHG emission inventory—approximately 479.7 $MMTCO_2E$ per year for a population of approximately 36.5 million—to the approximate county population of 2.94 million.

The Proposed Project's operational emissions are below the CARB and SCAQMD interim significance thresholds. Substantial system-wide reductions, including efficiency programs and RPS, are already being achieved by SDG&E. As a result, the impact of GHG emissions due to operation and maintenance would be less than significant. In order to reduce potential impacts further, to represent SDG&E's current business-as-usual approach, and in accordance with the CPUC PEA Checklist, APM-AIR-04 has been included. This APM states that SDG&E would implement a SF_6 monitoring plan, which would include carefully measuring the level of SF_6 in its equipment, identifying and repairing or replacing leaky equipment in a timely fashion, training employees on the effects of SF_6, and including potential green design elements to reduce energy consumption. It is anticipated that APM-AIR-04 would reduce emissions of SF_6 by approximately five percent.

Question 4.3c – Criteria Pollutant Increases

Construction – Less-than-Significant Impact

As shown previously in Table 4.3-7: Peak Daily Mitigated Construction Emissions, the construction of the Proposed Project would lead to a small increase in criteria air pollutants. SDG&E would implement APM-AIR-01 through APM-AIR-03—all designed to reduce fugitive dust emissions by limiting ground disturbance activities and applying water to exposed areas—to reduce the impacts of construction. As a result, impacts due to criteria pollutant increases would be less than significant.

Operation and Maintenance – No Impact

As described previously, all of the transmission lines would be rebuilt within existing rights-of-way (ROWs) and future operation and maintenance activities would not differ from the existing practices already conducted. The Bay Boulevard Substation would be unmanned and the maintenance requirements for this substation would not differ from the existing South Bay Substation. As a result, there would not be an increase in the emissions during operation and maintenance and no impact would occur.

Question 4.3d – Sensitive-Receptor Exposure

Construction – Less-than-Significant Impact

Sensitive receptors in the Proposed Project vicinity could be exposed to increases in CAPs as a result of the fugitive dust released during earth-moving activities. The closest of these receptors would be located approximately 800 feet east of the Proposed Project. These receptors—residential neighborhoods—are separated from the Proposed Project by Interstate 5, a major vehicular traffic corridor in San Diego County. Due to the distance between these receptors and the Proposed Project area and the implementation of APM-AIR-01 through APM-AIR-03, including controlling dust emissions from earth-disturbing activities, impacts would be less than significant.

Operation and Maintenance – No Impact

As previously described, SDG&E currently operates and maintains electrical transmission facilities in the Proposed Project area and the intensity and duration of these activities would not change after construction is completed. All of the transmission lines would be rebuilt within existing ROWs. The existing South Bay Substation would be relocated approximately 0.25 mile south, within a generally industrial area. As a result, there are no new sensitive receptors that would be exposed to air emissions. As a result, there would be no impact.

Question 4.3e – Odor

Construction – Less-than-Significant Impact

Due to the nature of the Proposed Project, odor impacts are unlikely. Typical odor nuisances include hydrogen sulfide, ammonia, chlorine, and other sulfide-related emissions. No significant sources of these pollutants would exist during construction. An additional potential source of Proposed Project-related odor is diesel engine emissions. As described previously, no sensitive receptors are located within approximately 800 feet of the Proposed Project site. Because there

would be few sources of odor, sensitive receptors would be located approximately 800 feet from construction activities and on the other side of a major highway, and construction would be short-term, impacts due to odor would be less than significant.

Operation and Maintenance – No Impact

As described previously, the operation and maintenance activities would not change after construction of the Proposed Project and no new receptors would be affected. As a result, there would be no perceptible changes in odor emissions during operation and maintenance activities, and there would be no impact.

4.3.4 Applicant-Proposed Measures

The APMs listed in this subsection would be implemented to reduce any potential impacts to a less-than-significant level. The APMs have been developed by reviewing the applicable guidance from the SDAPCD, the CPUC's Working Draft Proponent's Environmental Assessment Checklist for Transmission Line and Substation Projects, and the results from URBEMIS model simulations. Many of the APMs presented below represent a business-as-usual approach for SDG&E's construction activities. In addition to these APMs, SDG&E's Water Quality Construction BMP Manual would also be implemented as part of the Proposed Project.

- APM-AIR-01: All active construction areas, unpaved access roads, parking areas, and staging areas would be watered or stabilized with non-toxic soil stabilizers as needed to control fugitive dust.

- APM-AIR-02: Traffic speeds on unpaved roads and the ROW would be limited to 15 miles per hour.

- APM-AIR-03: SDG&E would limit actively graded areas to a cumulative total of eight acres per day. The total area of disturbance can exceed this acreage so long as the actively graded portion is below this threshold.

- APM-AIR-04: SDG&E would implement their existing sulfur hexafluoride (SF_6) mitigation strategies during the operation and maintenance of SF_6-containing equipment installed as part of the Proposed Project. These strategies include:

    - Recording company-wide SF_6 purchases for use in reporting annual GHG emissions under the CCAR Power Utilities Protocol and as a member of the Environmental Protection Agency's EPA SF_6 Partnership

    - Implementing SDG&E's SF_6 leak detection and repair program. This program includes monthly visual inspections of each GCB, which includes checking pressure levels within the breaker and recording these readings in SDG&E's Substation Management System. During the installation or major overhaul of any GCB, the unit is tested over a 24-hour period to ensure no leaks are present. Minor overhauls of each GCB are conducted every 36 to 40 months to check overall equipment health. This process includes checking gas pressure, moisture

ingress, and SF_6 decomposition. If the GCB fails any of these checks, the unit is checked for leaks and repaired. In addition, all GCBs are equipped with a gas-monitoring device and alarm that automatically alert SDG&E's Grid Operations Center. If gas pressure approaches minimum operating levels, an alarm is immediately reported to SDG&E's Substation Construction and Maintenance Department. The GCB is usually inspected for leaks within 24 hours of such an alarm. SDG&E's leak detection practice includes the following three methodologies:

  - Spraying a leak-detection agent onto common leak points—including O-rings, gaskets, and fittings
  - Using a field-monitoring device (sniffer) to detect the presence of SF_6 gas
  - Using a laser-detection camera to detect the presence of SF_6 gas when the above two methods are unsuccessful in finding a leak

- Implementing a SF_6 recycling program
- Training employees on the safety and proper handling of SF_6
- Continuing voluntary reporting of GHG emissions with the CCAR or The Climate Registry

4.3.5 References

CalEPA. 2006. *Climate Action Team Report to Governor Schwarzenegger and the Legislature*.

CARB. Air Monitoring Site Information. Online. http://www.arb.ca.gov/qaweb/site.php. Site visited April 16, 2010a.

CARB. Archive: Climate Change Scoping Plan Workshops. Online. http://www.arb.ca.gov/cc/scopingplan/meetings/archive-scopingmtgs.htm. Site visited April 16, 2010b.

CARB. Area Designations Maps / State and National. Online. http://www.arb.ca.gov/desig/adm/adm.htm. Site visited April 20, 2010c.

CARB. California Ambient Air Quality Standards (CAAQS) – CARB. Online. http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm. Site visited April 16, 2010d.

CARB. California's Greenhouse Gas Emissions Inventory. Online. http://www.arb.ca.gov/cc/inventory/data/data.htm. Site visited April 16, 2010e.

CARB. Climate Change. Online. http://www.arb.ca.gov/cc/cc.htm. Site visited April 16, 2010f.

CARB. iADAM Air Quality Data Statistics. Online. http://www.arb.ca.gov/adam/. Site visited April 16, 2010g.

CARB. 2007a. *California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit*.

CARB. 2007b. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*.

CARB. 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel Fueled Engines and Vehicles*.

CEC. AB32 Implementation: Greenhouse Gas Emission Standards, Docket # 07-OIIP-1. Online. http://www.energy.ca.gov/ghg_emissions/index.html. Site visited April 16, 2010.

CEC. 2007 Integrated Energy Policy Report. Online. http://www.energy.ca.gov/2007_energypolicy/index.html. Site visited April 16, 2010.

CPUC. D0712052 Opinion Adopting PG&E, SCE's and SDG&E's Long-Term Procurement Plans. Online. http://docs.cpuc.ca.gov/published/FINAL_DECISION/76979.htm. Site visited April 16, 2010.

CPUC. D0810037 Final Opinion on Greenhouse Gas Regulatory Strategies. Online. http://docs.cpuc.ca.gov/published/FINAL_DECISION/92591.htm. Site visited April 16, 2010.

Governor's OPR. Governor's Office of Planning and Research. Online. http://www.opr.ca.gov/index.php?a=ceqa/index.html. Site visited April 16, 2010.

IPCC. 2007. *Working Group III Contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report, Climate Change 2007: Mitigation of Climate Change*.

IPCC. 1995. *Climate Change 1995: The Science of Climate Change.*

San Diego County. 2007. *Department of Planning and Land Use, Guidelines for Determining Significance and Report Format and Content Requirements, Air Quality*.

SDAPCD. Air Pollution Control District, APCD-SD. Online. http://www.sdapcd.org/rules/rules/randr.html. Site visited April 16, 2010.

SDAPCD. 2005. *Measure to Reduce Particulate Matter in San Diego*.

SDAPCD. 2007. *Eight-Hour Ozone Attainment Plan for San Diego County*.

SCAQMD. 1993. *CEQA Air Quality Handbook*.

SCAQMD. 2007. *Software Users Guide: URBEMIS2007 for Windows*.

U.S. Census Bureau. San Diego County Quick Facts from the US Census Bureau. Online. http://quickfacts.census.gov/qfd/states/06/06073.html. Site visited April 16, 2010.

U.S. EPA. SF_6 Emission Reduction Partnership for Electric Power Systems. Online. http://www.epa.gov/electricpower-sf6/. Site visited April 16, 2010.

U.S. EPA. 2002. *Health Assessment Document for Diesel Engine Exhaust*.

U.S. EPA. SF_6 Leak Rates from High Voltage Circuit Breakers – U.S. EPA Investigates Potential Greenhouse Gas Emissions. Online. http://www.epa.gov/electricpower-sf6/documents/leakrates_circuitbreakers.pdf. Site visited April 16, 2010.

ATTACHMENT 4.3-A: PROPOSED PROJECT EMISSIONS CALCULATION METHODOLOGY

ATTACHMENT 4.3-A: PROPOSED PROJECT EMISSIONS CALCULATION METHODOLOGY

1.0 INTRODUCTION

The computer model URBEMIS version 9.2.4 (URBEMIS) was used to simulate the potential criteria air pollutant and greenhouse gas (GHG) emissions from the construction of the San Diego Gas & Electric Company (SDG&E) South Bay Substation Relocation Project (Proposed Project). URBEMIS—which stands for "Urban Emissions Model"—was originally developed by the California Air Resources Board as a tool to assist with estimating the potential air quality impacts from projects during the California Environmental Quality Act process.

URBEMIS was used to generate estimates of construction emissions from the Proposed Project for various pollutants, including inhalable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), carbon monoxide (CO), volatile organic compounds (VOC), sulfur oxides (SO_x), oxides of nitrogen (NO_x), and carbon dioxide (CO_2). URBEMIS was also used to evaluate the effectiveness of applicant-proposed measures on emission rates.

The resulting emissions from the URBEMIS simulations were used in conjunction with the methods from the California Climate Action Registry General Reporting Protocol (CCAR GRP) version 3.1 and data from the California Statewide GHG Inventory to develop estimated methane and nitrous oxide emissions.

1.1 URBEMIS MODELING

1.1.0 Modeling Input

Information related to the scope, physical size, and duration of each phase of the Proposed Project was obtained from SDG&E and used to characterize the five distinct components. Data was also provided for the type and quantity of off-road equipment expected to be used during construction. This information is summarized in Attachment 3-B: Construction Equipment Summary.

1.1.1 Soil Import and Export

In order to complete the site development activities at the Bay Boulevard Substation and the underground duct bank installations, new soil will be imported and existing materials, including soil and cleared vegetation, will be transported off site. The URBEMIS model was used to simulate the emissions that would result from these truck trips. For the site development activities, approximately 140,000 cubic yards (CY) of soil were assumed to be imported and approximately 7,500 CY of material would be transported off site. Approximately 1,650 CY and 4,900 CY would be imported and exported, respectively, during the underground duct bank installation process. It was assumed that each truck could transport approximately 15 CY of material, the average round trip was 30 miles long, and that the truck trips were distributed evenly throughout construction.

1.1.2 Modeling Output

The output files from all of the URBEMIS simulations have been included at the end of this document.

1.2 SUPPLEMENTAL CALCULATIONS

1.2.0 On-Road Vehicle Use

Additional on-road vehicles, outside of those used to import and export material during the site development and underground duct bank installation processes, will be required to complete construction of the Proposed Project. These trips will include the delivery of construction materials to the site and the daily commutes of the approximately 60 personnel that will be on site each day. A summary of these required vehicle trips has been included at the end of this document.

1.2.1 Helicopter Use

Helicopter emissions were also estimated using emission factors from the Emissions and Dispersion Modeling System (EDMS) and the CCAR GRP. It was assumed that up to 24 hours of helicopter use spread over three eight-hour-long days would be required to complete the conductor pulling and tensioning activities.

1.2.2 GHG Calculations

GHG emissions were calculated for the following sources:

- On-road and off-road vehicle and equipment used during construction
- Auxiliary power consumption at the existing South Bay and proposed Bay Boulevard substations
- Fugitive sulfur hexafluoride (SF_6)-containing equipment located at the South Bay and Bay Boulevard substations

These GHG calculations have been provided at the end of this attachment.

On-Road Vehicle Use Summary

Vehicle Use	Construction Task Duration (days)	Average Trips per Day	Average Round Trip Distance (miles)	Total Vehicle Miles Traveled (miles)	Average Vehicle Miles Traveled Daily (miles)	Vehicle Classification
Worker Commutes	836	60	30	1,504,800	1,800	Light
Bay Boulevard Substation Deliveries	472	6	30	84,960	180	Heavy
Asphalt Delivery	5	8	30	1,200	240	Heavy
230 kV Loop-in Delivery	84	1	30	2,400	28.6	Medium
69 kV Relocation Delivery	111	1.5	30	4,950	44.6	Medium
138 kV Extension Delivery	105	2.9	30	9,000	85.7	Medium
South Bay Substation Demolition Export	209	6	30	37,620	180.0	Heavy

On-Road Emission Factors

Vehicle Classification	Emission Factor (pounds per 1,000 miles)					
	NO_x	ROG	PM*	CO	SO_x	CO_2
Light	0.661268363	0.541741311	0.08885704	6.230598352	0.009458975	957.3629523
Medium	3.357431069	0.817081372	0.15467384	8.338937458	0.016812374	1,713.180901
Heavy	31.33993399	2.429042904	1.227722772	12.44884488	0.03960396	4,066.006601

* PM estimates were assumed to be entirely PM_{10}. PM_{10} emissions were assumed to be comprised of 90 percent $PM_{2.5}$.

