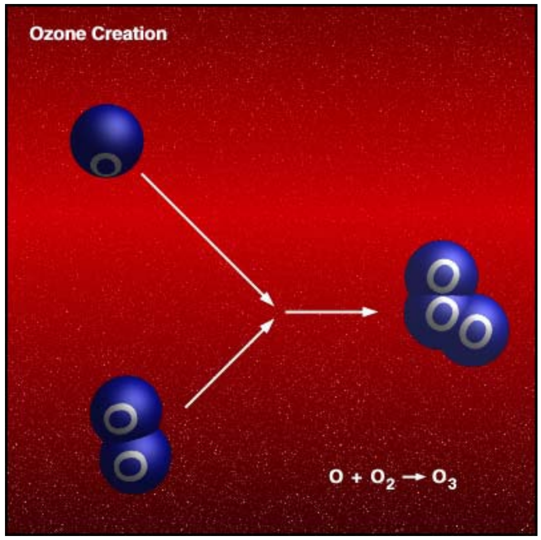
# Background Air Quality Technical Report

## Ocean Beach Community Plan Update EIR

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## TABLE OF CONTENTS

Page

## LIST OF TABLES

## Acronyms and Abbreviations

| | |
|---|---|
| $\mu g/m^3$ | microgram per cubic meter |
| AAQS | Ambient Air Quality Standard |
| AQTR | Air Quality Technical Report |
| ATCM | airborne toxics control measure |
| BACM | Best Available Control Measures |
| CAAQS | California Ambient Air Quality Standards |
| CalEEMod™ | California Emissions Estimator Model |
| CARB | California Air Resources Control Board |
| CEQA | California Environmental Quality Act |
| CPM | Construction Management Plan |
| CO | carbon monoxide |
| $CO_2$ | carbon dioxide |
| COOP | National Weather Service Cooperative Network Station |
| CO Protocol | Transportation Project-Level Carbon Monoxide Protocol |
| DPM | diesel particulate matter |
| EPA | United States Environmental Protection Agency |
| FCAA | Federal Clean Air Act |
| GPU | General Plan Update |
| HAP | hazardous air pollutants |
| Hot Spots Act | Air Toxics Hot Spots Information and Assessment Act of 1987 |
| LOS | Level of Service |
| MCZ | Maritime Climate Zone |
| NAAQS | National Ambient Air Quality Standards |
| NESHAP | National Emissions Standards for Hazardous Air Pollutants |
| NO | nitric oxide |
| $NO_2$ | nitrogen dioxide |
| $NO_X$ | nitrogen oxides |
| OBCPU | Ocean Beach Community Plan Update |
| OBPP | Ocean Beach Precise Plan |
| PEIR | Program Environmental Impact Report |
| PM | particulate matter |
| $PM_{10}$ | respirable particulate matter of 10 micrograms or less in size |
| $PM_{2.5}$ | fine particulate matter of 2.5 micrograms or less in size |

## Acronyms and Abbreviations

| | |
|---|---|
| ppm | parts per million |
| RAQS | San Diego County Regional Air Quality Strategy |
| RCP | Regional Comprehensive Plan |
| ROG | reactive organic gases |
| SDAB | San Diego Air Basin |
| SANDAG | San Diego Association of Governments |
| SDAPCD | San Diego Air Pollution Control District |
| SIP | State Implementation Plan |
| SLT | screening-level thresholds |
| $SO_X$ | sulfur oxides |
| TAC | toxic air contaminant |
| tpy | tons per year |
| VOC | volatile organic compound |
| WB | westbound |
| WRCC | Western Regional Climate Center |

# SECTION 1.0 – INTRODUCTION

## 1.1. PURPOSE

The purpose of this Air Quality Technical Report (AQTR) is to describe the existing air quality conditions and potential effects on the site and its surrounding area, which consists of the community of Ocean Beach in the City of San Diego. The community of Ocean Beach is bounded on the north by the San Diego River, to the west by the Pacific Ocean, and to the east by the Midway Pacific Highway Corridor Community and the Peninsula Community. Ocean Beach contains three residential sub-areas: North Ocean Beach, South Ocean Beach, and The Hill, east of Sunset Cliffs.

## 1.2. PROJECT PURPOSE AND NEED

The City of San Diego approved an updated General Plan on March 10, 2008. The City of San Diego's General Plan contains the City of Village concept, which allows for individual community plans. Each community plan is a tailored version of the City of San Diego's General Plan. Community plans are part of the City of San Diego's General Plan Land Use Element. Several Community plans are outdated and require updates.

The Project is the Update of the Ocean Beach Community Plan, also known as the Ocean Beach Precise Plan, was adopted by the City of San Diego on July 3, 1975, and updated by the City Council on September 20, 1983, May 14, 1986, and February 15, 1991, and is currently the oldest community planning document. With the exception of three minor amendments, this document has remained unchanged for over 35 years.

The Ocean Beach Precise Plan (OBPP) update is a high priority for the City of San Diego. The Ocean Beach Community Plan Update (OBCPU) Programmatic Environmental Impact Report (PEIR) requires a Technical Background Document that describes the physical and regulatory air quality environment of the Ocean Beach Community Planning area. The City of San Diego has determined in the General Plan Action Plan, which was approved on July 7, 2009, that updating community plans is a key General Plan implementation item. In order to assist in the preparation of the Draft OBCPU PEIR to provide City staff with ample information from which to establish the California Environmental Quality Act (CEQA) required determination of significance.

The community of Ocean Beach includes approximately 742 acres, of which the majority of land is zoned as low and medium density residential. Three primary commercial areas lie within the Ocean Beach Community Planning Area. The Ocean Beach Community Planning Area has no industrial development. The OBPP Land Use Plan designates the majority of the Ocean Beach community for low and medium density residential development with the remaining areas for higher density residential development, public facilities, commercial use, and parks. A companion document to the OBPP, the Ocean Beach Action Plan, was designed to implement Precise Plan goals and recommendations.

# SECTION 2.0 – ENVIRONMENTAL SETTING

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants and consequently affect air quality.

## 2.1. CLIMATE/METEOROLOGY

California contains a wide variety of climates, physical features, and emission sources. This variety makes the task of improving air quality complex, because what works in one area may not be effective in another area. To manage common air quality problems better, California is divided into 15 air basins. An air basin generally has similar meteorological and geographical conditions throughout and, to the extent possible, the air basin boundaries follow along political boundary lines.

The community of Ocean Beach lies in the San Diego County Air Basin (SDAB), which includes all of San Diego County. The San Diego Air Pollution Control District (SDAPCD) has further defined five distinct climate zones within the SDAB: Maritime (the coastline inland 3 to 5 miles); Coastal (about 5 to 15 miles inland); Transitional (about 20 to 25 miles inland); Interior (about 25 to 60 miles inland); and Desert (about 60 miles inland to the eastern border). Ocean Beach is in the Maritime Climate Zone (MCZ) of the SDAB. The climate in the MCZ is dominated by the influence of the Pacific Ocean.

Meteorology is the study of weather and climate. Weather refers to the state of the atmosphere at a given time and place with regard to temperature, air pressure, humidity, cloudiness, and precipitation. The term “weather” refers to conditions over short periods; conditions over long periods, generally at least 30 to 50 years, are referred to as climate. Climate, in a narrow sense, is usually defined as the “average weather,” or more rigorously as the statistical description in terms of the mean and variability of relevant quantities over a period ranging from months to thousands or millions of years. These quantities are most often surface variables such as temperature, precipitation, and wind.