On-Road Emission Rates

Vehicle Use	Daily Emission Rate (pounds per day)					
	NO_x	ROG	PM*	CO	SO_x	CO_2
Worker Commutes	1.19	0.98	0.16	11.22	0.017	1,723.25
Bay Boulevard Substation Deliveries	5.64	0.44	0.22	2.24	0.007	731.88
Asphalt Delivery	7.52	0.58	0.29	2.99	0.010	975.84
230 kV Loop-In Delivery	0.10	0.02	0.004	0.24	<0.001	48.95
69 kV Relocation Delivery	0.15	0.04	0.007	0.37	0.001	76.40
138 kV Extension Delivery	0.29	0.07	0.01	0.71	0.001	146.84
South Bay Substation Demolition Export	5.64	0.44	0.22	2.24	0.007	731.88

* PM estimates were assumed to be entirely PM_{10}. PM_{10} emissions were assumed to be comprised of 90 percent $PM_{2.5}$.

Helicopter Emission Factors and Rates

Pollutant	Emissions per Flight Cycle (pounds per cycle)	Total Emissions (tons)†	Daily Emissions (pounds per day
CO	0.041	0.0135	9.01
ROG	0.312	0.0033	2.20
NO_x	0.041	0.0135	9.01
SO_x	0.020	0.0032	2.12
PM*	0.046	0.0051	3.37
CO_2	46.496	7.7802	5,186.77

* PM estimates were assumed to be entirely PM_{10}. PM_{10} emissions were assumed to be comprised of 90 percent $PM_{2.5}$.
† Calculations are based upon 48 cycles distributed evenly across three days

URBEMIS SIMULATION RESULTS

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Projects\SBS-BayBlvdSub.urb924

Project Name: SBS-BayBlvdSub

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

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	1.43	19.60	10.56	0.01	15.82	0.84	16.65	3.31	0.79	4.09	2,556.06
2011 TOTALS (tons/year mitigated)	1.43	19.60	10.56	0.01	7.50	0.84	8.33	1.57	0.79	2.36	2,556.06
Percent Reduction	0.00	0.00	0.00	0.00	52.61	0.00	49.96	52.55	0.00	42.44	0.00
2012 TOTALS (tons/year unmitigated)	0.89	11.23	5.54	0.00	1.55	0.50	2.05	0.32	0.47	0.80	1,333.83
2012 TOTALS (tons/year mitigated)	0.89	11.23	5.54	0.00	0.73	0.50	1.23	0.15	0.47	0.63	1,333.83
Percent Reduction	0.00	0.00	0.00	0.00	52.63	0.00	39.76	52.60	0.00	21.37	0.00
2013 TOTALS (tons/year unmitigated)	0.34	3.33	1.04	0.00	0.00	0.12	0.12	0.00	0.12	0.12	372.60
2013 TOTALS (tons/year mitigated)	0.34	3.33	1.04	0.00	0.00	0.12	0.12	0.00	0.12	0.12	372.60
Percent Reduction	0.00	0.00	0.00			0.00	0.00		0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

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

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

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

Construction Unmitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011	1.43	19.60	10.56	0.01	15.82	0.84	16.65	3.31	0.79	4.09	2,556.06
Mass Grading 03/01/2011-08/31/2011	0.82	10.87	6.23	0.01	12.66	0.48	13.14	2.65	0.45	3.10	1,455.36
Mass Grading Dust	0.00	0.00	0.00	0.00	12.64	0.00	12.64	2.64	0.00	2.64	0.00
Mass Grading Off Road Diesel	0.49	6.73	4.37	0.00	0.00	0.31	0.31	0.00	0.30	0.30	795.81
Mass Grading On Road Diesel	0.32	4.13	1.59	0.01	0.02	0.17	0.19	0.01	0.15	0.16	625.16
Mass Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.39
Fine Grading 05/01/2011-04/30/2012	0.35	5.45	2.62	0.00	3.15	0.20	3.36	0.66	0.19	0.85	721.40
Fine Grading Dust	0.00	0.00	0.00	0.00	3.15	0.00	3.15	0.66	0.00	0.66	0.00
Fine Grading Off Road Diesel	0.34	5.37	2.14	0.00	0.00	0.20	0.20	0.00	0.19	0.19	654.56
Fine Grading On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.08
Fine Grading Worker Trips	0.01	0.03	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.76
Building 09/01/2011-08/31/2012	0.25	3.28	1.71	0.00	0.00	0.16	0.16	0.00	0.15	0.15	379.30
Building Off Road Diesel	0.25	3.28	1.71	0.00	0.00	0.16	0.16	0.00	0.15	0.15	379.30
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2012	0.89	11.23	5.54	0.00	1.55	0.50	2.05	0.32	0.47	0.80	1,333.83
Asphalt 01/01/2012-01/31/2012	0.03	0.37	0.27	0.00	0.00	0.02	0.02	0.00	0.02	0.02	45.69
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	0.03	0.36	0.25	0.00	0.00	0.02	0.02	0.00	0.02	0.02	42.86
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	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.83
Building 09/01/2011-08/31/2012	0.53	6.60	3.48	0.00	0.00	0.32	0.32	0.00	0.30	0.30	754.99
Building Off Road Diesel	0.53	6.60	3.48	0.00	0.00	0.32	0.32	0.00	0.30	0.30	754.99
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 05/01/2011-04/30/2012	0.18	2.70	1.29	0.00	1.55	0.10	1.65	0.32	0.10	0.42	353.83
Fine Grading Dust	0.00	0.00	0.00	0.00	1.55	0.00	1.55	0.32	0.00	0.32	0.00
Fine Grading Off Road Diesel	0.18	2.66	1.07	0.00	0.00	0.10	0.10	0.00	0.10	0.10	321.05
Fine Grading On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.96
Fine Grading Worker Trips	0.01	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.82
Building 05/01/2012-10/15/2012	0.11	1.16	0.38	0.00	0.00	0.04	0.04	0.00	0.04	0.04	132.89
Building Off Road Diesel	0.11	1.16	0.38	0.00	0.00	0.04	0.04	0.00	0.04	0.04	132.89
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 11/01/2012-12/15/2012	0.04	0.41	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	46.43
Building Off Road Diesel	0.04	0.41	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	46.43
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2013	0.34	3.33	1.04	0.00	0.00	0.12	0.12	0.00	0.12	0.12	372.60
Building 01/01/2013-12/31/2013	0.34	3.33	1.04	0.00	0.00	0.12	0.12	0.00	0.12	0.12	372.60
Building Off Road Diesel	0.34	3.33	1.04	0.00	0.00	0.12	0.12	0.00	0.12	0.12	372.60
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 5/1/2011 - 4/30/2012 - Below Grade Construction

Total Acres Disturbed: 10

Maximum Daily Acreage Disturbed: 1.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 18.15

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS BayBlvdSub BelowGrade
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
6 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 2 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
2 Bore/Drill Rigs (200 hp) operating at a 0.75 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 811 hrs/year

1 Tractors/Loaders/Backhoes (75 hp) operating at a 0.55 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
2 Plate Compactors (8 hp) operating at a 0.43 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 600 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Cranes (150 hp) operating at a 0.43 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Trenchers (63 hp) operating at a 0.75 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 618 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 2 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

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Phase: Mass Grading 3/1/2011 - 8/31/2011 - Site Development

Total Acres Disturbed: 12.42

Maximum Daily Acreage Disturbed: 8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 1867.09

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS BayBlvdSub SiteDevelopment
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 929 hrs/year

2 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 695 hrs/year

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1396 hrs/year

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 929 hrs/year

2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 929 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Paving 1/1/2012 - 1/31/2012 - Access Road Construction

Acres to be Paved: 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS BayBlvdSub Access
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Paving Equipment (150 hp) operating at a 0.53 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 829 hrs/year

1 Pavers (100 hp) operating at a 0.62 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 821 hrs/year

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 929 hrs/year

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 929 hrs/year

1 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 695 hrs/year

Phase: Building Construction 9/1/2011 - 8/31/2012 - Above Grade Construction

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS BayBlvdSub AboveGrade
Off-Road Equipment:

1 Pumps (100 hp) operating at a 0.74 load factor for 24 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Cranes (200 hp) operating at a 0.43 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

4 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Other General Industrial Equipment (50 hp) operating at a 0.51 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
2 Tractors/Loaders/Backhoes (75 hp) operating at a 0.55 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Cranes (300 hp) operating at a 0.43 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Other General Industrial Equipment (50 hp) operating at a 0.51 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

Phase: Building Construction 5/1/2012 - 10/15/2012 - Relay Testing

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS BayBlvdSub RelayTesting
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

3 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

Phase: Building Construction 11/1/2012 - 12/15/2012 - 230 kV Substation Cutover

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS BayBlvdSub 230Cutover
Off-Road Equipment:

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2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

3 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

1 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

Phase: Building Construction 1/1/2013 - 12/31/2013 - 69 kV Substation Cutover

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS BayBlvdSub 69Cutover
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

3 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

1 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

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

2011	1.43	19.60	10.56	0.01	7.50	0.84	8.33	1.57	0.79	2.36	2,556.06
Mass Grading 03/01/2011-08/31/2011	0.82	10.87	6.23	0.01	6.00	0.48	6.48	1.26	0.45	1.71	1,455.36
Mass Grading Dust	0.00	0.00	0.00	0.00	5.98	0.00	5.98	1.25	0.00	1.25	0.00
Mass Grading Off Road Diesel	0.49	6.73	4.37	0.00	0.00	0.31	0.31	0.00	0.30	0.30	795.81
Mass Grading On Road Diesel	0.32	4.13	1.59	0.01	0.02	0.17	0.19	0.01	0.15	0.16	625.16
Mass Grading Worker Trips	0.01	0.02	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.39
Fine Grading 05/01/2011-04/30/2012	0.35	5.45	2.62	0.00	1.49	0.20	1.70	0.31	0.19	0.50	721.40
Fine Grading Dust	0.00	0.00	0.00	0.00	1.49	0.00	1.49	0.31	0.00	0.31	0.00
Fine Grading Off Road Diesel	0.34	5.37	2.14	0.00	0.00	0.20	0.20	0.00	0.19	0.19	654.56
Fine Grading On Road Diesel	0.00	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.08
Fine Grading Worker Trips	0.01	0.03	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.76
Building 09/01/2011-08/31/2012	0.25	3.28	1.71	0.00	0.00	0.16	0.16	0.00	0.15	0.15	379.30
Building Off Road Diesel	0.25	3.28	1.71	0.00	0.00	0.16	0.16	0.00	0.15	0.15	379.30
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2012	0.89	11.23	5.54	0.00	0.73	0.50	1.23	0.15	0.47	0.63	1,333.83
Asphalt 01/01/2012-01/31/2012	0.03	0.37	0.27	0.00	0.00	0.02	0.02	0.00	0.02	0.02	45.69
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	0.03	0.36	0.25	0.00	0.00	0.02	0.02	0.00	0.02	0.02	42.86
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	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.83

Building 09/01/2011-08/31/2012	0.53	6.60	3.48	0.00	0.00	0.32	0.32	0.00	0.30	0.30	754.99
Building Off Road Diesel	0.53	6.60	3.48	0.00	0.00	0.32	0.32	0.00	0.30	0.30	754.99
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 05/01/2011-04/30/2012	0.18	2.70	1.29	0.00	0.73	0.10	0.84	0.15	0.10	0.25	353.83
Fine Grading Dust	0.00	0.00	0.00	0.00	0.73	0.00	0.73	0.15	0.00	0.15	0.00
Fine Grading Off Road Diesel	0.18	2.66	1.07	0.00	0.00	0.10	0.10	0.00	0.10	0.10	321.05
Fine Grading On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.96
Fine Grading Worker Trips	0.01	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.82
Building 05/01/2012-10/15/2012	0.11	1.16	0.38	0.00	0.00	0.04	0.04	0.00	0.04	0.04	132.89
Building Off Road Diesel	0.11	1.16	0.38	0.00	0.00	0.04	0.04	0.00	0.04	0.04	132.89
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 11/01/2012-12/15/2012	0.04	0.41	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	46.43
Building Off Road Diesel	0.04	0.41	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	46.43
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.34	3.33	1.04	0.00	0.00	0.12	0.12	0.00	0.12	0.12	372.60
Building 01/01/2013-12/31/2013	0.34	3.33	1.04	0.00	0.00	0.12	0.12	0.00	0.12	0.12	372.60
Building Off Road Diesel	0.34	3.33	1.04	0.00	0.00	0.12	0.12	0.00	0.12	0.12	372.60
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 5/1/2011 - 4/30/2012 - Below Grade Construction

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

PM10: 55% PM25: 55%

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

PM10: 44% PM25: 44%

The following mitigation measures apply to Phase: Mass Grading 3/1/2011 - 8/31/2011 - Site Development

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

PM10: 55% PM25: 55%

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

PM10: 44% PM25: 44%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
TOTALS (tons/year, unmitigated)							

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
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	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
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)

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Projects\SBS-BayBlvdSub.urb924

Project Name: SBS-BayBlvdSub

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

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	13.79	189.53	103.84	0.09	190.31	8.00	198.31	39.78	7.52	47.30	25,292.78
2011 TOTALS (lbs/day mitigated)	13.79	189.53	103.84	0.09	90.20	8.00	98.20	18.88	7.52	26.39	25,292.78
2012 TOTALS (lbs/day unmitigated)	10.83	143.65	79.20	0.01	30.04	6.47	36.51	6.28	6.11	12.39	17,609.79
2012 TOTALS (lbs/day mitigated)	10.83	143.65	79.20	0.01	14.23	6.47	20.71	2.98	6.11	9.09	17,609.79
2013 TOTALS (lbs/day unmitigated)	2.14	21.30	6.67	0.00	0.00	0.78	0.78	0.00	0.74	0.74	2,380.85
2013 TOTALS (lbs/day mitigated)	2.14	21.30	6.67	0.00	0.00	0.78	0.78	0.00	0.74	0.74	2,380.85

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)							

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)							

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

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

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Time Slice 3/1/2011-4/30/2011 Active Days: 53	10.42	137.66	78.91	0.08	160.28	6.06	166.34	33.51	5.70	39.21	18,422.29
Mass Grading 03/01/2011-08/31/2011	10.42	137.66	78.91	0.08	160.28	6.06	166.34	33.51	5.70	39.21	18,422.29
Mass Grading Dust	0.00	0.00	0.00	0.00	160.00	0.00	160.00	33.41	0.00	33.41	0.00
Mass Grading Off Road Diesel	6.21	85.13	55.36	0.00	0.00	3.95	3.95	0.00	3.76	3.76	10,073.53
Mass Grading On Road Diesel	4.11	52.32	20.13	0.07	0.26	2.10	2.36	0.09	1.93	2.02	7,913.47
Mass Grading Worker Trips	0.11	0.20	3.41	0.00	0.02	0.01	0.03	0.01	0.01	0.02	435.29
Time Slice 5/2/2011-8/31/2011 Active Days: 105	**13.79**	**189.53**	**103.84**	**0.09**	190.31	**8.00**	198.31	39.78	**7.52**	47.30	**25,292.78**
Fine Grading 05/01/2011-04/30/2012	3.37	51.88	24.93	0.01	30.03	1.94	31.97	6.28	1.82	8.09	6,870.49
Fine Grading Dust	0.00	0.00	0.00	0.00	30.00	0.00	30.00	6.27	0.00	6.27	0.00
Fine Grading Off Road Diesel	3.20	51.11	20.34	0.00	0.00	1.90	1.90	0.00	1.79	1.79	6,233.90
Fine Grading On Road Diesel	0.04	0.51	0.20	0.00	0.00	0.02	0.02	0.00	0.02	0.02	76.94
Fine Grading Worker Trips	0.14	0.25	4.39	0.01	0.03	0.02	0.04	0.01	0.01	0.02	559.65
Mass Grading 03/01/2011-08/31/2011	10.42	137.66	78.91	0.08	160.28	6.06	166.34	33.51	5.70	39.21	18,422.29
Mass Grading Dust	0.00	0.00	0.00	0.00	160.00	0.00	160.00	33.41	0.00	33.41	0.00
Mass Grading Off Road Diesel	6.21	85.13	55.36	0.00	0.00	3.95	3.95	0.00	3.76	3.76	10,073.53
Mass Grading On Road Diesel	4.11	52.32	20.13	0.07	0.26	2.10	2.36	0.09	1.93	2.02	7,913.47
Mass Grading Worker Trips	0.11	0.20	3.41	0.00	0.02	0.01	0.03	0.01	0.01	0.02	435.29

Time Slice 9/1/2011-12/31/2011 Active Days: 105	8.09	114.33	57.57	0.01	30.03	4.91	34.94	6.28	4.62	10.89	14,095.29
Building 09/01/2011-08/31/2012	4.72	62.45	32.64	0.00	0.00	2.97	2.97	0.00	2.80	2.80	7,224.80
Building Off Road Diesel	4.72	62.45	32.64	0.00	0.00	2.97	2.97	0.00	2.80	2.80	7,224.80
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 05/01/2011-04/30/2012	3.37	51.88	24.93	0.01	30.03	1.94	31.97	6.28	1.82	8.09	6,870.49
Fine Grading Dust	0.00	0.00	0.00	0.00	30.00	0.00	30.00	6.27	0.00	6.27	0.00
Fine Grading Off Road Diesel	3.20	51.11	20.34	0.00	0.00	1.90	1.90	0.00	1.79	1.79	6,233.90
Fine Grading On Road Diesel	0.04	0.51	0.20	0.00	0.00	0.02	0.02	0.00	0.02	0.02	76.94
Fine Grading Worker Trips	0.14	0.25	4.39	0.01	0.03	0.02	0.04	0.01	0.01	0.02	559.65

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Time Slice 1/2/2012-1/31/2012 Active Days: 26	10.83	143.65	79.20	0.01	30.04	6.47	36.51	6.28	6.11	12.39	17,609.79
Asphalt 01/01/2012-01/31/2012	2.22	28.12	20.90	0.00	0.01	1.39	1.40	0.00	1.32	1.32	3,514.60
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	2.17	28.03	19.32	0.00	0.00	1.38	1.38	0.00	1.31	1.31	3,296.99
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	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61
Building 09/01/2011-08/31/2012	5.03	63.18	33.28	0.00	0.00	3.08	3.08	0.00	2.91	2.91	7,224.80
Building Off Road Diesel	5.03	63.18	33.28	0.00	0.00	3.08	3.08	0.00	2.91	2.91	7,224.80
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 05/01/2011-04/30/2012	3.58	52.35	25.02	0.01	30.03	2.01	32.04	6.28	1.89	8.16	6,870.40
Fine Grading Dust	0.00	0.00	0.00	0.00	30.00	0.00	30.00	6.27	0.00	6.27	0.00
Fine Grading Off Road Diesel	3.42	51.66	20.76	0.00	0.00	1.97	1.97	0.00	1.86	1.86	6,233.90
Fine Grading On Road Diesel	0.04	0.45	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	76.94
Fine Grading Worker Trips	0.12	0.23	4.08	0.01	0.03	0.02	0.04	0.01	0.01	0.02	559.56

Time Slice 2/1/2012-4/30/2012 Active Days: 77	8.61	115.53	58.30	0.01	30.03	5.09	35.12	6.28	4.79	11.07	14,095.19
Building 09/01/2011-08/31/2012	5.03	63.18	33.28	0.00	0.00	3.08	3.08	0.00	2.91	2.91	7,224.80
Building Off Road Diesel	5.03	63.18	33.28	0.00	0.00	3.08	3.08	0.00	2.91	2.91	7,224.80
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 05/01/2011-04/30/2012	3.58	52.35	25.02	0.01	30.03	2.01	32.04	6.28	1.89	8.16	6,870.40
Fine Grading Dust	0.00	0.00	0.00	0.00	30.00	0.00	30.00	6.27	0.00	6.27	0.00
Fine Grading Off Road Diesel	3.42	51.66	20.76	0.00	0.00	1.97	1.97	0.00	1.86	1.86	6,233.90
Fine Grading On Road Diesel	0.04	0.45	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	76.94
Fine Grading Worker Trips	0.12	0.23	4.08	0.01	0.03	0.02	0.04	0.01	0.01	0.02	559.56
Time Slice 5/1/2012-8/31/2012 Active Days: 106	6.56	79.35	38.52	0.00	0.00	3.68	3.68	0.00	3.47	3.47	9,070.52
Building 05/01/2012-10/15/2012	1.53	16.16	5.25	0.00	0.00	0.60	0.60	0.00	0.56	0.56	1,845.72
Building Off Road Diesel	1.53	16.16	5.25	0.00	0.00	0.60	0.60	0.00	0.56	0.56	1,845.72
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 09/01/2011-08/31/2012	5.03	63.18	33.28	0.00	0.00	3.08	3.08	0.00	2.91	2.91	7,224.80
Building Off Road Diesel	5.03	63.18	33.28	0.00	0.00	3.08	3.08	0.00	2.91	2.91	7,224.80
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Time Slice 9/1/2012-10/15/2012 Active Days: 38	1.53	16.16	5.25	0.00	0.00	0.60	0.60	0.00	0.56	0.56	1,845.72
Building 05/01/2012-10/15/2012	1.53	16.16	5.25	0.00	0.00	0.60	0.60	0.00	0.56	0.56	1,845.72
Building Off Road Diesel	1.53	16.16	5.25	0.00	0.00	0.60	0.60	0.00	0.56	0.56	1,845.72
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 11/1/2012-12/15/2012 Active Days: 39	1.95	20.84	6.42	0.00	0.00	0.74	0.74	0.00	0.70	0.70	2,380.85
Building 11/01/2012-12/15/2012	1.95	20.84	6.42	0.00	0.00	0.74	0.74	0.00	0.70	0.70	2,380.85
Building Off Road Diesel	1.95	20.84	6.42	0.00	0.00	0.74	0.74	0.00	0.70	0.70	2,380.85
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/1/2013-12/31/2013 Active Days: 313	2.14	21.30	6.67	0.00	0.00	0.78	0.78	0.00	0.74	0.74	2,380.85
Building 01/01/2013-12/31/2013	2.14	21.30	6.67	0.00	0.00	0.78	0.78	0.00	0.74	0.74	2,380.85
Building Off Road Diesel	2.14	21.30	6.67	0.00	0.00	0.78	0.78	0.00	0.74	0.74	2,380.85
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 5/1/2011 - 4/30/2012 - Below Grade Construction

Total Acres Disturbed: 10

Maximum Daily Acreage Disturbed: 1.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 18.15

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS BayBlvdSub BelowGrade

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Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
6 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 2 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
2 Bore/Drill Rigs (200 hp) operating at a 0.75 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 811 hrs/year

1 Tractors/Loaders/Backhoes (75 hp) operating at a 0.55 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
2 Plate Compactors (8 hp) operating at a 0.43 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 600 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Cranes (150 hp) operating at a 0.43 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Trenchers (63 hp) operating at a 0.75 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 618 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 2 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Mass Grading 3/1/2011 - 8/31/2011 - Site Development

Total Acres Disturbed: 12.42

Maximum Daily Acreage Disturbed: 8

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 1867.09

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS BayBlvdSub SiteDevelopment
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 929 hrs/year

2 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 695 hrs/year

1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1396 hrs/year

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 929 hrs/year

2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 929 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Paving 1/1/2012 - 1/31/2012 - Access Road Construction

Acres to be Paved: 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS BayBlvdSub Access
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Paving Equipment (150 hp) operating at a 0.53 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 829 hrs/year

1 Pavers (100 hp) operating at a 0.62 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 821 hrs/year

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 929 hrs/year

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 929 hrs/year

1 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 695 hrs/year

Phase: Building Construction 9/1/2011 - 8/31/2012 - Above Grade Construction

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS BayBlvdSub AboveGrade
Off-Road Equipment:

1 Pumps (100 hp) operating at a 0.74 load factor for 24 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Cranes (200 hp) operating at a 0.43 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

4 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Other General Industrial Equipment (50 hp) operating at a 0.51 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
2 Tractors/Loaders/Backhoes (75 hp) operating at a 0.55 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Cranes (300 hp) operating at a 0.43 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Other General Industrial Equipment (50 hp) operating at a 0.51 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

Phase: Building Construction 5/1/2012 - 10/15/2012 - Relay Testing

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS BayBlvdSub RelayTesting
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

3 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

Phase: Building Construction 11/1/2012 - 12/15/2012 - 230 kV Substation Cutover

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS BayBlvdSub 230Cutover
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

3 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

1 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

Phase: Building Construction 1/1/2013 - 12/31/2013 - 69 kV Substation Cutover

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS BayBlvdSub 69Cutover
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

3 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

1 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

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

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Time Slice 3/1/2011-4/30/2011 Active Days: 53	10.42	137.66	78.91	0.08	75.98	6.06	82.04	15.90	5.70	21.60	18,422.29
Mass Grading 03/01/2011-08/31/2011	10.42	137.66	78.91	0.08	75.98	6.06	82.04	15.90	5.70	21.60	18,422.29
Mass Grading Dust	0.00	0.00	0.00	0.00	75.70	0.00	75.70	15.81	0.00	15.81	0.00
Mass Grading Off Road Diesel	6.21	85.13	55.36	0.00	0.00	3.95	3.95	0.00	3.76	3.76	10,073.53
Mass Grading On Road Diesel	4.11	52.32	20.13	0.07	0.26	2.10	2.36	0.09	1.93	2.02	7,913.47
Mass Grading Worker Trips	0.11	0.20	3.41	0.00	0.02	0.01	0.03	0.01	0.01	0.02	435.29
Time Slice 5/2/2011-8/31/2011 Active Days: 105	**13.79**	**189.53**	**103.84**	**0.09**	90.20	**8.00**	98.20	18.88	**7.52**	26.39	**25,292.78**
Fine Grading 05/01/2011-04/30/2012	3.37	51.88	24.93	0.01	14.22	1.94	16.16	2.97	1.82	4.79	6,870.49
Fine Grading Dust	0.00	0.00	0.00	0.00	14.19	0.00	14.19	2.96	0.00	2.96	0.00
Fine Grading Off Road Diesel	3.20	51.11	20.34	0.00	0.00	1.90	1.90	0.00	1.79	1.79	6,233.90
Fine Grading On Road Diesel	0.04	0.51	0.20	0.00	0.00	0.02	0.02	0.00	0.02	0.02	76.94
Fine Grading Worker Trips	0.14	0.25	4.39	0.01	0.03	0.02	0.04	0.01	0.01	0.02	559.65
Mass Grading 03/01/2011-08/31/2011	10.42	137.66	78.91	0.08	75.98	6.06	82.04	15.90	5.70	21.60	18,422.29
Mass Grading Dust	0.00	0.00	0.00	0.00	75.70	0.00	75.70	15.81	0.00	15.81	0.00
Mass Grading Off Road Diesel	6.21	85.13	55.36	0.00	0.00	3.95	3.95	0.00	3.76	3.76	10,073.53
Mass Grading On Road Diesel	4.11	52.32	20.13	0.07	0.26	2.10	2.36	0.09	1.93	2.02	7,913.47
Mass Grading Worker Trips	0.11	0.20	3.41	0.00	0.02	0.01	0.03	0.01	0.01	0.02	435.29

Time Slice 9/1/2011-12/31/2011 Active Days: 105	8.09	114.33	57.57	0.01	14.22	4.91	19.13	2.97	4.62	7.59	14,095.29
Building 09/01/2011-08/31/2012	4.72	62.45	32.64	0.00	0.00	2.97	2.97	0.00	2.80	2.80	7,224.80
Building Off Road Diesel	4.72	62.45	32.64	0.00	0.00	2.97	2.97	0.00	2.80	2.80	7,224.80
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 05/01/2011-04/30/2012	3.37	51.88	24.93	0.01	14.22	1.94	16.16	2.97	1.82	4.79	6,870.49
Fine Grading Dust	0.00	0.00	0.00	0.00	14.19	0.00	14.19	2.96	0.00	2.96	0.00
Fine Grading Off Road Diesel	3.20	51.11	20.34	0.00	0.00	1.90	1.90	0.00	1.79	1.79	6,233.90
Fine Grading On Road Diesel	0.04	0.51	0.20	0.00	0.00	0.02	0.02	0.00	0.02	0.02	76.94
Fine Grading Worker Trips	0.14	0.25	4.39	0.01	0.03	0.02	0.04	0.01	0.01	0.02	559.65

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Time Slice 1/2/2012-1/31/2012 Active Days: 26	10.83	143.65	79.20	0.01	14.23	6.47	20.71	2.98	6.11	9.09	17,609.79
Asphalt 01/01/2012-01/31/2012	2.22	28.12	20.90	0.00	0.01	1.39	1.40	0.00	1.32	1.32	3,514.60
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	2.17	28.03	19.32	0.00	0.00	1.38	1.38	0.00	1.31	1.31	3,296.99
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	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61
Building 09/01/2011-08/31/2012	5.03	63.18	33.28	0.00	0.00	3.08	3.08	0.00	2.91	2.91	7,224.80
Building Off Road Diesel	5.03	63.18	33.28	0.00	0.00	3.08	3.08	0.00	2.91	2.91	7,224.80
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 05/01/2011-04/30/2012	3.58	52.35	25.02	0.01	14.22	2.01	16.23	2.97	1.89	4.86	6,870.40
Fine Grading Dust	0.00	0.00	0.00	0.00	14.19	0.00	14.19	2.96	0.00	2.96	0.00
Fine Grading Off Road Diesel	3.42	51.66	20.76	0.00	0.00	1.97	1.97	0.00	1.86	1.86	6,233.90
Fine Grading On Road Diesel	0.04	0.45	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	76.94
Fine Grading Worker Trips	0.12	0.23	4.08	0.01	0.03	0.02	0.04	0.01	0.01	0.02	559.56