### 2.1.1 <u>Temperature and Precipitation</u>

The SDCAPCD describes the MCZ as having mild temperatures. To gain a more specific comparison for the Ocean Beach area, localized weather data from the Western Regional Climate Center (WRCC)[1] was investigated. The closest National Weather Service Cooperative Network Station (COOP) to the Project area is located at SeaWorld (COOP #047741), approximately a mile north northeast of Ocean Beach. This station has only been in operation since 1999, so the second nearest station data was used. This station is located at the San Diego International Airport (COOP #047740) and is approximately 3 miles east southeast of Ocean Beach. Weather data from this site has been recorded since 1914.

Using the average data for the Period of Record (1/1/1914 to 8/31/2012), the mean annual high and low temperatures at the Airport are 69.9 degrees Fahrenheit (°F) and 56.5 °F, respectively. The overall climate is a mild Mediterranean, with average monthly maximum temperatures only 76.3 °F in the summer and dipping to 48.1 °F in the winter.

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[1] http://www.wrcc.dri.edu/Climsum.html

In contrast to a fairly steady pattern of temperature, rainfall is seasonally and annually variable. The total average annual precipitation is 10.13 inches, with 82 percent of precipitation occurring between November and March.

### 2.1.2 Humidity

The MCZ is strongly influenced by the ocean, often in the form of fog. The type of fog affecting the Project area is called advection fog, which occurs when moist air passes over a cool surface by advection (wind) and is cooled. It is most common at sea when tropical air encounters cooler waters, including areas of cold water upwelling, such as along the California coast. Additionally, the ocean exacerbates the fog due to the peculiar effect of salt. Clouds of all types such as fog require minute hygroscopic particles upon which water vapor can condense. Over the ocean surface, the most common particles are salt from salt spray produced by breaking waves. Except in areas of storminess, the most common areas of breaking waves are located near coastlines; hence the greatest densities of airborne salt particles are there. Condensation on salt particles has been observed to occur at humidities as low as 70%, thus fog can occur even in relatively dry air in suitable locations such as the California coast.

### 2.1.3 Wind

California lies within the zone of prevailing westerlies and on the east side of the semi-permanent high pressure area of the northeast Pacific Ocean. The basic flow in the free air above the State, therefore, is from the west or northwest during most of the year. The several mountain chains within the State, however, are responsible for deflecting these winds and, except for the immediate coast, wind direction is likely to be more a product of local terrain than it is of prevailing circulation.

Wind patterns in the San Diego region are characterized by a prevailing wind direction from the west northwest[2]. Wind speed is somewhat greater during the dry summer months than during the rainy winter season. Typical summer winds in the project area range from 4.5 to 7.2 miles per hour (mph).

Additionally, during the winter and fall months, surface high-pressure systems over the Basin, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally have a duration of a few days before predominant meteorological conditions are reestablished. Winds are driven into Southern California when the pressure of this interior air mass exceeds the pressure along the California coast. Winds are often strongest in mountain passes which are ducts for the continental air flow. Because the air over the higher elevations of the Great Basin sinks as it flows into coastal California, it is heated adiabatically, and temperatures are often quite warm. This continental air mass is invariably dry, so humidities in Santa Anas are low, often less than 25% relative humidity.

### 2.1.4 Inversions

Typical urban environments in Southern California experience a phenomenon called an inversion. In meteorology, an inversion is a deviation from the normal change of an atmospheric property with altitude. It almost always refers to a “temperature inversion”, i.e., an increase in temperature with height, or to the layer (inversion layer) within which such an increase occurs. During periods of low

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[2] http://www.wrcc.dri.edu/htmlfiles/westwinddir.html

inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into inland climate zones.

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These inversions are the marine/ subsidence inversion and the radiation inversion. The height of the base of the inversion at any given time is known as the "mixing height." This mixing height can change under conditions when the top of the inversion does not change. Marine/subsidence inversions are the predominant type in in Ocean Beach due to the coastal upwelling and results primarily in fog. Temperature inversions conducive to exacerbating air pollution are less significant.

## 2.2. POLLUTANTS

Pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in Table 1.

For reasons described below, the criteria pollutants of greatest concern for the proposed Project are ozone, inhalable particulate matter ($PM_{10}$), and fine particulate matter ($PM_{2.5}$).

### 2.2.1 <u>Ozone</u>

Ozone is not emitted directly into the air but is formed by a photochemical reaction in the atmosphere. Ozone precursors, which include reactive organic gases (ROG) (see comment in Section 2.2.1.1) and nitrogen oxides ($NO_X$), react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem, and often the effects of the emitted ROG and $NO_X$ are felt a distance downwind of the emission sources. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials.

Ozone can irritate lung airways and cause inflammation, much like a sunburn. Other symptoms include wheezing, coughing, pain when taking a deep breath, and breathing difficulties during exercise or outdoor activities. People with respiratory problems are most vulnerable, but even healthy people who are active outdoors can be affected when ozone levels are high. Chronic ozone exposure can induce morphological (tissue) changes throughout the respiratory tract, particularly at the junction of the conducting airways and the gas exchange zone in the deep lung. Anyone who spends time outdoors in the summer is at risk, particularly children and other people who are active outdoors. Even at very low levels, ground-level ozone triggers a variety of health problems, including aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses such as pneumonia and bronchitis.

**Table 1 – National and State Ambient Air Quality Standards**

| Air Pollutant | Averaging Time | California Standard | National Standard |
|---|---|---|---|
| Ozone | 1 hour | 0.09 ppm | — |
| | 8 hour | 0.070 ppm | 0.075 ppm |
| Respirable particulate matter ($PM_{10}$) | 24 hour | 50 µg/m$^3$ | 150 µg/m$^3$ |
| | Mean | 20 µg/m$^3$ | — |
| Fine particulate matter ($PM_{2.5}$) | 24 hour | — | 35 µg/m$^3$ |
| | Mean* | 12 µg/m$^3$ | 15 µg/m$^3$ |
| Carbon monoxide (CO) | 1 hour | 20 ppm | 35 ppm |
| | 8 hour | 9.0 ppm | 9 ppm |
| Nitrogen dioxide ($NO_2$) | 1 hour | 0.18 ppm | 100 ppb |
| | Mean | 0.030 ppm | 0.053 ppm |
| Sulfur dioxide ($SO_2$) | 1 hour | 0.25 ppm | 75 ppb |
| | 24 hour | 0.04 ppm | 0.14 ppm |
| | Mean | — | 0.030 ppm |
| Lead | 30-day | 1.5 µg/m$^3$ | — |
| | Rolling 3-month | — | 0.15 µg/m$^3$ |
| | Quarter | — | 1.5 µg/m$^3$ |
| Sulfates | 24 hour | 25 µg/m$^3$ | **No Federal Standard** |
| Hydrogen sulfide | 1 hour | 0.03 ppm | |
| Vinyl chloride** | 24 hour | 0.01 ppm | |
| Visibility-reducing particles | 8 hour | Extinction coefficient of 0.23 per kilometer, visibility of ten miles or more due to particles when relative humidity is less than 70%. | |

*ppm = parts per million* *µg/m$^3$ = micrograms per cubic meter* *30-day = 30-day average*
*ppb = parts per billion* *Quarter = Calendar quarter*
* *Mean = Annual Arithmetic Mean*
** *CARB has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.*

*Source: CARB 6/7/12*

Ozone also damages vegetation and ecosystems. It leads to reduced agricultural crop and commercial forest yields; reduced growth and survivability of tree seedlings; and increased susceptibility to diseases, pests, and other stresses such as harsh weather. In the United States alone, ozone is responsible for an estimated $500 million in reduced crop production each year. Ozone also damages the foliage of trees and other plants, affecting the landscape of cities, national parks and forests, and recreation areas. In addition, ozone causes damage to buildings, rubber, and some plastics.