Time Slice 2/1/2012-4/30/2012 Active Days: 77	8.61	115.53	58.30	0.01	14.22	5.09	19.31	2.97	4.79	7.77	14,095.19
Building 09/01/2011-08/31/2012	5.03	63.18	33.28	0.00	0.00	3.08	3.08	0.00	2.91	2.91	7,224.80
Building Off Road Diesel	5.03	63.18	33.28	0.00	0.00	3.08	3.08	0.00	2.91	2.91	7,224.80
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 05/01/2011-04/30/2012	3.58	52.35	25.02	0.01	14.22	2.01	16.23	2.97	1.89	4.86	6,870.40
Fine Grading Dust	0.00	0.00	0.00	0.00	14.19	0.00	14.19	2.96	0.00	2.96	0.00
Fine Grading Off Road Diesel	3.42	51.66	20.76	0.00	0.00	1.97	1.97	0.00	1.86	1.86	6,233.90
Fine Grading On Road Diesel	0.04	0.45	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	76.94
Fine Grading Worker Trips	0.12	0.23	4.08	0.01	0.03	0.02	0.04	0.01	0.01	0.02	559.56
Time Slice 5/1/2012-8/31/2012 Active Days: 106	6.56	79.35	38.52	0.00	0.00	3.68	3.68	0.00	3.47	3.47	9,070.52
Building 05/01/2012-10/15/2012	1.53	16.16	5.25	0.00	0.00	0.60	0.60	0.00	0.56	0.56	1,845.72
Building Off Road Diesel	1.53	16.16	5.25	0.00	0.00	0.60	0.60	0.00	0.56	0.56	1,845.72
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 09/01/2011-08/31/2012	5.03	63.18	33.28	0.00	0.00	3.08	3.08	0.00	2.91	2.91	7,224.80
Building Off Road Diesel	5.03	63.18	33.28	0.00	0.00	3.08	3.08	0.00	2.91	2.91	7,224.80
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Time Slice 9/1/2012-10/15/2012 Active Days: 38	1.53	16.16	5.25	0.00	0.00	0.60	0.60	0.00	0.56	0.56	1,845.72
Building 05/01/2012-10/15/2012	1.53	16.16	5.25	0.00	0.00	0.60	0.60	0.00	0.56	0.56	1,845.72
Building Off Road Diesel	1.53	16.16	5.25	0.00	0.00	0.60	0.60	0.00	0.56	0.56	1,845.72
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 11/1/2012-12/15/2012 Active Days: 39	1.95	20.84	6.42	0.00	0.00	0.74	0.74	0.00	0.70	0.70	2,380.85
Building 11/01/2012-12/15/2012	1.95	20.84	6.42	0.00	0.00	0.74	0.74	0.00	0.70	0.70	2,380.85
Building Off Road Diesel	1.95	20.84	6.42	0.00	0.00	0.74	0.74	0.00	0.70	0.70	2,380.85
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/1/2013-12/31/2013 Active Days: 313	2.14	21.30	6.67	0.00	0.00	0.78	0.78	0.00	0.74	0.74	2,380.85
Building 01/01/2013-12/31/2013	2.14	21.30	6.67	0.00	0.00	0.78	0.78	0.00	0.74	0.74	2,380.85
Building Off Road Diesel	2.14	21.30	6.67	0.00	0.00	0.78	0.78	0.00	0.74	0.74	2,380.85
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 5/1/2011 - 4/30/2012 - Below Grade Construction

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

PM10: 55% PM25: 55%

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

PM10: 44% PM25: 44%

The following mitigation measures apply to Phase: Mass Grading 3/1/2011 - 8/31/2011 - Site Development

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

PM10: 55% PM25: 55%

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

PM10: 44% PM25: 44%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
TOTALS (lbs/day, unmitigated)							

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 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

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
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	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

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

% of Trips - Commercial (by land use)

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Projects\SBS-230LoopIn.urb924

Project Name: SBS-230LoopIn

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

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012 TOTALS (tons/year unmitigated)	0.11	1.41	0.71	0.00	0.00	0.07	0.07	0.00	0.06	0.06	168.36
2012 TOTALS (tons/year mitigated)	0.11	1.41	0.71	0.00	0.00	0.07	0.07	0.00	0.06	0.06	168.36
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

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

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

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

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

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	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012	0.11	1.41	0.71	0.00	0.00	0.07	0.07	0.00	0.06	0.06	168.36
Fine Grading 02/01/2012-02/15/2012	0.01	0.17	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	22.21
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.01	0.17	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	20.80
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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
Building 04/01/2012-04/15/2012	0.01	0.13	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	16.25
Building Off Road Diesel	0.01	0.13	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	16.25
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 06/01/2012-07/31/2012	0.06	0.71	0.41	0.00	0.00	0.04	0.04	0.00	0.04	0.04	81.47
Building Off Road Diesel	0.06	0.71	0.41	0.00	0.00	0.04	0.04	0.00	0.04	0.04	81.47
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition 10/01/2012-10/08/2012	0.01	0.13	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.20
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	0.01	0.13	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.44
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	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76

Building 11/01/2012-12/15/2012	0.02	0.26	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	31.22
Building Off Road Diesel	0.02	0.26	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	31.22
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Demolition 10/1/2012 - 10/8/2012 - Riser Pole Removal

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 230LoopIn RiserRemoval
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Excavators (168 hp) operating at a 0.57 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1396 hrs/year

2 Cranes (300 hp) operating at a 0.43 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Fine Grading 2/1/2012 - 2/15/2012 - Foundation Installation

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 230LoopIn Foundation
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Bore/Drill Rigs (200 hp) operating at a 0.75 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 811 hrs/year

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 600 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 4/1/2012 - 4/15/2012 - Steel Pole Installation

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 230LoopIn SteelPole
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Cranes (300 hp) operating at a 0.43 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 6/1/2012 - 7/31/2012 - Conductor Pulling and Tensioning

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 230LoopIn Pulling
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Other General Industrial Equipment (100 hp) operating at a 0.51 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
2 Other General Industrial Equipment (50 hp) operating at a 0.51 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 11/1/2012 - 12/15/2012 - 230 kV Transmission Cutover

Off Road Diesel calculated using the Named Equipment EMS functions.

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The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 230LoopIn Cutover
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012	0.11	1.41	0.71	0.00	0.00	0.07	0.07	0.00	0.06	0.06	168.36
Fine Grading 02/01/2012-02/15/2012	0.01	0.17	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	22.21
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.01	0.17	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	20.80
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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.41
Building 04/01/2012-04/15/2012	0.01	0.13	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	16.25
Building Off Road Diesel	0.01	0.13	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.00	16.25
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 06/01/2012-07/31/2012	0.06	0.71	0.41	0.00	0.00	0.04	0.04	0.00	0.04	0.04	81.47
Building Off Road Diesel	0.06	0.71	0.41	0.00	0.00	0.04	0.04	0.00	0.04	0.04	81.47
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Demolition 10/01/2012-10/08/2012	0.01	0.13	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.20
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	0.01	0.13	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.44
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	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76
Building 11/01/2012-12/15/2012	0.02	0.26	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	31.22
Building Off Road Diesel	0.02	0.26	0.12	0.00	0.00	0.01	0.01	0.00	0.01	0.01	31.22
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 2/1/2012 - 2/15/2012 - Foundation Installation

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

PM10: 55% PM25: 55%

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

PM10: 44% PM25: 44%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
TOTALS (tons/year, unmitigated)							

Operational Settings:

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Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
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	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

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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)

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Projects\SBS-230LoopIn.urb924

Project Name: SBS-230LoopIn

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

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012 TOTALS (lbs/day unmitigated)	2.90	37.06	15.86	0.00	0.01	1.45	1.45	0.00	1.36	1.36	4,914.42
2012 TOTALS (lbs/day mitigated)	2.90	37.06	15.86	0.00	0.01	1.45	1.45	0.00	1.36	1.36	4,914.42

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)							

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)							

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

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	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 2/1/2012-2/15/2012 Active Days: 13	1.83	26.40	10.96	**0.00**	**0.01**	0.96	0.97	**0.00**	0.90	0.90	3,417.40
Fine Grading 02/01/2012-02/15/2012	1.83	26.40	10.96	0.00	0.01	0.96	0.97	0.00	0.90	0.90	3,417.40
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	1.78	26.30	9.37	0.00	0.00	0.95	0.95	0.00	0.89	0.89	3,199.79
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	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61
Time Slice 4/2/2012-4/14/2012 Active Days: 12	1.65	22.03	8.71	0.00	0.00	0.87	0.87	0.00	0.82	0.82	2,708.31
Building 04/01/2012-04/15/2012	1.65	22.03	8.71	0.00	0.00	0.87	0.87	0.00	0.82	0.82	2,708.31
Building Off Road Diesel	1.65	22.03	8.71	0.00	0.00	0.87	0.87	0.00	0.82	0.82	2,708.31
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 6/1/2012-7/31/2012 Active Days: 52	2.25	27.45	**15.86**	0.00	0.00	**1.45**	**1.45**	0.00	**1.36**	**1.36**	3,133.41
Building 06/01/2012-07/31/2012	2.25	27.45	15.86	0.00	0.00	1.45	1.45	0.00	1.36	1.36	3,133.41
Building Off Road Diesel	2.25	27.45	15.86	0.00	0.00	1.45	1.45	0.00	1.36	1.36	3,133.41
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Time Slice 10/1/2012-10/8/2012 Active Days: 7	**2.90**	**37.06**	15.57	**0.00**	**0.01**	1.35	1.36	**0.00**	1.27	1.28	**4,914.42**
Demolition 10/01/2012-10/08/2012	2.90	37.06	15.57	0.00	0.01	1.35	1.36	0.00	1.27	1.28	4,914.42
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	2.85	36.97	13.98	0.00	0.00	1.34	1.34	0.00	1.27	1.27	4,696.81
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	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61
Time Slice 11/1/2012-12/15/2012 Active Days: 39	1.02	13.54	6.03	0.00	0.00	0.58	0.58	0.00	0.54	0.54	1,601.25
Building 11/01/2012-12/15/2012	1.02	13.54	6.03	0.00	0.00	0.58	0.58	0.00	0.54	0.54	1,601.25
Building Off Road Diesel	1.02	13.54	6.03	0.00	0.00	0.58	0.58	0.00	0.54	0.54	1,601.25
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Demolition 10/1/2012 - 10/8/2012 - Riser Pole Removal

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 230LoopIn RiserRemoval
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Excavators (168 hp) operating at a 0.57 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1396 hrs/year

2 Cranes (300 hp) operating at a 0.43 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

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Phase: Fine Grading 2/1/2012 - 2/15/2012 - Foundation Installation

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 230LoopIn Foundation
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Bore/Drill Rigs (200 hp) operating at a 0.75 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 811 hrs/year

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 600 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 4/1/2012 - 4/15/2012 - Steel Pole Installation

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 230LoopIn SteelPole
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Cranes (300 hp) operating at a 0.43 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 6/1/2012 - 7/31/2012 - Conductor Pulling and Tensioning

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 230LoopIn Pulling

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Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Other General Industrial Equipment (100 hp) operating at a 0.51 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
2 Other General Industrial Equipment (50 hp) operating at a 0.51 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 11/1/2012 - 12/15/2012 - 230 kV Transmission Cutover

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 230LoopIn Cutover
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 2/1/2012-2/15/2012 Active Days: 13	1.83	26.40	10.96	**0.00**	**0.01**	0.96	0.97	**0.00**	0.90	0.90	3,417.40
Fine Grading 02/01/2012-02/15/2012	1.83	26.40	10.96	0.00	0.01	0.96	0.97	0.00	0.90	0.90	3,417.40
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	1.78	26.30	9.37	0.00	0.00	0.95	0.95	0.00	0.89	0.89	3,199.79
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	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61

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Time Slice 4/2/2012-4/14/2012 Active Days: 12	1.65	22.03	8.71	0.00	0.00	0.87	0.87	0.00	0.82	0.82	2,708.31
Building 04/01/2012-04/15/2012	1.65	22.03	8.71	0.00	0.00	0.87	0.87	0.00	0.82	0.82	2,708.31
Building Off Road Diesel	1.65	22.03	8.71	0.00	0.00	0.87	0.87	0.00	0.82	0.82	2,708.31
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 6/1/2012-7/31/2012 Active Days: 52	2.25	27.45	**15.86**	0.00	0.00	**1.45**	**1.45**	0.00	**1.36**	**1.36**	3,133.41
Building 06/01/2012-07/31/2012	2.25	27.45	15.86	0.00	0.00	1.45	1.45	0.00	1.36	1.36	3,133.41
Building Off Road Diesel	2.25	27.45	15.86	0.00	0.00	1.45	1.45	0.00	1.36	1.36	3,133.41
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 10/1/2012-10/8/2012 Active Days: 7	**2.90**	**37.06**	15.57	**0.00**	**0.01**	1.35	1.36	**0.00**	1.27	1.28	**4,914.42**
Demolition 10/01/2012-10/08/2012	2.90	37.06	15.57	0.00	0.01	1.35	1.36	0.00	1.27	1.28	4,914.42
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	2.85	36.97	13.98	0.00	0.00	1.34	1.34	0.00	1.27	1.27	4,696.81
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	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61
Time Slice 11/1/2012-12/15/2012 Active Days: 39	1.02	13.54	6.03	0.00	0.00	0.58	0.58	0.00	0.54	0.54	1,601.25
Building 11/01/2012-12/15/2012	1.02	13.54	6.03	0.00	0.00	0.58	0.58	0.00	0.54	0.54	1,601.25
Building Off Road Diesel	1.02	13.54	6.03	0.00	0.00	0.58	0.58	0.00	0.54	0.54	1,601.25
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 2/1/2012 - 2/15/2012 - Foundation Installation

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

PM10: 55% PM25: 55%

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

PM10: 44% PM25: 44%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
TOTALS (lbs/day, unmitigated)							

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 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

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
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	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

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

% of Trips - Commercial (by land use)

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Projects\SBS-69Relocation.urb924

Project Name: SBS-69Relocation

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

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012 TOTALS (tons/year unmitigated)	0.16	2.17	1.03	0.00	0.00	0.09	0.09	0.00	0.09	0.09	261.33
2012 TOTALS (tons/year mitigated)	0.16	2.17	1.03	0.00	0.00	0.09	0.09	0.00	0.09	0.09	261.33
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013 TOTALS (tons/year unmitigated)	0.49	5.46	1.69	0.00	0.00	0.19	0.19	0.00	0.18	0.18	619.92
2013 TOTALS (tons/year mitigated)	0.49	5.46	1.69	0.00	0.00	0.19	0.19	0.00	0.18	0.18	619.92
Percent Reduction	0.00	0.00	0.00			0.00	0.00		0.00	0.00	0.00
2014 TOTALS (tons/year unmitigated)	0.05	0.53	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	58.52
2014 TOTALS (tons/year mitigated)	0.05	0.53	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	58.52
Percent Reduction	0.00	0.00	0.00			0.00	0.00		0.00	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

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

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

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

Construction Unmitigated Detail Report:

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CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012	0.16	2.17	1.03	0.00	0.00	0.09	0.09	0.00	0.09	0.09	261.33
Fine Grading 06/01/2012-06/22/2012	0.02	0.25	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	32.19
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.02	0.24	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	29.42
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	0.70
Fine Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07
Building 08/01/2012-09/30/2012	0.10	1.40	0.63	0.00	0.00	0.06	0.06	0.00	0.05	0.05	168.87
Building Off Road Diesel	0.10	1.40	0.63	0.00	0.00	0.06	0.06	0.00	0.05	0.05	168.87
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 10/01/2012-11/15/2012	0.04	0.53	0.30	0.00	0.00	0.03	0.03	0.00	0.03	0.03	60.26
Building Off Road Diesel	0.04	0.53	0.30	0.00	0.00	0.03	0.03	0.00	0.03	0.03	60.26
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2013	0.49	5.46	1.69	0.00	0.00	0.19	0.19	0.00	0.18	0.18	619.92
Building 02/01/2013-01/31/2014	0.49	5.46	1.69	0.00	0.00	0.19	0.19	0.00	0.18	0.18	619.92
Building Off Road Diesel	0.49	5.46	1.69	0.00	0.00	0.19	0.19	0.00	0.18	0.18	619.92
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2014	0.05	0.53	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	58.52
Building 02/01/2013-01/31/2014	0.05	0.53	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	58.52
Building Off Road Diesel	0.05	0.53	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	58.52
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 6/1/2012 - 6/22/2012 - Foundation Installation

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 17.37

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 69Relocate Foundation
Off-Road Equipment:

1 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Bore/Drill Rigs (200 hp) operating at a 0.75 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 811 hrs/year

2 Plate Compactors (8 hp) operating at a 0.43 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 600 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 8/1/2012 - 9/30/2012 - Pole Removal, Installation, and Replacement

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 69Relocate Poles
Off-Road Equipment:

5 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 5 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 2 hours per day; Engine Built/Rebuilt in 2005 with average useage of 580 hrs/year

1 Rollers (95 hp) operating at a 0.56 load factor for 5 hours per day; Engine Built/Rebuilt in 2005 with average useage of 695 hrs/year

2 Bore/Drill Rigs (200 hp) operating at a 0.75 load factor for 5 hours per day; Engine Built/Rebuilt in 2005 with average useage of 811 hrs/year

1 Cranes (300 hp) operating at a 0.43 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

2 Cranes (150 hp) operating at a 0.43 load factor for 5 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 10/1/2012 - 11/15/2012 - Conductor Pulling and Tensioning

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 69Relocate Pulling
Off-Road Equipment:

1 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Other General Industrial Equipment (100 hp) operating at a 0.51 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
2 Other General Industrial Equipment (50 hp) operating at a 0.51 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 2/1/2013 - 1/31/2014 - 69 kV Transmission Cutover

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 69Relocate Cutover
Off-Road Equipment:

1 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

2 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

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Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012	0.16	2.17	1.03	0.00	0.00	0.09	0.09	0.00	0.09	0.09	261.33
Fine Grading 06/01/2012-06/22/2012	0.02	0.25	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	32.19
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.02	0.24	0.08	0.00	0.00	0.01	0.01	0.00	0.01	0.01	29.42
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	0.70
Fine Grading Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07
Building 08/01/2012-09/30/2012	0.10	1.40	0.63	0.00	0.00	0.06	0.06	0.00	0.05	0.05	168.87
Building Off Road Diesel	0.10	1.40	0.63	0.00	0.00	0.06	0.06	0.00	0.05	0.05	168.87
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 10/01/2012-11/15/2012	0.04	0.53	0.30	0.00	0.00	0.03	0.03	0.00	0.03	0.03	60.26
Building Off Road Diesel	0.04	0.53	0.30	0.00	0.00	0.03	0.03	0.00	0.03	0.03	60.26
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2013	0.49	5.46	1.69	0.00	0.00	0.19	0.19	0.00	0.18	0.18	619.92
Building 02/01/2013-01/31/2014	0.49	5.46	1.69	0.00	0.00	0.19	0.19	0.00	0.18	0.18	619.92
Building Off Road Diesel	0.49	5.46	1.69	0.00	0.00	0.19	0.19	0.00	0.18	0.18	619.92
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2014	0.05	0.53	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	58.52
Building 02/01/2013-01/31/2014	0.05	0.53	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	58.52
Building Off Road Diesel	0.05	0.53	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	58.52
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/1/2012 - 6/22/2012 - Foundation Installation

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

PM10: 55% PM25: 55%

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

PM10: 44% PM25: 44%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
TOTALS (tons/year, unmitigated)							

Operational Settings:

4/15/2010 4:25:32 PM

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
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	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

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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)

Operational Changes to Defaults

4/15/2010 4:24:49 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Projects\SBS-69Relocation.urb924

Project Name: SBS-69Relocation

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

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Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012 TOTALS (lbs/day unmitigated)	4.03	53.77	24.21	0.00	0.01	2.22	2.22	0.00	2.10	2.10	6,495.14
2012 TOTALS (lbs/day mitigated)	4.03	53.77	24.21	0.00	0.01	2.22	2.22	0.00	2.10	2.10	6,495.14
2013 TOTALS (lbs/day unmitigated)	3.44	38.17	11.79	0.00	0.00	1.33	1.33	0.00	1.26	1.26	4,335.10
2013 TOTALS (lbs/day mitigated)	3.44	38.17	11.79	0.00	0.00	1.33	1.33	0.00	1.26	1.26	4,335.10
2014 TOTALS (lbs/day unmitigated)	3.73	38.90	12.12	0.00	0.00	1.40	1.40	0.00	1.33	1.33	4,335.10
2014 TOTALS (lbs/day mitigated)	3.73	38.90	12.12	0.00	0.00	1.40	1.40	0.00	1.33	1.33	4,335.10

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)							

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)							

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

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

4/15/2010 4:24:49 PM

Time Slice 6/1/2012-6/22/2012 Active Days: 19	1.75	25.89	10.37	**0.00**	**0.01**	0.90	0.91	**0.00**	0.84	0.85	3,388.07
Fine Grading 06/01/2012-06/22/2012	1.75	25.89	10.37	0.00	0.01	0.90	0.91	0.00	0.84	0.85	3,388.07
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	1.67	25.37	8.62	0.00	0.00	0.88	0.88	0.00	0.82	0.82	3,096.85
Fine Grading On Road Diesel	0.03	0.43	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	73.61
Fine Grading Worker Trips	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61
Time Slice 8/1/2012-9/29/2012 Active Days: 52	4.03	53.77	24.21	0.00	0.00	2.22	2.22	0.00	2.10	2.10	**6,495.14**
Building 08/01/2012-09/30/2012	4.03	53.77	24.21	0.00	0.00	2.22	2.22	0.00	2.10	2.10	6,495.14
Building Off Road Diesel	4.03	53.77	24.21	0.00	0.00	2.22	2.22	0.00	2.10	2.10	6,495.14
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 10/1/2012-11/15/2012 Active Days: 40	2.12	26.39	15.00	0.00	0.00	1.36	1.36	0.00	1.28	1.28	3,013.24
Building 10/01/2012-11/15/2012	2.12	26.39	15.00	0.00	0.00	1.36	1.36	0.00	1.28	1.28	3,013.24
Building Off Road Diesel	2.12	26.39	15.00	0.00	0.00	1.36	1.36	0.00	1.28	1.28	3,013.24
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 2/1/2013-12/31/2013 Active Days: 286	3.44	38.17	11.79	0.00	0.00	1.33	1.33	0.00	1.26	1.26	4,335.10
Building 02/01/2013-01/31/2014	3.44	38.17	11.79	0.00	0.00	1.33	1.33	0.00	1.26	1.26	4,335.10
Building Off Road Diesel	3.44	38.17	11.79	0.00	0.00	1.33	1.33	0.00	1.26	1.26	4,335.10
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Time Slice 1/1/2014-1/31/2014 Active Days: 27	3.73	38.90	12.12	0.00	0.00	1.40	1.40	0.00	1.33	1.33	4,335.10
Building 02/01/2013-01/31/2014	3.73	38.90	12.12	0.00	0.00	1.40	1.40	0.00	1.33	1.33	4,335.10
Building Off Road Diesel	3.73	38.90	12.12	0.00	0.00	1.40	1.40	0.00	1.33	1.33	4,335.10
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 6/1/2012 - 6/22/2012 - Foundation Installation

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 17.37

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 69Relocate Foundation
Off-Road Equipment:

1 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Bore/Drill Rigs (200 hp) operating at a 0.75 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 811 hrs/year

2 Plate Compactors (8 hp) operating at a 0.43 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 600 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 8/1/2012 - 9/30/2012 - Pole Removal, Installation, and Replacement

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 69Relocate Poles
Off-Road Equipment:

5 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 5 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Concrete/Industrial Saws (10 hp) operating at a 0.73 load factor for 2 hours per day; Engine Built/Rebuilt in 2005 with average useage of 580 hrs/year

1 Rollers (95 hp) operating at a 0.56 load factor for 5 hours per day; Engine Built/Rebuilt in 2005 with average useage of 695 hrs/year

2 Bore/Drill Rigs (200 hp) operating at a 0.75 load factor for 5 hours per day; Engine Built/Rebuilt in 2005 with average useage of 811 hrs/year

1 Cranes (300 hp) operating at a 0.43 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

2 Cranes (150 hp) operating at a 0.43 load factor for 5 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 10/1/2012 - 11/15/2012 - Conductor Pulling and Tensioning

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 69Relocate Pulling
Off-Road Equipment:

1 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Other General Industrial Equipment (100 hp) operating at a 0.51 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
2 Other General Industrial Equipment (50 hp) operating at a 0.51 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 2/1/2013 - 1/31/2014 - 69 kV Transmission Cutover

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 69Relocate Cutover
Off-Road Equipment:

1 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

2 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

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Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 6/1/2012-6/22/2012 Active Days: 19	1.75	25.89	10.37	**0.00**	**0.01**	0.90	0.91	**0.00**	0.84	0.85	3,388.07
Fine Grading 06/01/2012-06/22/2012	1.75	25.89	10.37	0.00	0.01	0.90	0.91	0.00	0.84	0.85	3,388.07
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	1.67	25.37	8.62	0.00	0.00	0.88	0.88	0.00	0.82	0.82	3,096.85
Fine Grading On Road Diesel	0.03	0.43	0.17	0.00	0.00	0.02	0.02	0.00	0.02	0.02	73.61
Fine Grading Worker Trips	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61
Time Slice 8/1/2012-9/29/2012 Active Days: 52	4.03	53.77	24.21	0.00	0.00	2.22	2.22	0.00	2.10	2.10	**6,495.14**
Building 08/01/2012-09/30/2012	4.03	53.77	24.21	0.00	0.00	2.22	2.22	0.00	2.10	2.10	6,495.14
Building Off Road Diesel	4.03	53.77	24.21	0.00	0.00	2.22	2.22	0.00	2.10	2.10	6,495.14
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 10/1/2012-11/15/2012 Active Days: 40	2.12	26.39	15.00	0.00	0.00	1.36	1.36	0.00	1.28	1.28	3,013.24
Building 10/01/2012-11/15/2012	2.12	26.39	15.00	0.00	0.00	1.36	1.36	0.00	1.28	1.28	3,013.24
Building Off Road Diesel	2.12	26.39	15.00	0.00	0.00	1.36	1.36	0.00	1.28	1.28	3,013.24
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Time Slice 2/1/2013-12/31/2013 Active Days: 286	3.44	38.17	11.79	0.00	0.00	1.33	1.33	0.00	1.26	1.26	4,335.10
Building 02/01/2013-01/31/2014	3.44	38.17	11.79	0.00	0.00	1.33	1.33	0.00	1.26	1.26	4,335.10
Building Off Road Diesel	3.44	38.17	11.79	0.00	0.00	1.33	1.33	0.00	1.26	1.26	4,335.10
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/1/2014-1/31/2014 Active Days: 27	3.73	38.90	12.12	0.00	0.00	1.40	1.40	0.00	1.33	1.33	4,335.10
Building 02/01/2013-01/31/2014	3.73	38.90	12.12	0.00	0.00	1.40	1.40	0.00	1.33	1.33	4,335.10
Building Off Road Diesel	3.73	38.90	12.12	0.00	0.00	1.40	1.40	0.00	1.33	1.33	4,335.10
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 6/1/2012 - 6/22/2012 - Foundation Installation

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

PM10: 55% PM25: 55%

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

PM10: 44% PM25: 44%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
TOTALS (lbs/day, unmitigated)							

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Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 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

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
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	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

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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)

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Projects\SBS-138Extension.urb924

Project Name: SBS-138Extension

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

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012 TOTALS (tons/year unmitigated)	0.37	5.69	2.34	0.00	0.53	0.21	0.73	0.11	0.20	0.31	725.65
2012 TOTALS (tons/year mitigated)	0.37	5.69	2.34	0.00	0.25	0.21	0.46	0.05	0.20	0.25	725.65
Percent Reduction	0.00	0.00	0.00	0.00	52.52	0.00	37.65	52.40	0.00	18.92	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

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

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

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

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

4/15/2010 4:35:12 PM

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012	0.37	5.69	2.34	0.00	0.53	0.21	0.73	0.11	0.20	0.31	725.65
Fine Grading 07/01/2012-07/15/2012	0.01	0.16	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	20.50
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.01	0.16	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	19.20
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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31
Fine Grading 07/01/2012-10/31/2012	0.26	4.32	1.66	0.00	0.53	0.15	0.67	0.11	0.14	0.25	559.39
Fine Grading Dust	0.00	0.00	0.00	0.00	0.53	0.00	0.53	0.11	0.00	0.11	0.00
Fine Grading Off Road Diesel	0.25	4.22	1.47	0.00	0.00	0.14	0.14	0.00	0.13	0.13	521.80
Fine Grading On Road Diesel	0.01	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.37
Fine Grading Worker Trips	0.00	0.01	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.22
Building 09/01/2012-09/15/2012	0.01	0.14	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	17.60
Building Off Road Diesel	0.01	0.14	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	17.60
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition 09/01/2012-09/22/2012	0.03	0.35	0.15	0.00	0.00	0.01	0.01	0.00	0.01	0.01	46.69
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	0.03	0.35	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	44.62
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	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07