Ozone is a regional pollutant, as the reactions forming it take place over time, and downwind from the sources of the emissions. As a photochemical pollutant, ozone is formed only during daylight hours under appropriate conditions, but it is destroyed throughout the day and night. Thus, ozone concentrations vary depending upon both the time of day and the location. Even in pristine areas, some ambient ozone forms from natural emissions that are not controllable. This is termed background ozone. The average background ozone concentrations near sea level are in the range of 0.015 to 0.035 parts per million (ppm), with a maximum of about 0.04 ppm[3]. As discussed below, the area surrounding the project is nonattainment for ozone and PM. Since reactive hydrocarbons and nitrogen oxides are precursors to ozone, that is, are photochemically combined to create ozone, these are considered pollutants of concern. Following is a brief description of these pollutants of concern, including health effects and the relative level of contributed emissions.

#### 2.2.1.1 Volatile organic compounds

Volatile organic compounds[4] (VOC) are defined as any compound of carbon, excluding carbon monoxide (CO), carbon dioxide ($CO_2$), carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. It should be noted that there are no state or national ambient air quality standard for VOC because they are not classified as criteria pollutants. They are regulated, however, because a reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOC are also transformed into organic aerosols in the atmosphere, which contribute to higher $PM_{10}$ and lower visibility.

It should be noted that there is no State or federal ambient air quality standard for VOC because the gases are not classified as criteria pollutants. They are regulated, however, because a reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are also transformed into organic aerosols in the atmosphere, which contribute to higher $PM_{10}$ and lower visibility.

VOC emissions result primarily from incomplete fuel combustion and the evaporation of chemical solvents and fuels. A review of CARB's 2010 Emission Inventory[5] shows that the majority of emissions in San Diego County come from biogenic sources[6] with almost 34 percent of the total VOC emissions. However, on-road mobile sources are the largest single anthropogenic contributor to VOC emissions in the County with almost 30 percent of the anthropogenic VOC emissions, with most of that coming from light-duty vehicles. Another 24 percent is contributed by other mobile sources, with the majority coming from construction equipment and recreational boats. Solvent evaporation VOC sources in the area contribute another 14 percent and are primarily from the use of consumer products.

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3 Review of the California Ambient Air Quality Standard For Ozone, October 2005 Revision. California Air Resources Board. October 27, 2005.

4 VOCs are sometimes referred to as reactive organic gases (ROG), in this document the two terms are considered synonymous.

5 http://www.arb.ca.gov/app/emsinv/

6 In addition to man-made air pollution, there are significant quantities of pollutants from natural sources such as plants, animals, marshes, and the earth itself. Vegetation for example, emits large amounts of isoprene, terpenes, and other organic compounds, which are precursors of ozone.

### 2.2.1.2 Nitrogen oxides ($NO_X$)

$NO_X$ serves as an integral participant in the process of photochemical smog production. The two major forms of $NO_X$ are nitric oxide (NO) and nitrogen dioxide ($NO_2$). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. $NO_2$ is a reddish-brown irritating gas formed by the combination of NO and oxygen. The County is designated an attainment area for $NO_2$ but the primary concern is from the combined $NO_X$ and its relationship to ozone. $NO_X$ is an ozone precursor. A precursor is a directly emitted air contaminant that, when released into the atmosphere, forms, causes to be formed, or contributes to the formation of a secondary air contaminant for which an Ambient Air Quality Standard (AAQS) has been adopted, or whose presence in the atmosphere will contribute to the violation of one or more AAQSs. When $NO_X$ and VOC are released in the atmosphere, they can chemically react with one another in the presence of sunlight to form ozone.

A review of the 2010 Emission Inventory shows that 90 percent of the total $NO_X$ emissions in the San Diego County come from on- and off-road vehicles (52% from on-road and 38% from off-road). The largest portion of on-road $NO_X$ emissions come from light-duty cars and trucks (36% of the total for on-road) and heavy-duty diesel trucks (29%). The largest contributors from off-road sources are construction and demolition equipment (53% of total off-road $NO_X$).

### 2.2.2 Particulate Matter ($PM_{10}$ and $PM_{2.5}$)

Particulate matter (PM) is the term for a mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small they can only be detected using an electron microscope.

Particle pollution includes inhalable coarse particles with diameters smaller than 10 micrometers ($PM_{10}$) and fine particles with diameters that are 2.5 micrometers and smaller ($PM_{2.5}$). Figure 1 shows the relative size of particulate matter. For reference, $PM_{2.5}$ is approximately one-thirtieth the size of the average human hair.

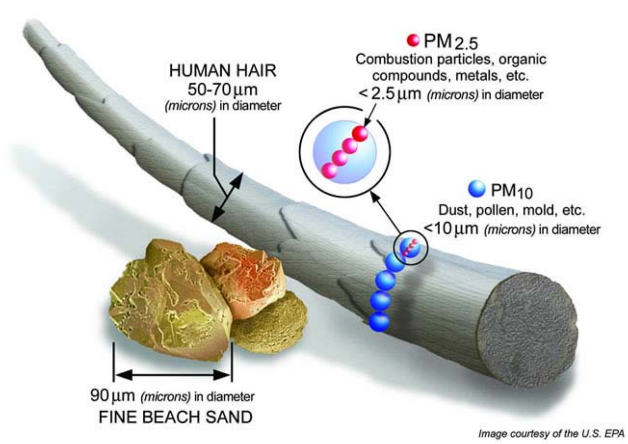


**Figure 1 – Relative sizes of particulate matter**

These particles come in many sizes and shapes and can be made up of hundreds of different chemicals. Some particles, known as primary particles, are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks, or fires. Others form in complicated reactions in the atmosphere between such chemicals as sulfur oxides ($SO_X$) and $NO_X$, which are emitted from power plants, industries, and automobiles. These particles, known as secondary particles, make up most of the fine-particulate pollution in the country.

Particle exposure can lead to a variety of health effects. For example, numerous studies link particle levels to increased hospital admissions and emergency-room visits—and even to death from heart or lung diseases. Both long- and short-term particle exposures have been linked to health problems. Long-term exposures, such as those experienced by people living for many years in areas with high particle levels, have been associated with problems such as reduced lung function, the development of chronic bronchitis, and even premature death. Short-term exposures to particles (hours or days) can aggravate lung disease, causing asthma attacks and acute bronchitis, and may increase susceptibility to respiratory infections. In people with heart disease, short-term exposure has been linked to heart attacks and arrhythmias. Healthy children and adults have not been reported to suffer serious effects from short-term exposures, although they may experience temporary minor irritation when particle levels are elevated.