Building 11/01/2012-12/31/2012	0.06	0.71	0.41	0.00	0.00	0.04	0.04	0.00	0.04	0.04	81.47
Building Off Road Diesel	0.06	0.71	0.41	0.00	0.00	0.04	0.04	0.00	0.04	0.04	81.47
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Demolition 9/1/2012 - 9/22/2012 - Structure Removal

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 138Extension StructureRemoval
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Excavators (168 hp) operating at a 0.57 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1396 hrs/year

2 Cranes (300 hp) operating at a 0.43 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Fine Grading 7/1/2012 - 10/31/2012 - Underground Duct Bank Installation

Total Acres Disturbed: 4.4

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 73.58

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 138Extension DuctBank
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
2 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 695 hrs/year

5 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Bore/Drill Rigs (200 hp) operating at a 0.75 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 811 hrs/year

1 Cranes (150 hp) operating at a 0.43 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Fine Grading 7/1/2012 - 7/15/2012 - Foundation Installation

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 138Extension Foundation
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Bore/Drill Rigs (200 hp) operating at a 0.75 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 811 hrs/year

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 600 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 9/1/2012 - 9/15/2012 - Steel Pole Installation

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 138Extension PoleInstall
Off-Road Equipment:

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2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Cranes (300 hp) operating at a 0.43 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 11/1/2012 - 12/31/2012 - 138 kV Cutover (Pulling and Tensioning)

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 138Extension Cutover
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Other General Industrial Equipment (100 hp) operating at a 0.51 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
2 Other General Industrial Equipment (50 hp) operating at a 0.51 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012	0.37	5.69	2.34	0.00	0.25	0.21	0.46	0.05	0.20	0.25	725.65
Fine Grading 07/01/2012-07/15/2012	0.01	0.16	0.07	0.00	0.00	0.01	0.01	0.00	0.01	0.01	20.50
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.01	0.16	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	19.20
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	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.31

Fine Grading 07/01/2012-10/31/2012	0.26	4.32	1.66	0.00	0.25	0.15	0.40	0.05	0.14	0.19	559.39
Fine Grading Dust	0.00	0.00	0.00	0.00	0.25	0.00	0.25	0.05	0.00	0.05	0.00
Fine Grading Off Road Diesel	0.25	4.22	1.47	0.00	0.00	0.14	0.14	0.00	0.13	0.13	521.80
Fine Grading On Road Diesel	0.01	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.37
Fine Grading Worker Trips	0.00	0.01	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.22
Building 09/01/2012-09/15/2012	0.01	0.14	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	17.60
Building Off Road Diesel	0.01	0.14	0.06	0.00	0.00	0.01	0.01	0.00	0.01	0.01	17.60
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition 09/01/2012-09/22/2012	0.03	0.35	0.15	0.00	0.00	0.01	0.01	0.00	0.01	0.01	46.69
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	0.03	0.35	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	44.62
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	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.07
Building 11/01/2012-12/31/2012	0.06	0.71	0.41	0.00	0.00	0.04	0.04	0.00	0.04	0.04	81.47
Building Off Road Diesel	0.06	0.71	0.41	0.00	0.00	0.04	0.04	0.00	0.04	0.04	81.47
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 7/1/2012 - 10/31/2012 - Underground Duct Bank Installation

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

PM10: 55% PM25: 55%

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

PM10: 44% PM25: 44%

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The following mitigation measures apply to Phase: Fine Grading 7/1/2012 - 7/15/2012 - Foundation Installation

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

PM10: 55% PM25: 55%

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

PM10: 44% PM25: 44%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
TOTALS (tons/year, unmitigated)							

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
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	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

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

% of Trips - Commercial (by land use)

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Projects\SBS-138Extension.urb924

Project Name: SBS-138Extension

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

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2012 TOTALS (lbs/day unmitigated)	9.57	141.46	55.92	0.01	10.04	5.00	15.04	2.10	4.70	6.80	18,277.73
2012 TOTALS (lbs/day mitigated)	9.57	141.46	55.92	0.01	4.77	5.00	9.78	1.00	4.70	5.70	18,277.73

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)							

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)							

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

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	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 7/2/2012-7/14/2012 Active Days: 12	6.84	108.77	42.61	**0.01**	**10.04**	3.74	13.78	**2.10**	3.50	5.61	14,072.40
Fine Grading 07/01/2012-07/15/2012	1.83	26.40	10.96	0.00	0.01	0.96	0.97	0.00	0.90	0.90	3,417.40
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	1.78	26.30	9.37	0.00	0.00	0.95	0.95	0.00	0.89	0.89	3,199.79
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	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61
Fine Grading 07/01/2012-10/31/2012	5.01	82.37	31.64	0.01	10.03	2.79	12.81	2.10	2.61	4.71	10,655.00
Fine Grading Dust	0.00	0.00	0.00	0.00	10.00	0.00	10.00	2.09	0.00	2.09	0.00
Fine Grading Off Road Diesel	4.77	80.37	27.99	0.00	0.00	2.70	2.70	0.00	2.53	2.53	9,938.99
Fine Grading On Road Diesel	0.15	1.84	0.71	0.00	0.01	0.07	0.08	0.00	0.07	0.07	311.88
Fine Grading Worker Trips	0.09	0.17	2.95	0.00	0.02	0.01	0.03	0.01	0.01	0.02	404.12
Time Slice 7/16/2012-8/31/2012 Active Days: 41	5.01	82.37	31.64	0.01	10.03	2.79	12.81	2.10	2.61	4.71	10,655.00
Fine Grading 07/01/2012-10/31/2012	5.01	82.37	31.64	0.01	10.03	2.79	12.81	2.10	2.61	4.71	10,655.00
Fine Grading Dust	0.00	0.00	0.00	0.00	10.00	0.00	10.00	2.09	0.00	2.09	0.00
Fine Grading Off Road Diesel	4.77	80.37	27.99	0.00	0.00	2.70	2.70	0.00	2.53	2.53	9,938.99
Fine Grading On Road Diesel	0.15	1.84	0.71	0.00	0.01	0.07	0.08	0.00	0.07	0.07	311.88
Fine Grading Worker Trips	0.09	0.17	2.95	0.00	0.02	0.01	0.03	0.01	0.01	0.02	404.12

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Time Slice 9/1/2012-9/15/2012 Active Days: 13	**9.57**	**141.46**	**55.92**	**0.01**	**10.04**	**5.00**	**15.04**	**2.10**	**4.70**	**6.80**	**18,277.73**
Building 09/01/2012-09/15/2012	1.65	22.03	8.71	0.00	0.00	0.87	0.87	0.00	0.82	0.82	2,708.31
Building Off Road Diesel	1.65	22.03	8.71	0.00	0.00	0.87	0.87	0.00	0.82	0.82	2,708.31
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition 09/01/2012-09/22/2012	2.90	37.06	15.57	0.00	0.01	1.35	1.36	0.00	1.27	1.28	4,914.42
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	2.85	36.97	13.98	0.00	0.00	1.34	1.34	0.00	1.27	1.27	4,696.81
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	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61
Fine Grading 07/01/2012-10/31/2012	5.01	82.37	31.64	0.01	10.03	2.79	12.81	2.10	2.61	4.71	10,655.00
Fine Grading Dust	0.00	0.00	0.00	0.00	10.00	0.00	10.00	2.09	0.00	2.09	0.00
Fine Grading Off Road Diesel	4.77	80.37	27.99	0.00	0.00	2.70	2.70	0.00	2.53	2.53	9,938.99
Fine Grading On Road Diesel	0.15	1.84	0.71	0.00	0.01	0.07	0.08	0.00	0.07	0.07	311.88
Fine Grading Worker Trips	0.09	0.17	2.95	0.00	0.02	0.01	0.03	0.01	0.01	0.02	404.12

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Time Slice 9/17/2012-9/22/2012 Active Days: 6	7.91	119.43	47.21	**0.01**	**10.04**	4.13	14.17	**2.10**	3.88	5.98	15,569.42
Demolition 09/01/2012-09/22/2012	2.90	37.06	15.57	0.00	0.01	1.35	1.36	0.00	1.27	1.28	4,914.42
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	2.85	36.97	13.98	0.00	0.00	1.34	1.34	0.00	1.27	1.27	4,696.81
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	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61
Fine Grading 07/01/2012-10/31/2012	5.01	82.37	31.64	0.01	10.03	2.79	12.81	2.10	2.61	4.71	10,655.00
Fine Grading Dust	0.00	0.00	0.00	0.00	10.00	0.00	10.00	2.09	0.00	2.09	0.00
Fine Grading Off Road Diesel	4.77	80.37	27.99	0.00	0.00	2.70	2.70	0.00	2.53	2.53	9,938.99
Fine Grading On Road Diesel	0.15	1.84	0.71	0.00	0.01	0.07	0.08	0.00	0.07	0.07	311.88
Fine Grading Worker Trips	0.09	0.17	2.95	0.00	0.02	0.01	0.03	0.01	0.01	0.02	404.12
Time Slice 9/24/2012-10/31/2012 Active Days: 33	5.01	82.37	31.64	0.01	10.03	2.79	12.81	2.10	2.61	4.71	10,655.00
Fine Grading 07/01/2012-10/31/2012	5.01	82.37	31.64	0.01	10.03	2.79	12.81	2.10	2.61	4.71	10,655.00
Fine Grading Dust	0.00	0.00	0.00	0.00	10.00	0.00	10.00	2.09	0.00	2.09	0.00
Fine Grading Off Road Diesel	4.77	80.37	27.99	0.00	0.00	2.70	2.70	0.00	2.53	2.53	9,938.99
Fine Grading On Road Diesel	0.15	1.84	0.71	0.00	0.01	0.07	0.08	0.00	0.07	0.07	311.88
Fine Grading Worker Trips	0.09	0.17	2.95	0.00	0.02	0.01	0.03	0.01	0.01	0.02	404.12
Time Slice 11/1/2012-12/31/2012 Active Days: 52	2.25	27.45	15.86	0.00	0.00	1.45	1.45	0.00	1.36	1.36	3,133.41
Building 11/01/2012-12/31/2012	2.25	27.45	15.86	0.00	0.00	1.45	1.45	0.00	1.36	1.36	3,133.41
Building Off Road Diesel	2.25	27.45	15.86	0.00	0.00	1.45	1.45	0.00	1.36	1.36	3,133.41
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Demolition 9/1/2012 - 9/22/2012 - Structure Removal

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 138Extension StructureRemoval
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Excavators (168 hp) operating at a 0.57 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1396 hrs/year

2 Cranes (300 hp) operating at a 0.43 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Fine Grading 7/1/2012 - 10/31/2012 - Underground Duct Bank Installation

Total Acres Disturbed: 4.4

Maximum Daily Acreage Disturbed: 0.5

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 73.58

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 138Extension DuctBank
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
2 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 695 hrs/year

5 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Bore/Drill Rigs (200 hp) operating at a 0.75 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 811 hrs/year

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1 Cranes (150 hp) operating at a 0.43 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Fine Grading 7/1/2012 - 7/15/2012 - Foundation Installation

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 138Extension Foundation
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Other Material Handling Equipment (191 hp) operating at a 0.59 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Bore/Drill Rigs (200 hp) operating at a 0.75 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 811 hrs/year

1 Plate Compactors (8 hp) operating at a 0.43 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 600 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 9/1/2012 - 9/15/2012 - Steel Pole Installation

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 138Extension PoleInstall
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

1 Cranes (300 hp) operating at a 0.43 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

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Phase: Building Construction 11/1/2012 - 12/31/2012 - 138 kV Cutover (Pulling and Tensioning)

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS 138Extension Cutover
Off-Road Equipment:

2 Air Compressors (50 hp) operating at a 0.48 load factor for 4 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Aerial Lifts (60 hp) operating at a 0.46 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Other General Industrial Equipment (100 hp) operating at a 0.51 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
2 Other General Industrial Equipment (50 hp) operating at a 0.51 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

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

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Time Slice 7/2/2012-7/14/2012 Active Days: 12	6.84	108.77	42.61	**0.01**	4.77	3.74	8.51	1.00	3.50	4.51	14,072.40
Fine Grading 07/01/2012-07/15/2012	1.83	26.40	10.96	0.00	0.01	0.96	0.97	0.00	0.90	0.90	3,417.40
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	1.78	26.30	9.37	0.00	0.00	0.95	0.95	0.00	0.89	0.89	3,199.79
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	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61
Fine Grading 07/01/2012-10/31/2012	5.01	82.37	31.64	0.01	4.76	2.79	7.55	1.00	2.61	3.61	10,655.00
Fine Grading Dust	0.00	0.00	0.00	0.00	4.73	0.00	4.73	0.99	0.00	0.99	0.00
Fine Grading Off Road Diesel	4.77	80.37	27.99	0.00	0.00	2.70	2.70	0.00	2.53	2.53	9,938.99
Fine Grading On Road Diesel	0.15	1.84	0.71	0.00	0.01	0.07	0.08	0.00	0.07	0.07	311.88
Fine Grading Worker Trips	0.09	0.17	2.95	0.00	0.02	0.01	0.03	0.01	0.01	0.02	404.12
Time Slice 7/16/2012-8/31/2012 Active Days: 41	5.01	82.37	31.64	0.01	4.76	2.79	7.55	1.00	2.61	3.61	10,655.00
Fine Grading 07/01/2012-10/31/2012	5.01	82.37	31.64	0.01	4.76	2.79	7.55	1.00	2.61	3.61	10,655.00
Fine Grading Dust	0.00	0.00	0.00	0.00	4.73	0.00	4.73	0.99	0.00	0.99	0.00
Fine Grading Off Road Diesel	4.77	80.37	27.99	0.00	0.00	2.70	2.70	0.00	2.53	2.53	9,938.99
Fine Grading On Road Diesel	0.15	1.84	0.71	0.00	0.01	0.07	0.08	0.00	0.07	0.07	311.88
Fine Grading Worker Trips	0.09	0.17	2.95	0.00	0.02	0.01	0.03	0.01	0.01	0.02	404.12