A review of the 2010 Emission Inventory shows that almost 74 percent of the total $PM_{10}$ emissions in San Diego County come from the category labeled Miscellaneous Processes. The largest portion of the $PM_{10}$ emissions from miscellaneous processes come from paved road dust (40% of the total for miscellaneous processes), construction and demolition (29%), and unpaved road dust (24%). Whereas a significant portion of $PM_{10}$ emissions come from dislocation processes, $PM_{2.5}$ is smaller and is more often a result of particulates coming from combustion sources. Subsequently Miscellaneous Processes only represent 37.5 percent of the total $PM_{2.5}$, with the majority of this category coming from paved road dust (35% of the total for miscellaneous processes), residential fuel combustion (19%), and construction and demolition (17%). Wildfires contributed an extra 27 percent.

### 2.2.3 Other Criteria Pollutants

The standards for other criteria pollutants are either being met, maintained, or are unclassified in the Basin, and the latest pollutant trends suggest that these standards will not be exceeded in the foreseeable future.

### 2.2.4 Toxic Air Contaminant (TAC)

In addition to the above-listed criteria pollutants, TACs are another group of pollutants of concern. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different TACs. The most important, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations, as well as accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death. Toxic air contaminants are less pervasive in the urban atmosphere than the criteria air pollutants, but are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects.

According to the 2005 California Almanac of Emissions and Air Quality, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being diesel particulate matter (DPM). The identification of DPM as a TAC in 1998 led the CARB to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles (Plan) in September 2000. The Plan's goals are a 75 percent reduction in DPM by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot". Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources[7].

There are no existing major sources of TAC emissions in Ocean Beach.

## 2.3. SENSITIVE RECEPTORS

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

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

There are numerous types of these receptors throughout the Community. The OBPP Land Use Plan designates the majority of the Ocean Beach community for low and medium density residential development with the remaining areas for higher density residential development, public facilities, commercial use, and parks.

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[7] Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. California Air Resources Board. October 2000.

# SECTION 3.0 – REGULATORY CONTEXT

Air pollutants are regulated at the national, State, and air basin level; each agency has a different degree of control. The Environmental Protection Agency (EPA) regulates at the national level; the California Air Resources Control Board (CARB) regulates at the State level; and the SDAPCD regulates at the air basin level in the project area.

## 3.1. REGULATORY AGENCIES

### 3.1.1 Environmental Protection Agency (EPA)

EPA is the federal agency responsible for overseeing state air programs as they relate to the federal Clean Air Act (FCAA), approving State Implementation Plans (SIP), establishing National Ambient Air Quality Standards (NAAQS) and setting emission standards for mobile sources under federal jurisdiction. EPA has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented.

### 3.1.2 California Air Resources Board (CARB)

CARB is the state agency responsible for establishing California Ambient Air Quality Standards (CAAQS), adopting and enforcing emission standards for various sources including mobile sources (except where federal law preempts their authority), fuels, consumer products, and toxic air contaminants. CARB is also responsible for providing technical support to California's 35 local air districts, which are organized at the county or regional level, overseeing local air district compliance with State and federal law, approving local air plans and submitting the SIP to the EPA. The CARB also regulates mobile emission sources in California, such as construction equipment, trucks, and automobiles.

For the purposes of managing air quality in California, the California Health & Safety Codes Section 39606(a)(2) gave CARB the responsibility to "based upon similar meteorological and geographic conditions and consideration for political boundary lines whenever practicable, divide the State into air basins to fulfill the purposes of this division". The SDAB consists of the entirety of San Diego County.

### 3.1.3 South Diego Air Pollution Control District (SDAPCD)

The SDAPCD is the local agency responsible for the administration and enforcement of air quality regulations for San Diego County, including Ocean Beach. The SDAPCD regulates most air pollutant sources, except for motor vehicles, marine vessels, aircrafts, and agricultural equipment, which are regulated by CARB or EPA. State and local government projects, as well as projects proposed by the private sector, are subject to SDAPCD requirements if the sources are regulated by the SDAPCD. Additionally, the SDAPCD, along with CARB, maintains and operates ambient air quality monitoring stations at numerous locations throughout San Diego County. These stations are used to measure and monitor criteria and toxic air pollutant levels in the ambient air.

## 3.2. ATTAINMENT STATUS

### 3.2.1 Federal

EPA has identified nonattainment and attainment areas for each criteria air pollutant. Under amendments to the FCAA, EPA has classified air basins or portions thereof as "attainment," "nonattainment," or "unclassifiable," based on whether or not the national standards have been achieved. EPA uses two categories to designate areas with respect to $PM_{2.5}$ and $NO_2$, which include (1) does not meet the standard (nonattainment) and (2) cannot be classified or better than national standards (unclassifiable/attainment). The EPA uses four categories to designate for $SO_2$ but the only two that are applicable in California are nonattainment or unclassifiable. EPA uses three categories to designate for $PM_{10}$: attainment, nonattainment, and unclassifiable.

The FCAA uses the classification system to design clean-up requirements appropriate for the severity of the pollution and set realistic deadlines for reaching clean-up goals. If an air basin is not in federal attainment (that is, it does not meet federal standards) for a particular pollutant, the basin is classified as a marginal, moderate, serious, severe, or extreme nonattainment area, based on the estimated time it would take to reach attainment. Nonattainment areas must take steps towards attainment by a specific timeline. Table 2 shows the federal attainment designations and classifications for the SDAB.

### 3.2.2 State

The last published Area Designations and Maps from the CARB was in 2011[8]. The area designations are made on a pollutant-by-pollutant basis, for all pollutants listed above. The state designation criteria specify four categories: nonattainment, nonattainment-transitional, attainment, and unclassified. A nonattainment designation indicates one or more violations of the state standard have occurred. A nonattainment-transitional designation is a subcategory of nonattainment that indicates improving air quality, with only occasional violations or exceedances of the state standard. In contrast, an attainment designation indicates no violations of the state standard are available to evaluate attainment status. Finally, an unclassified designation indicates either no air quality data or an incomplete set of air quality data. State attainment designations in the affected area are listed in Table 2.

## 3.3. LEGISLATION

### 3.3.1 Federal Clean Air Act Requirements

The FCAA requires plans to provide for the implementation of all reasonably available control measures including the adoption of reasonably available control technology for reducing emissions from existing sources. The FCAA encourages market-based approaches to emission control innovations. Other federal requirements addressed include mechanisms to track plan implementation and milestone compliance for ozone and CO.

The 8-hour ozone standard was set at a concentration of 0.08 ppm and represented a tightening of the old 1-hour ozone standard that was set at 0.12 ppm, which was officially revoked in 2005. Under the form of the standard adopted by EPA, areas are allowed to disregard their three worst measurements every year and average their fourth highest measurements over 3 years to determine if they meet the standard.

For particulate matter, EPA established annual and 24-hour standards for $PM_{2.5}$ to complement the existing $PM_{10}$ standards. The annual $PM_{2.5}$ standard was set at 15 micrograms per cubic meter ($\mu g/m^3$) and the 24-hour $PM_{2.5}$ standard was set at 65 $\mu g/m^3$. The annual component of the standard was set to provide protection against typical day-to-day exposures as well as longer-term exposures, while the daily component protects against more extreme short-term events. For the 24-hour $PM_{2.5}$ standard, the

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[8] Proposed 2011 Amendments to State Area Designations and Maps, Staff Report: Initial Statement of Reasons for Proposed Rulemaking. California Air Resources Board, May 5, 2011.

form of the standard is based on the 98th percentile of 24-hour $PM_{2.5}$ concentrations measured in a year (averaged over 3 years) at the monitoring site with the highest measured values in an area. This form of the standard reduces the impact of a single high exposure event that may be due to unusual meteorological conditions and thus provide a more stable basis for effective control programs.

**Table 2 – Designations/Classifications for San Diego Area**

| Pollutant | State Designation | Federal Designation (Classification) |
|---|---|---|
| Ozone | Nonattainment | Nonattainment (Marginal)* |
| CO | Attainment | Attainment |
| $PM_{10}$ | Nonattainment | Unclassifiable |
| $PM_{2.5}$ | Nonattainment | Attainment |
| $NO_2$ | Attainment | Attainment |
| $SO_2$ | Attainment | Attainment |
| Lead | Attainment | Attainment |
| Sulfates | Attainment | (no federal standard) |
| $H_2S$ | Unclassified | |
| Visibility | Unclassified | |

* *The Federal 1-hour ozone standard was vacated in 2005. However, prior to 2005 the Project area was designated Attainment.*

*Source: SDAPCD 2012*

While EPA has retained the annual $PM_{10}$ standard of 50 µg/m$^3$, it has modified the form of the 24-hour $PM_{10}$ standard set at 150 µg/m$^3$. More specifically, EPA revised the one-expected exceedance form of the current standard with a 99th percentile form, averaged over 3 years.

### 3.3.2 San Diego County Regional Air Quality Strategy (RAQS)

The SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The San Diego County Regional Air Quality Strategy (RAQS) was initially adopted in 1991, and is updated on a triennial basis. The RAQS was updated in 1995, 1998, 2001, 2004, and most recently in April 2009. The RAQS outlines the SDAPCD's plans and control measures designed to attain the State air quality standards for ozone. The SDAPCD has also developed the air basin's input to the SIP, which is required under the FCAA for areas that are out of attainment of air quality standards.

The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County, to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County as part of the development of the County's General Plan. As such, projects that propose development that is consistent with the growth anticipated by the general plans would be consistent with the RAQS. In the event that a project would propose development which is less dense than anticipated within the general plan, the project would likewise be consistent with the RAQS. If a project proposes development that is greater than that anticipated in the General Plan and SANDAG's growth projections, the project might be in conflict with the RAQS and SIP, and might have a potentially significant impact on air quality.

The SIP relies on the same information from SANDAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for the air basin. The SIP also includes rules and regulations that have been adopted by the SDAPCD to control emissions from stationary sources. These SIP-approved rules may be used as a guideline to determine whether a project's emissions would have the potential to conflict with the SIP and thereby hinder attainment of the NAAQS for ozone.

## 3.4. TOXIC AIR CONTAMINANTS (TAC)

Air quality regulations also focus on TACs. In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no threshold level below which adverse health impacts may not be expected to occur. This contrasts with the criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (Table 1). Instead, EPA and CARB regulate hazardous air pollutants (HAPs) and TACs, respectively, through statutes and regulations that generally require the use of the maximum or best available control technology for toxics to limit emissions at the source. These, in conjunction with additional rules set forth by SDAPCD, establish the regulatory framework for TACs.

### 3.4.1 Federal Hazardous Air Pollutant Programs

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

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

### 3.4.2 State and Local Toxic Air Contaminant Programs

TACs in California are primarily regulated through the Tanner Air Toxics Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (Hot Spots Act) (AB 2588). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review must occur before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs. DPM was added to the CARB list of TACs in 1998.

Once a TAC is identified, CARB then adopts an airborne toxics control measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions (e.g., an ATCM limits truck idling to 5 minutes [13 CCR Chapter 10 Section 2485]).

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

CARB published the Air Quality and Land Use Handbook: A Community Health Perspective (Handbook)[9], which provides guidance concerning land use compatibility with TAC sources. While not a law or adopted policy, the Handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities, to help protect children and other sensitive populations.

At the local level, The SDAPCD is the implementing agency for approximately 1,600 San Diego facilities required to comply with the Hot Spots Act. The Act requires facilities to submit information that is used to achieve the objectives of the program. For larger industrial facilities, this information includes inventory plans and plan updates; emission inventory reports; health risk assessments; public notification; and risk reduction audits and plans.

In addition the SDAPCD's Rule 1200 (Toxic Air Contaminants - New Source Review), adopted on June 12, 1996, requires evaluation of potential health risks for any new, relocated, or modified emission unit which may increase emissions of one or more toxic air contaminants. The rule requires projects with an increase in cancer risk between 1 and 10 in one million to install toxics best available control technology. Additionally, projects with an increase in cancer risk between 10 and 100 in one million must meet significantly more stringent requirements to mitigate risks before they can be approved. In calendar 2002 about 500 projects were reviewed under Rule 1200. Approximately 96 percent had an estimated risk below one in one million and the remaining 4 percent had an estimated risk of one to 10 in one million.

No permitted toxic-emitting facilities exist in the Ocean Beach area.

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9 Air Quality and Land Use Handbook: A Community Health Perspective. California Air Resources Board. 2005

# SECTION 4.0 – BASELINE AIR QUALITY

## 4.1. EMISSION INVENTORY

California is a diverse state with many sources of air pollution. To estimate the sources and quantities of pollution, CARB, in cooperation with local air districts and industry, maintains an inventory of California emission sources. Sources are subdivided into four major emission categories: stationary sources, area wide sources, mobile sources, and natural sources. Stationary source emissions are based on estimates made by facility operators and local air districts. Emissions from specific facilities can be identified by name and location. CARB and local air district staffs estimate area-wide emissions. Emissions from area-wide sources may be from either small individual sources, such as residential fireplaces, or from widely distributed sources that cannot be tied to a single location, such as consumer products and dust from unpaved roads. CARB staff estimates mobile source emissions with assistance from districts and other government agencies. Mobile sources include on-road cars, trucks, and buses and other sources such as boats, off-road recreational vehicles, aircraft, and trains. CARB staff and the air district also estimate natural sources. These sources include geogenic (e.g., petroleum seeps), biogenic (vegetation) sources, and wildfires.

Table 3 summarizes estimated 2010 emissions of key-criteria air pollutants from major categories of air pollutant sources. For each pollutant, estimated emissions are presented for San Diego County. No further spatial refinement is available.