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Time Slice 9/1/2012-9/15/2012 Active Days: 13	**9.57**	**141.46**	**55.92**	**0.01**	4.77	**5.00**	9.78	1.00	**4.70**	5.70	**18,277.73**
Building 09/01/2012-09/15/2012	1.65	22.03	8.71	0.00	0.00	0.87	0.87	0.00	0.82	0.82	2,708.31
Building Off Road Diesel	1.65	22.03	8.71	0.00	0.00	0.87	0.87	0.00	0.82	0.82	2,708.31
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition 09/01/2012-09/22/2012	2.90	37.06	15.57	0.00	0.01	1.35	1.36	0.00	1.27	1.28	4,914.42
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	2.85	36.97	13.98	0.00	0.00	1.34	1.34	0.00	1.27	1.27	4,696.81
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	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61
Fine Grading 07/01/2012-10/31/2012	5.01	82.37	31.64	0.01	4.76	2.79	7.55	1.00	2.61	3.61	10,655.00
Fine Grading Dust	0.00	0.00	0.00	0.00	4.73	0.00	4.73	0.99	0.00	0.99	0.00
Fine Grading Off Road Diesel	4.77	80.37	27.99	0.00	0.00	2.70	2.70	0.00	2.53	2.53	9,938.99
Fine Grading On Road Diesel	0.15	1.84	0.71	0.00	0.01	0.07	0.08	0.00	0.07	0.07	311.88
Fine Grading Worker Trips	0.09	0.17	2.95	0.00	0.02	0.01	0.03	0.01	0.01	0.02	404.12

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Time Slice 9/17/2012-9/22/2012 Active Days: 6	7.91	119.43	47.21	**0.01**	4.77	4.13	8.91	1.00	3.88	4.88	15,569.42
Demolition 09/01/2012-09/22/2012	2.90	37.06	15.57	0.00	0.01	1.35	1.36	0.00	1.27	1.28	4,914.42
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	2.85	36.97	13.98	0.00	0.00	1.34	1.34	0.00	1.27	1.27	4,696.81
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	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61
Fine Grading 07/01/2012-10/31/2012	5.01	82.37	31.64	0.01	4.76	2.79	7.55	1.00	2.61	3.61	10,655.00
Fine Grading Dust	0.00	0.00	0.00	0.00	4.73	0.00	4.73	0.99	0.00	0.99	0.00
Fine Grading Off Road Diesel	4.77	80.37	27.99	0.00	0.00	2.70	2.70	0.00	2.53	2.53	9,938.99
Fine Grading On Road Diesel	0.15	1.84	0.71	0.00	0.01	0.07	0.08	0.00	0.07	0.07	311.88
Fine Grading Worker Trips	0.09	0.17	2.95	0.00	0.02	0.01	0.03	0.01	0.01	0.02	404.12
Time Slice 9/24/2012-10/31/2012 Active Days: 33	5.01	82.37	31.64	0.01	4.76	2.79	7.55	1.00	2.61	3.61	10,655.00
Fine Grading 07/01/2012-10/31/2012	5.01	82.37	31.64	0.01	4.76	2.79	7.55	1.00	2.61	3.61	10,655.00
Fine Grading Dust	0.00	0.00	0.00	0.00	4.73	0.00	4.73	0.99	0.00	0.99	0.00
Fine Grading Off Road Diesel	4.77	80.37	27.99	0.00	0.00	2.70	2.70	0.00	2.53	2.53	9,938.99
Fine Grading On Road Diesel	0.15	1.84	0.71	0.00	0.01	0.07	0.08	0.00	0.07	0.07	311.88
Fine Grading Worker Trips	0.09	0.17	2.95	0.00	0.02	0.01	0.03	0.01	0.01	0.02	404.12
Time Slice 11/1/2012-12/31/2012 Active Days: 52	2.25	27.45	15.86	0.00	0.00	1.45	1.45	0.00	1.36	1.36	3,133.41
Building 11/01/2012-12/31/2012	2.25	27.45	15.86	0.00	0.00	1.45	1.45	0.00	1.36	1.36	3,133.41
Building Off Road Diesel	2.25	27.45	15.86	0.00	0.00	1.45	1.45	0.00	1.36	1.36	3,133.41
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Fine Grading 7/1/2012 - 10/31/2012 - Underground Duct Bank Installation

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

PM10: 55% PM25: 55%

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

PM10: 44% PM25: 44%

The following mitigation measures apply to Phase: Fine Grading 7/1/2012 - 7/15/2012 - Foundation Installation

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

PM10: 55% PM25: 55%

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

PM10: 44% PM25: 44%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
TOTALS (lbs/day, unmitigated)							

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
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	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
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)

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Projects\SBS-SouthBaySub.urb924

Project Name: SBS-SouthBaySub

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

Summary Report:

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)	0.80	9.45	3.38	0.00	7.56	0.34	7.90	1.58	0.32	1.90	1,127.77
2013 TOTALS (tons/year mitigated)	0.80	9.45	3.38	0.00	3.58	0.34	3.91	0.75	0.32	1.07	1,127.77
Percent Reduction	0.00	0.00	0.00	0.00	52.68	0.00	50.43	52.68	0.00	43.80	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

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

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

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

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

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	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2013	0.80	9.45	3.38	0.00	7.56	0.34	7.90	1.58	0.32	1.90	1,127.77
Building 01/01/2013-12/31/2013	0.41	4.81	1.20	0.00	0.00	0.15	0.15	0.00	0.14	0.14	557.14
Building Off Road Diesel	0.41	4.81	1.20	0.00	0.00	0.15	0.15	0.00	0.14	0.14	557.14
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 06/01/2013-06/15/2013	0.01	0.12	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.04
Building Off Road Diesel	0.01	0.12	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.04
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition 06/01/2013-08/31/2013	0.18	2.26	1.07	0.00	0.00	0.09	0.09	0.00	0.09	0.09	277.56
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	0.18	2.25	0.99	0.00	0.00	0.09	0.09	0.00	0.09	0.09	265.28
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	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.28
Mass Grading 08/01/2013-11/30/2013	0.19	2.26	1.06	0.00	7.56	0.09	7.65	1.58	0.09	1.67	279.03
Mass Grading Dust	0.00	0.00	0.00	0.00	7.56	0.00	7.56	1.58	0.00	1.58	0.00
Mass Grading Off Road Diesel	0.19	2.26	1.00	0.00	0.00	0.09	0.09	0.00	0.09	0.09	270.87
Mass 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
Mass Grading Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.16

Phase Assumptions

Phase: Demolition 6/1/2013 - 8/31/2013 - Equipment Removal

Building Volume Total (cubic feet): 0

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Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS SouthBaySub EquipmentRemoval
Off-Road Equipment:

2 Cranes (200 hp) operating at a 0.43 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

2 Tractors/Loaders/Backhoes (75 hp) operating at a 0.55 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Cranes (300 hp) operating at a 0.43 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
2 Cranes (150 hp) operating at a 0.43 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

2 Water Trucks (189 hp) operating at a 0.5 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Mass Grading 8/1/2013 - 11/30/2013 - Foundation Removal and Site Restoration

Total Acres Disturbed: 7.2

Maximum Daily Acreage Disturbed: 7.2

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS SouthBaySub SiteRestoration
Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 929 hrs/year

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1589 hrs/year

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 1/1/2013 - 12/31/2013 - Decommissioning

Off Road Diesel calculated using the Named Equipment EMS functions.

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The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS SouthBaySub Decommissioning
Off-Road Equipment:

2 Water Trucks (189 hp) operating at a 0.5 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

3 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

1 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

Phase: Building Construction 6/1/2013 - 6/15/2013 - Oil Removal and Processing

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS SouthBaySub OilProcessing
Off-Road Equipment:

1 Pumps (100 hp) operating at a 0.74 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Water Trucks (189 hp) operating at a 0.5 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

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

2013	0.80	9.45	3.38	0.00	3.58	0.34	3.91	0.75	0.32	1.07	1,127.77
Building 01/01/2013-12/31/2013	0.41	4.81	1.20	0.00	0.00	0.15	0.15	0.00	0.14	0.14	557.14
Building Off Road Diesel	0.41	4.81	1.20	0.00	0.00	0.15	0.15	0.00	0.14	0.14	557.14
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 06/01/2013-06/15/2013	0.01	0.12	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.04
Building Off Road Diesel	0.01	0.12	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.04
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition 06/01/2013-08/31/2013	0.18	2.26	1.07	0.00	0.00	0.09	0.09	0.00	0.09	0.09	277.56
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	0.18	2.25	0.99	0.00	0.00	0.09	0.09	0.00	0.09	0.09	265.28
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	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.28
Mass Grading 08/01/2013-11/30/2013	0.19	2.26	1.06	0.00	3.58	0.09	3.67	0.75	0.09	0.84	279.03
Mass Grading Dust	0.00	0.00	0.00	0.00	3.58	0.00	3.58	0.75	0.00	0.75	0.00
Mass Grading Off Road Diesel	0.19	2.26	1.00	0.00	0.00	0.09	0.09	0.00	0.09	0.09	270.87
Mass 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
Mass Grading Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.16

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 8/1/2013 - 11/30/2013 - Foundation Removal and Site Restoration

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

PM10: 55% PM25: 55%

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

PM10: 44% PM25: 44%

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
TOTALS (tons/year, unmitigated)							

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
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	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

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

% of Trips - Commercial (by land use)

Operational Changes to Defaults

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Projects\SBS-SouthBaySub.urb924

Project Name: SBS-SouthBaySub

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

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2013 TOTALS (lbs/day unmitigated)	10.98	130.92	54.96	0.00	144.02	5.08	149.10	30.08	4.82	34.90	15,901.67
2013 TOTALS (lbs/day mitigated)	10.98	130.92	54.96	0.00	68.15	5.08	73.23	14.24	4.82	19.06	15,901.67

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)							

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)							

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

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	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/1/2013-5/31/2013 Active Days: 130	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building 01/01/2013-12/31/2013	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Off Road Diesel	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 6/1/2013-6/15/2013 Active Days: 13	8.60	106.25	42.16	0.00	0.01	3.99	4.00	0.01	3.78	3.78	12,747.34
Building 01/01/2013-12/31/2013	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Off Road Diesel	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 06/01/2013-06/15/2013	1.30	18.43	7.30	0.00	0.00	0.71	0.71	0.00	0.67	0.67	2,160.54
Building Off Road Diesel	1.30	18.43	7.30	0.00	0.00	0.71	0.71	0.00	0.67	0.67	2,160.54
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition 06/01/2013-08/31/2013	4.66	57.09	27.19	0.00	0.01	2.35	2.36	0.01	2.23	2.24	7,026.78
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	4.60	56.97	25.09	0.00	0.00	2.34	2.34	0.00	2.23	2.23	6,715.95
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	0.06	0.12	2.11	0.00	0.01	0.01	0.02	0.01	0.01	0.01	310.83

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Time Slice 6/17/2013-7/31/2013 Active Days: 39	7.31	87.82	34.85	0.00	0.01	3.28	3.29	0.01	3.11	3.12	10,586.79
Building 01/01/2013-12/31/2013	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Off Road Diesel	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition 06/01/2013-08/31/2013	4.66	57.09	27.19	0.00	0.01	2.35	2.36	0.01	2.23	2.24	7,026.78
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	4.60	56.97	25.09	0.00	0.00	2.34	2.34	0.00	2.23	2.23	6,715.95
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	0.06	0.12	2.11	0.00	0.01	0.01	0.02	0.01	0.01	0.01	310.83

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Time Slice 8/1/2013-8/31/2013 Active Days: 27	**10.98**	**130.92**	**54.96**	**0.00**	**144.02**	**5.08**	**149.10**	**30.08**	**4.82**	**34.90**	**15,901.67**
Building 01/01/2013-12/31/2013	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Off Road Diesel	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition 06/01/2013-08/31/2013	4.66	57.09	27.19	0.00	0.01	2.35	2.36	0.01	2.23	2.24	7,026.78
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	4.60	56.97	25.09	0.00	0.00	2.34	2.34	0.00	2.23	2.23	6,715.95
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	0.06	0.12	2.11	0.00	0.01	0.01	0.02	0.01	0.01	0.01	310.83
Mass Grading 08/01/2013-11/30/2013	3.68	43.11	20.10	0.00	144.01	1.80	145.80	30.08	1.71	31.79	5,314.88
Mass Grading Dust	0.00	0.00	0.00	0.00	144.00	0.00	144.00	30.07	0.00	30.07	0.00
Mass Grading Off Road Diesel	3.64	43.05	19.05	0.00	0.00	1.79	1.79	0.00	1.71	1.71	5,159.46
Mass 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
Mass Grading Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.41

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Time Slice 9/2/2013-11/30/2013 Active Days: 78	6.32	73.83	27.76	0.00	144.01	2.73	146.74	30.08	2.59	32.67	8,874.89
Building 01/01/2013-12/31/2013	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Off Road Diesel	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 08/01/2013-11/30/2013	3.68	43.11	20.10	0.00	144.01	1.80	145.80	30.08	1.71	31.79	5,314.88
Mass Grading Dust	0.00	0.00	0.00	0.00	144.00	0.00	144.00	30.07	0.00	30.07	0.00
Mass Grading Off Road Diesel	3.64	43.05	19.05	0.00	0.00	1.79	1.79	0.00	1.71	1.71	5,159.46
Mass 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
Mass Grading Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.41
Time Slice 12/2/2013-12/31/2013 Active Days: 26	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building 01/01/2013-12/31/2013	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Off Road Diesel	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Demolition 6/1/2013 - 8/31/2013 - Equipment Removal

Building Volume Total (cubic feet): 0

Building Volume Daily (cubic feet): 0

On Road Truck Travel (VMT): 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS SouthBaySub EquipmentRemoval
Off-Road Equipment:

2 Cranes (200 hp) operating at a 0.43 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

2 Tractors/Loaders/Backhoes (75 hp) operating at a 0.55 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Cranes (300 hp) operating at a 0.43 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
2 Cranes (150 hp) operating at a 0.43 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1252 hrs/year

2 Water Trucks (189 hp) operating at a 0.5 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Mass Grading 8/1/2013 - 11/30/2013 - Foundation Removal and Site Restoration

Total Acres Disturbed: 7.2

Maximum Daily Acreage Disturbed: 7.2

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS SouthBaySub SiteRestoration
Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 929 hrs/year

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1589 hrs/year

2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day; Engine Built/Rebuilt in 2005 with average useage of 942 hrs/year
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Phase: Building Construction 1/1/2013 - 12/31/2013 - Decommissioning

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS SouthBaySub Decommissioning
Off-Road Equipment:

2 Water Trucks (189 hp) operating at a 0.5 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

3 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

1 Off Highway Trucks (250 hp) operating at a 0.57 load factor for 3 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1958 hrs/year

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Phase: Building Construction 6/1/2013 - 6/15/2013 - Oil Removal and Processing

Off Road Diesel calculated using the Named Equipment EMS functions.