**Table 3 – San Diego County 2010 Emissions Inventory (tons/day)**

| Emission Category | ROG | CO | $NO_x$ | $PM_{10}$ | $PM_{2.5}$ |
|---|---|---|---|---|---|
| Fuel combustion | 3.37 | 21.89 | 8.87 | 1.95 | 1.80 |
| Waste disposal | 2.21 | 0.11 | 0.28 | 0.10 | 0.08 |
| Cleaning and surface coatings | 15.52 | 0 | 0 | 0 | 0 |
| Petroleum production and marketing | 9.31 | 0.01 | 0.01 | 0 | 0 |
| Industrial processes | 2.72 | 0.36 | 0.21 | 6.95 | 4.57 |
| Solvent evaporation | 31.11 | 0 | 0 | 0.01 | 0.01 |
| Miscellaneous processes | 5.21 | 28.22 | 2.73 | 96.50 | 16.41 |
| On-road motor vehicles | 44.55 | 456.24 | 87.85 | 5.47 | 3.88 |
| Other mobile sources | 35.45 | 242.50 | 64.11 | 5.70 | 5.20 |
| Natural sources | 76.13 | 137.58 | 4.22 | 13.94 | 11.83 |
| **TOTAL** | **225.67** | **886.90** | **168.29** | **130.62** | **43.78** |

*Notes: All values in tons per day. 2010 is estimated from a base year inventory for 2008 based on growth and control factors available from CARB. The sum of values may not equal total shown due to rounding.*

*Source: California Air Resources Board, 2012*[10]*.*

[10] http://www.arb.ca.gov/app/emsinv/

## 4.2. MONITORING DATA

Meteorology acts on the emissions released into the atmosphere to produce pollutant concentrations. These airborne pollutant concentrations are measured throughout California at air quality monitoring sites. CARB operates a statewide network of monitors. Data from this network are supplemented with data collected by local air districts, other public agencies, and private contractors. There are more than 250 criteria pollutant monitoring sites in California. Each year, more than ten million air quality measurements from all of these sites are collected and stored in a comprehensive air quality database maintained by CARB.

Existing levels of ambient air quality and historical trends and projections in the project area are best documented by measurements made air monitoring stations in San Diego County. Ambient air pollutant concentrations in the SDAB are measured at 10 air quality monitoring stations operated by the SDAPCD. The project is located on the coast just north of Point Loma in the City of San Diego. The closest air quality monitoring station to the Ocean Beach area is located on Beardsley Street in San Diego, approximately 6.5 miles southeast of the Project boundary. This station is run by the SDAPCD and has been operational since July of 2005. The Station measures ozone, $PM_{2.5}$, $PM_{10}$, CO, $NO_2$, and $SO_2$. Table 4 presents the ambient air quality for the Beardsley Station for the last six years.

The monitoring data shows that there were no violations of $SO_2$, CO, or $NO_2$ in the last six years, the Station demonstrated the general air quality problems of the County in that it exceeded the State 8-hour ozone standard, the State $PM_{10}$ standard, and the federal and State $PM_{2.5}$ standards. None of the State or federal standards were exceeded in the past two years.

It is important to note that the exceedance of the State $PM_{10}$ standard in 2007 occurred only on one day where $PM_{10}$ ambient concentration was measured at 110 $\mu g/m^3$. However, since the one day reading was on October 21$^{st}$, which was the day after a number of wildfires started burning in Southern California. In fact, the two biggest were located in San Diego County, with the Witch Creek Fire was the second largest fire in California history. Since $PM_{10}$ is typically measured every six days, the next measurement day was October 27$^{th}$, where the $PM_{10}$ read only 58 $\mu g/m^3$ and since the entire County and the neighboring South Coast Air Basin had similar extreme $PM_{10}$ concentrations, that the October 21, 2007, reading may be determined to be an Extreme Concentration Event, an Exceptional Event, or an Unusual Concentration Event.

**Table 4 – Air Quality Monitoring Summary - Beardsley Station**

| Air Pollutant | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|
| **Ozone ($O_3$)** | | | | | | |
| Max 1 Hour (ppm) | 0.082 | 0.087 | 0.087 | 0.085 | 0.078 | 0.082 |
| Days > CAAQS (0.09 ppm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Max 8 Hour (ppm) | **0.070** | **0.072** | **0.073** | 0.063 | 0.066 | 0.061 |
| Days > NAAQS (0.08 ppm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Days > CAAQS (0.070 ppm) | 1 | 1 | 1 | 0 | 0 | 0 |
| **Carbon Monoxide (CO)** | | | | | | |
| Max 8 Hour (ppm) | 3.27 | 3.01 | 2.60 | 2.77 | 2.17 | 2.44 |
| Days > NAAQS (9 ppm) | 0 | 0 | 0 | 0 | 0 | 0 |
| Days > CAAQS (9.0 ppm) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Particulate Matter ($PM_{10}$)** | | | | | | |
| Max Daily State Measurement | **71** | **110** | **58** | **60** | 40 | 49 |
| Days > NAAQS (150 $\mu g/m^3$) | 0 | 0 | 0 | 0 | 0 | 0 |
| Days > CAAQS (50 $\mu g/m^3$) | 11 | 4 | 4 | 3 | 0 | 0 |
| **Particulate Matter ($PM_{2.5}$)** | | | | | | |
| Max Daily National Measurement | **63.3** | **69.6** | **42.0** | **52.1** | 29.7 | 34.7 |
| Days > NAAQS (35 $\mu g/m^3$) | 2 | 8 | 3 | 3 | 0 | 0 |
| State Annual Average | **13.1** | 11.7 | 10.7 | 11.8 | * | 10.9 |
| > CAAQS (Y/N?) (12 $\mu g/m^3$) | Y | N | N | N | * | N |
| **Nitrogen Dioxide ($NO_2$)** | | | | | | |
| Max 1 Hour (ppm) | 0.094 | 0.098 | 0.091 | 0.078 | 0.077 | 0.067 |
| Days > CAAQS (0.18 ppm) | 0 | 0 | 0 | 0 | 0 | 0 |
| **Sulfur Dioxide ($SO_2$)** | | | | | | |
| Max 24-hr Average (ppm) | 0.009 | 0.006 | 0.007 | 0.006 | 0.002 | 0.003 |
| Days > CAAQS (0.04 ppm) | 0 | 0 | 0 | 0 | 0 | 0 |

*Abbreviations:*
*ppm = parts per million* *$\mu g/m^3$ = micrograms per cubic meter*
*CAAQS = California Ambient Air Quality Standard NAAQS = National Ambient Air Quality Standard Mean = Annual Arithmetic Mean* ***Bold** = exceedance*
** No Data / Insufficient Data*

*Source: CARB 2012*[11]

## 4.3. EXISTING SOURCES OF POLLUTION

The SDAPCD maintains more than 12,500 active air quality permits. SDAPCD engineers evaluate and issue construction and operating permits to ensure proposed new or modified commercial and industrial equipment and operations comply with air pollution control laws.

[11] http://www.arb.ca.gov/adam/

Using CARB's Facility Search Tool[12] it was determined that there are six permitted facilities in the Ocean Beach area. Two dry cleaners that emit ROG and a TAC called perchloroethylene and four gas stations that emit ROG and TACs (2,2,4-trimethylpentane, benzene, ethyl benzene, hexane, toluene, and xylenes). Table 4 identifies these facilities and presents 2008 estimated emissions.

**Table 5 – Existing Ocean Beach Stationary Sources**

| Facility Name | Address | ROG (t/y) | TAC (lbs/d) |
|---|---|---|---|
| ARCO #9751 | 1902 Sunset Cliffs Blvd | 3.62 | 852 |
| Shell | 4794 Voltaire St | 2.27 | 535 |
| Ocean Beach Gas | 2305 Sunset Cliffs Blvd | 2.10 | 494 |
| Point Loma Gas & Market | 4792 Point Loma Ave | 0.84 | 198 |
| Embassy Cleaners | 4320 Voltaire St | 0.18 | 536 |
| Las Brisas Fabric Care Center | 1785 Sunset Cliffs Blvd | 0.03 | 81 |

*Source: CARB 2012*

12 http://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php

# SECTION 5.0 – POTENTIAL IMPACT ANALYSIS

## 5.1. THRESHOLDS OF SIGNIFICANCE

### 5.1.1 CEQA Thresholds

According to the CEQA Guidelines, Appendix G, a significant impact could occur if implementation of the Community Plan Update:

a. Would the Project conflict with or obstruct implementation of the applicable air quality plan?

b. Would the Project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

c. Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the air basin is nonattainment under an applicable federal or State air quality standard?

d. Would the Project expose sensitive receptors to substantial pollutant concentrations?

e. Would the Project create objectionable odors affecting a substantial number of people?

### 5.1.2 SDAPCD Thresholds

In their Significance Determination Thresholds document[13], the Development Services Department suggests the screening-level thresholds (SLTs) outlined in SDAPCD Rule 20.2 can be used to demonstrate that a project's total emissions (e.g., stationary and fugitive emissions, as well as emissions from mobile sources) would not result in a significant impact to air quality. These SLTs are presented in Table 6.

**Table 6 – SDAPCD Screening-level Thresholds**

| Pollutant | Emissions (lbs/day) |
|---|---|
| $PM_{10}$ | 100 |
| $PM_{2.5}$ | 55 |
| $NO_X$ | 250 |
| $SO_X$ | 250 |
| CO | 550 |
| VOC | 75 |

13 California Environmental Quality Act Significance Determination Thresholds. City of San Diego Development Services Department. January 2011.

## 5.2. ANALYSIS OF ENVIRONMENTAL IMPACTS

### 5.2.1 Could implementation of the OBCPU conflict with or obstruct implementation of the applicable air quality plan?

#### 5.2.1.1 Impact Analysis

The project site is located in the SDAB, which is currently classified as a nonattainment area for the federal ozone standard and a maintenance area for the federal CO standard. In addition, the SDAB is classified as a serious nonattainment area for State ozone standard and a nonattainment area for the State $PM_{2.5}$ and $PM_{10}$ standards. All areas (in this case the air basin) designated as nonattainment are required to prepare plans showing how the area would meet the State and federal air quality standards by its attainment dates. The RAQS, developed by the SDAPCD, is the region's plan for improving air quality in the region and addresses the State and federal requirements and demonstrates attainment with ambient air quality standards.

The OBPP was adopted in 1975 and updated in 1983, 1986, and 1991. The OBPP was originally established as a program for preserving and enhancing the community of Ocean Beach. The OBPP recognizes that the community of Ocean Beach is characterized by a diversity of life styles. The community contains retired persons, military personnel, college students, street people, families with and without children, young singles, nonprofessionals, professionals, minorities, and transients. Some are recent arrivals and some are long-term residents. There is no such thing as a "typical" resident. This profuse availability of alternate life styles make Ocean Beach distinctive from other locales in San Diego and creates what many feel is a genuine sense of "community". As such the OBPP's overall directive strongly shows the community's desire to maintain its character. The OBPP calls for most future growth to be accommodated with as little effect on the eclectic community character as possible.

Implementation of the Ocean Beach Community Plan Update would result in infill, redevelopment, and new development occurring in selected areas, maintaining the existing residential character; limiting commercial growth to existing commercial centers; preserve the natural features while developing active and passive recreational facilities; and developing means to accommodate future increase in traffic while de-emphasizing the automobile as major means of transportation.

The effects of the updated Community Plan will be predominantly associated with the potential future changes in land use, and housing that may occur through these future projects, and have the potential to result in a physical impact. Air quality effects for the entire City of San Diego were addressed in the Final PEIR[14] prepared for the City of San Diego's General Plan Update (GPU); the EIR[15] associated with the Regional Transportation Plan (MOBILITY 2030)[16] produced by SANDAG; and the Final PEIR[17] for the Regional Comprehensive Plan (RCP) produce by SANDAG.

The OBCPU sets out a long-range vision and comprehensive policy framework that will allow Ocean

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[14] Final Program Environmental Impact Report for the Draft General Plan. City of San Diego. Certified March 10, 2008.

[15] Final Environmental Impact Report for the 2030 Regional Transportation Plan (SCH #2002071059). San Diego Association of Governments. March 28, 2003.

[16] Final 2030 Regional Transportation Plan, San Diego Association of Governments. February 2005.

[17] Final Program Environmental Impact Report for the Regional Comprehensive Plan for the San Diego Region (SCH #2004011141). San Diego Association of Governments. July 2004.

Beach to guide future development that fits the City of Villages growth strategy, while still maintaining the qualities appreciated by the residents of Ocean Beach. The implementation of the OBCPU would not conflict with or obstruct implementation of the applicable air quality plan.

### 5.2.2 <u>Could implementation of the OBCPU violate any air quality standard or contribute substantially to an existing or projected air quality violation?</u>

#### 5.2.2.1 Impact Analysis

While the City's GPU provides the policy framework to address this growth, actual land use designations are made through the City's community plans. The effects of the current long term land use policy were evaluated during the CEQA review of the City's GPU, which concluded that the effects would be significant and unavoidable. Due to this conclusion, it is incumbent of this analysis to analyze the potential adverse effects of the proposed changes to the OBGP. The impacts addressed in this AQTR include the effects of increase in emissions from mobile, stationary, and area sources and any new construction emissions as it may apply in the Ocean Beach area.

Table 7 shows the additional land uses projected to occur by 2030. Estimated air quality emissions from these proposed land uses were analyzed using the California Emissions Estimator Model (CalEEMod™), which provides a simple platform to calculate both construction emissions and operational emissions from a land use project. The results are discussed below and are available in detail in Appendix A.

**Table 7 – Proposed Increases in Land Uses**

| Land Uses | Metric | Quantity of New Development | | |
|---|---|---|---|---|
| | | 2018 | 2024 | 2030 |
| Government office building | $10^3 ft^2$ | 0.3 | 0.7 | 1 |
| Multiple du's at a density of under 20 du per acre | du | 1.7 | 3.3 | 5 |
| Multiple du's at a density of over 20 du per acre | du | 273.7 | 547.3 | 821 |
| Single family residential | du | 162.7 | 325.3 | 488 |
| Commercial | $10^3 ft^2$ | 25.6 | 51.2 | 76.8 |

*Notes:* *$10^3 ft^2$ = thousand square feet* *du = dwelling units*

The efficiencies of the on- and off-road mobile sources are predicted to continue to improve, which creates an overall cleaner fleet from which to estimate emissions. Since the quantitative thresholds presented in Table 6 are in pounds per day, CalEEMod™ was used to determine the maximum daily emissions.

For operational emission estimates, in order to more approximate actual emissions for a project with such a long horizon (18 years), this AQTR has segmented the overall development into near-term conditions (up to 2018), mid-term conditions (up to 2024), and Project completion in 2030. Each segment accumulates the growth attached to the previous segment to represent stages of potential emissions.

For construction emissions estimates, construction activity was distributed evenly throughout the 18 year period. The maximum daily emissions were estimated for each term; near-term activities are from 2013 to 2018; mid-term activities are between 2019 through 2024; and the final period is from 2025 through 2030.