The Off Road Equipment was based on the Named Equipment List: C:\Documents and Settings\rcurley\Application Data\Urbemis\Version9a\Data\SBS Equipment List.equip;SBS SouthBaySub OilProcessing
Off-Road Equipment:

1 Pumps (100 hp) operating at a 0.74 load factor for 8 hours per day; Engine Built/Rebuilt in 2005 with average useage of 500 hrs/year

2 Water Trucks (189 hp) operating at a 0.5 load factor for 6 hours per day; Engine Built/Rebuilt in 2005 with average useage of 1000 hrs/year

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 1/1/2013-5/31/2013 Active Days: 130	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building 01/01/2013-12/31/2013	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Off Road Diesel	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Time Slice 6/1/2013-6/15/2013 Active Days: 13	8.60	106.25	42.16	0.00	0.01	3.99	4.00	0.01	3.78	3.78	12,747.34
Building 01/01/2013-12/31/2013	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Off Road Diesel	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 06/01/2013-06/15/2013	1.30	18.43	7.30	0.00	0.00	0.71	0.71	0.00	0.67	0.67	2,160.54
Building Off Road Diesel	1.30	18.43	7.30	0.00	0.00	0.71	0.71	0.00	0.67	0.67	2,160.54
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition 06/01/2013-08/31/2013	4.66	57.09	27.19	0.00	0.01	2.35	2.36	0.01	2.23	2.24	7,026.78
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	4.60	56.97	25.09	0.00	0.00	2.34	2.34	0.00	2.23	2.23	6,715.95
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	0.06	0.12	2.11	0.00	0.01	0.01	0.02	0.01	0.01	0.01	310.83

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Time Slice 6/17/2013-7/31/2013 Active Days: 39	7.31	87.82	34.85	0.00	0.01	3.28	3.29	0.01	3.11	3.12	10,586.79
Building 01/01/2013-12/31/2013	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Off Road Diesel	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition 06/01/2013-08/31/2013	4.66	57.09	27.19	0.00	0.01	2.35	2.36	0.01	2.23	2.24	7,026.78
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	4.60	56.97	25.09	0.00	0.00	2.34	2.34	0.00	2.23	2.23	6,715.95
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	0.06	0.12	2.11	0.00	0.01	0.01	0.02	0.01	0.01	0.01	310.83

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Time Slice 8/1/2013-8/31/2013 Active Days: 27	**10.98**	**130.92**	**54.96**	**0.00**	68.15	**5.08**	73.23	14.24	**4.82**	19.06	**15,901.67**
Building 01/01/2013-12/31/2013	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Off Road Diesel	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Demolition 06/01/2013-08/31/2013	4.66	57.09	27.19	0.00	0.01	2.35	2.36	0.01	2.23	2.24	7,026.78
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	4.60	56.97	25.09	0.00	0.00	2.34	2.34	0.00	2.23	2.23	6,715.95
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	0.06	0.12	2.11	0.00	0.01	0.01	0.02	0.01	0.01	0.01	310.83
Mass Grading 08/01/2013-11/30/2013	3.68	43.11	20.10	0.00	68.13	1.80	69.93	14.23	1.71	15.94	5,314.88
Mass Grading Dust	0.00	0.00	0.00	0.00	68.13	0.00	68.13	14.23	0.00	14.23	0.00
Mass Grading Off Road Diesel	3.64	43.05	19.05	0.00	0.00	1.79	1.79	0.00	1.71	1.71	5,159.46
Mass 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
Mass Grading Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.41

Time Slice 9/2/2013-11/30/2013 Active Days: 78	6.32	73.83	27.76	0.00	68.13	2.73	70.86	14.23	2.59	16.82	8,874.89
Building 01/01/2013-12/31/2013	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Off Road Diesel	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 08/01/2013-11/30/2013	3.68	43.11	20.10	0.00	68.13	1.80	69.93	14.23	1.71	15.94	5,314.88
Mass Grading Dust	0.00	0.00	0.00	0.00	68.13	0.00	68.13	14.23	0.00	14.23	0.00
Mass Grading Off Road Diesel	3.64	43.05	19.05	0.00	0.00	1.79	1.79	0.00	1.71	1.71	5,159.46
Mass 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
Mass Grading Worker Trips	0.03	0.06	1.05	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.41
Time Slice 12/2/2013-12/31/2013 Active Days: 26	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building 01/01/2013-12/31/2013	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Off Road Diesel	2.65	30.73	7.66	0.00	0.00	0.93	0.93	0.00	0.88	0.88	3,560.01
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 8/1/2013 - 11/30/2013 - Foundation Removal and Site Restoration

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

PM10: 55% PM25: 55%

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

PM10: 44% PM25: 44%

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Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
TOTALS (lbs/day, unmitigated)							

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 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

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.6	0.8	99.0	0.2
Light Truck < 3750 lbs	7.3	2.7	94.6	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.6	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	64.3	35.7	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

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

% of Trips - Commercial (by land use)

Operational Changes to Defaults

GHG CALCULATIONS

GHG Emissions from Auxiliary Power Consumption

Constant	Value	Units	Source
eGRID Subregion	CAMX	– –	CCAR GRP v3.1 Page 34
CO_2 Electricity Emission Factor	724.12	lbs CO_2/MWh	CCAR GRP v3.1 Table C.2
N_2O Electricity Emission Factor	0.0081	lbs N_2O/MWh	CCAR GRP v3.1 Table C.2
CH_4 Electricity Emission Factor	0.0302	lbs CH_4/MWh	CCAR GRP v3.1 Table C.2
N_2O Global Warming Potential	310	– –	CCAR GRP v3.1 Table C.1
CH_4 Global Warming Potential	21	– –	CCAR GRP v3.1 Table C.1

Facility	Annual Consumption	Units	Annual Consumption	Units
Bay Boulevard Substation	500,000	kWh/year	500.00	MWh/year
South Bay Substation	250,000	kWh/year	250.00	MWh/year
Annual Change	**250,000**	**kWh/year**	**250.00**	**MWh/year**

Facility	CO_2 Emissions (metric tons/year)	N_2O Emissions (metric tons/year)	CH_4 Emissions (metric tons/year)	N_2O CO_2E Emissions (metric tons/year)	CH_4 CO_2E Emissions (metric tons/year)	Total CO_2E (metric tons/year)
Bay Boulevard Substation	164.23	1.84	6.85	569.49	143.83	877.55
South Bay Substation	82.11	0.92	3.42	284.74	71.92	438.77
Annual Change	**82.11**	**0.92**	**3.42**	**284.74**	**71.92**	**438.77**

GHG Emissions from SF_6-Containing Equipment

Constant	Value	Units	Source
Breaker Annual Leak Rate	0.29%	– –	SDG&E
Cylinder Annual Leak Rate	0.29%	– –	SDG&E
SF_6 Global Warming Potential	23,900	– –	CCAR GRP v3.1 Table C.1

Project Component	Equipment SF_6 Capacity (pounds)	*INITIAL ARRANGEMENT*					*ULTIMATE ARRANGEMENT*				
		Quantity	Total SF_6 (pounds)	Annual SF_6 Leaked (pounds)	Annual SF_6 Leaked (metric tons)	Annual CO_2E Leaked (metric tons)	Quantity	Total SF_6 (pounds)	Annual SF_6 Leaked (pounds)	Annual SF_6 Leaked (metric tons)	Annual CO_2E Leaked (metric tons)
Bay Boulevard Substation											
Breakers											
230 kV	161	7	1,127	3.27	0.001	35.43	14	2,254	6.54	0.003	70.86
138 kV	128	0	– –	– –	– –	– –	0	– –	– –	– –	– –
69 kV	33	17	561	1.63	0.001	17.64	32	1,056	3.06	0.001	33.20
Cylinders	115	0	– –	– –	– –	– –	0	– –	– –	– –	– –
Total	– –	– –	**1,688**	**4.90**	**0.002**	**53.07**	– –	**3,310**	**9.60**	**0.004**	**104.06**
South Bay Substation											
Breakers											
230 kV	161	– –	– –	– –	– –	– –	0	– –	– –	– –	– –
138 kV	128	– –	– –	– –	– –	– –	1	128	0.37	< 0.001	4.02
69 kV	33	– –	– –	– –	– –	– –	1	33	0.10	< 0.001	1.04
Cylinders	115	– –	– –	– –	– –	– –	0	– –	– –	– –	– –
Total	– –	– –	– –	– –	– –	– –	– –	**161**	**0.47**	**< 0.001**	**5.06**
Annual Change	– –	– –	– –	– –	– –	– –	– –	– –	**9.13**	**0.004**	**99.00**

Table of Constants and Assumptions

Constant	Value	Units	Source
kg of CO2 per Gallon of Diesel Fuel	10.15	kg/gallon	CCAR GRP v3.1 Table C.3
g N2O per Gallon of Diesel Fuel - Off-Road	0.26	g/gallon	CCAR GRP v3.1 Table C.6
g CH4 per Gallon of Diesel Fuel - Off-Road	0.58	g/gallon	CCAR GRP v3.1 Table C.6
g N2O per Gallon of Diesel Fuel - HD Trucks	0.332	-	California Greenhouse Gas Inventory
g CH4 per Gallon of Diesel Fuel - HD Trucks	0.303	-	California Greenhouse Gas Inventory
g N2O per Gallon of Diesel Fuel - LD trucks/cars*	0.332	-	California Greenhouse Gas Inventory
g CH4 per Gallon of Diesel Fuel - LD trucks/cars*	0.196	-	California Greenhouse Gas Inventory
kg CO2 per Gallon of Jet A Fuel - Helicopters	9.57	kg/gallon	CCAR GRP v3.1 Table C.3
g N2O per Gallon of Jet A Fuel - Helicopters	0.31	g/gallon	CCAR GRP v3.1 Table C.6
g CH4 per Gallon of Jet A Fuel - Helicopters	0.27	g/gallon	CCAR GRP v3.1 Table C.6
N2O Global Warming Potential	310	-	CCAR GRP v3.1 Table C.1
CH4 Global Warming Potential	21	-	CCAR GRP v3.1 Table C.1
Convert tons to kg	907.2		
Convert g to kg	0.001		
		-	
Convert pounds to tons	0.0005	-	
Convert kg to metric tons	0.001	-	

* Values from light duty trucks and passenger vehicles were averaged to develop these emission rates in order to be more conservative

Total Emissions

	CO2 Emissions (tons/year)	CO2 Emissions (kg)	CO2 Emissions (metric tons)	Total Diesel Consumed (gallons)	N2O Emissions (kg)	CH4 Emissions (kg)	N2O CO2E Emissions (kg)	CH4 CO2E Emissions (kg)	N2O CO2E Emissions (metric tons)	CH4 CO2E Emissions (metric tons)	Total CO2E (kg)	Total CO2E (metric tons)
Construction												
On-Road - MD and HD												
2011	121.86	110,549.78	110.55	10,891.60	3.62	3.30	1,120.96	69.30	1.12	0.07	111,740.04	111.74
2012	105.49	95,700.89	95.70	9,428.66	3.13	2.86	970.40	59.99	0.97	0.06	96,731.29	96.73
2013	76.48	69,384.09	69.38	6,835.87	2.27	2.07	703.55	43.50	0.70	0.04	70,131.14	70.13
On-Road - LD												
2011	226.61	205,578.61	205.58	20,254.05	6.72	3.97	2,084.55	83.37	2.08	0.08	207,746.52	207.75
2012	269.69	244,661.99	244.66	24,104.63	8.00	4.72	2,480.85	99.21	2.48	0.10	247,242.05	247.24
2013	224.02	203,233.60	203.23	20,023.02	6.65	3.92	2,060.77	82.41	2.06	0.08	205,376.79	205.38
Helicopter												
2011	-	-	-	-	-	-	-	-	-	-	-	-
2012	7.78	7,058.16	7.06	737.53	0.23	0.20	70.88	4.18	0.07	0.00	7,133.22	7.13
2013	-	-	-	-	-	-	-	-	-	-	-	-
Off-Road												
2011	2,556.06	2,318,857.63	2,318.86	228,458.88	59.40	132.51	18,413.79	2,782.63	18.41	2.78	2,340,054.05	2,340.05
Bay Boulevard Substation	2,556.06	2,318,857.63	2,318.86	228,458.88	59.40	132.51	18,413.79	2,782.63	18.41	2.78	2,340,054.05	2,340.05
230 kV Loop-In	-	-	-	-	-	-	-	-	-	-	-	-
69 kV Relocation	-	-	-	-	-	-	-	-	-	-	-	-
138 kV Extension	-	-	-	-	-	-	-	-	-	-	-	-
South Bay Substation Demolition	-	-	-	-	-	-	-	-	-	-	-	-
2012	2,489.17	2,258,175.02	2,258.18	222,480.30	57.84	129.04	17,931.91	2,709.81	17.93	2.71	2,278,816.75	2,278.82
Bay Boulevard Substation	1,333.83	1,210,050.58	1,210.05	119,216.81	31.00	69.15	9,608.87	1,452.06	9.61	1.45	1,221,111.51	1,221.11
230 kV Loop-In	168.36	152,736.19	152.74	15,047.90	3.91	8.73	1,212.86	183.28	1.21	0.18	154,132.34	154.13
69 kV Relocation	261.33	237,078.58	237.08	23,357.50	6.07	13.55	1,882.61	284.49	1.88	0.28	239,245.68	239.25
138 kV Extension	725.65	658,309.68	658.31	64,858.10	16.86	37.62	5,227.56	789.97	5.23	0.79	664,327.21	664.33
South Bay Substation Demolition	-	-	-	-	-	-	-	-	-	-	-	-
2013	2,120.29	1,923,527.09	1,923.53	189,510.06	49.27	109.92	15,274.51	2,308.23	15.27	2.31	1,941,109.83	1,941.11
Bay Boulevard Substation	372.60	338,022.72	338.02	33,302.73	8.66	19.32	2,684.20	405.63	2.68	0.41	341,112.55	341.11
230 kV Loop-In	-	-	-	-	-	-	-	-	-	-	-	-
69 kV Relocation	619.92	562,391.42	562.39	55,408.02	14.41	32.14	4,465.89	674.87	4.47	0.67	567,532.18	567.53
138 kV Extension	-	-	-	-	-	-	-	-	-	-	-	-
South Bay Substation Demolition	1,127.77	1,023,112.94	1,023.11	100,799.30	26.21	58.46	8,124.42	1,227.74	8.12	1.23	1,032,465.10	1,032.47
2011 Construction Total	2,904.53	2,634,986.01	2,634.99	259,604.53	69.74	139.78	21,619.30	2,935.30	21.62	2.94	2,659,540.61	2,659.54
2012 Construction Total	2,872.13	2,605,596.07	2,605.60	256,751.12	69.21	136.82	21,454.03	2,873.20	21.45	2.87	2,629,923.31	2,629.92
2013 Construction Total	2,420.79	2,196,144.78	2,196.14	216,368.94	58.19	115.91	18,038.83	2,434.14	18.04	2.43	2,216,617.76	2,216.62
TOTAL	**8,197.45**	**7,436,726.87**	**7,436.73**	**732,724.59**	**197.14**	**392.51**	**61,112.16**	**8,242.64**	**61.11**	**8.24**	**7,506,081.67**	**7,506.08**