Tables 8, 9, and 10 show the estimated maximum daily emissions during near-term conditions for the Ocean Beach area, the mid-term conditions, and at Project completion in 2030. These tables show that in the near-term, the proposed increases in land use activities do not exceed any of the SLTs but in mid-term conditions the estimated VOC emissions and $PM_{10}$ emissions are projected to exceed the thresholds. At Project completion, VOC emissions, $PM_{10}$ emissions, and CO emissions are projected to exceed.

**Table 8 – Maximum Daily Emissions During Near-term**

| Category | Maximum Daily Emissions (lbs/day) | | | | | |
|---|---|---|---|---|---|---|
| | VOC | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| Construction | 33.64 | 187.37 | 173.72 | 0.30 | 46.01 | 22.39 |
| Operational | 38.75 | 48.57 | 251.00 | 0.38 | 42.58 | 3.91 |
| **Total** | **72.4** | **235.9** | **424.7** | **0.7** | **88.6** | **236.3** |
| *SLT's* | *75* | *250* | *550* | *250* | *100* | *55* |
| *Exceed?* | *N* | *N* | *N* | *N* | *N* | *N* |

**Table 9 – Maximum Daily Emissions During Mid-term**

| Category | Maximum Daily Emissions (lbs/day) | | | | | |
|---|---|---|---|---|---|---|
| | VOC | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| Construction | 24.26 | 118.21 | 129.31 | 0.30 | 41.71 | 17.63 |
| Operational | 64.74 | 65.65 | 348.53 | 0.76 | 84.58 | 5.54 |
| **Total** | **89.0** | **183.9** | **477.8** | **1.1** | **126.3** | **23.2** |
| *SLT's* | *75* | *250* | *550* | *250* | *100* | *55* |
| *Exceed?* | ***Y*** | *N* | *N* | *N* | ***Y*** | *N* |

**Table 10 – Maximum Daily Emissions at Project Completion**

| Category | Maximum Daily Emissions (lbs/day) | | | | | |
|---|---|---|---|---|---|---|
| | VOC | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| Construction | 19.07 | 76.32 | 109.26 | 0.03 | 39.23 | 15.15 |
| Operational | 89.73 | 81.78 | 452.83 | 1.15 | 126.85 | 8.25 |
| **Total** | **108.8** | **128.1** | **562.1** | **1.5** | **166.1** | **23.4** |
| *SLT's* | *75* | *250* | *550* | *250* | *100* | *55* |
| *Exceed?* | ***Y*** | *N* | ***Y*** | *N* | ***Y*** | *N* |

### 5.2.2.2 Mitigation Framework

Goals, policies, and recommendations enacted by the City combined with the federal, State, and local regulations described above provide a framework for developing project level air quality protection measures for future discretionary projects. The City's process for the evaluation of discretionary projects includes environmental review and documentation pursuant to CEQA as well as an analysis of those projects for consistency with the goals, policies, and recommendations of the General Plan. In general, implementation of the above policies would preclude or reduce air quality impacts. Compliance with the standards is required of all projects and is not considered to be mitigation. However, it is possible that for certain projects, adherence to the regulations may not adequately protect air quality, and such projects would require additional measures to avoid or reduce significant air quality impacts. These additional measures would be considered mitigation.

For projects that may exceed daily construction emissions established by the City, Best Available Control Measures (BACMs) will be incorporated to reduce construction emissions to below daily emission standards established by the City and the SDAPCD. Project proponents must prepare and implement a Construction Management Plan (CMP) which includes but is not limited to BACMs. Since the City's threshold document states that "a project would not result in a significant impact if specified dust controls are included on the project plans"[18], this analysis is proposing the following mitigation:

Mitigation AQ-1

- For all development projects within the Ocean Beach Planning Area would include dust controls such that visible dust plumes would be retained within the property lines. Examples of good fugitive dust mitigation measures to consider can be found at http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html.

As demonstrated in Table 10, at project buildout, the combination of land use changes projected for the Ocean Beach Planning Area would create conditions which would exceed the SLTs set by the SDAPCD for VOCs, CO, and $PM_{10}$. Since in 2030 approximately 80 percent of the emissions of these three pollutants come from the operational emissions, as opposed to construction emissions, the primary contributor to the exceedances would be mobile sources. The results would very likely not be the cause of any single project but all would contribute. Therefore this analysis recommends the following mitigation:

Mitigation AQ-2

- On a project-level basis, development projects within the Ocean Beach Planning Area would receive entitlement only if it is conditioned with all reasonable mitigation to avoid, minimize, or offset their impact.

### 5.2.3 Could implementation of the OBCPU result in a cumulatively considerable net increase of any criteria pollutant for which the air basin is nonattainment under an applicable federal or State air quality standard?

#### 5.2.3.1 Impact Analysis

When analyzed separately, the individual effects of a proposed project may not be considered significant, or may be mitigated to below the level of significance via implementation of mitigation measures. When considered together with other projects in the vicinity; either currently under

[18] California Environmental Quality Act Significance Determination Thresholds. City of San Diego Development Services Department. January 2011.

construction, recently approved, or planned in the near future; however, the cumulative effects may prove to be significant. Cumulative impacts can result from individually minor, but collectively significant projects taking place over a period of time. Cumulative impacts must be discussed when they are significant. The level of detail in the discussion of cumulative impacts should reflect the severity of the impacts, and their likelihood of occurrence, but the discussion need not provide as much detail as for the direct effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness.

A project may have a significant impact if it results in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable NAAQS or CAAQS. The Project is a Community within the City of San Diego, which was analyzed recently during the CEQA process for the San Diego GPU. The PEIR related that according to the Regional Growth Forecast[19] the City of San Diego is forecast to increase approximately 28 percent between 2004 and 2030 and concluded that even with each future discretionary project requiring mitigation, the degree of future impacts and applicability, feasibility, and success of future mitigation measures cannot be adequately known for each specific future project at this program level of analysis. Therefore, incremental emissions were considered cumulatively significant and unavoidable.

According to SANDAG's 2050 Regional Growth Forecast[20], the growth rate in the Ocean Beach Community Planning Area is less than what is projected for the entire City, i.e. approximately 12.4 percent. Therefore, the incremental effects of the Ocean Beach Planning Area would not result in a cumulatively considerable significant effect.

### 5.2.4 Could implementation of the Ocean Beach Community Plan Update expose sensitive receptors to substantial pollutant concentrations?

#### 5.2.4.1 Impact Analysis

Although the SDAB is currently an attainment area for CO, exhaust emissions can potentially cause a direct, localized —hotspot  impact at or near the proposed development. The primary source of this pollutant for the San Diego Air Basin in 2010 was mobile sources (mostly on-road passenger vehicles). CO is a product of incomplete combustion of fossil fuel; unlike ozone, CO is emitted directly out of a vehicle exhaust pipe and is quickly dissipated. The primary concerns for CO are congested major roadway intersections with sensitive receptors nearby, and where vehicles are either idling or moving at a stop-and-go pace. In order to analyze the potential impacts, a CO hotspot analysis is recommended. A CO hotspot is a localized concentration of CO that is above the state or national 1-hour or 8-hour CO ambient air standards.

If the traffic study indicates that the Level of Service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F or substantially worsen an already existing LOS F on one or more streets or at more or more intersections in the project vicinity. A CO hot-spot analysis was prepared in accordance with the Transportation Project-Level Carbon Monoxide

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[19] 2030 Regional Growth Forecast Update. San Diego Association of Governments. September 2006.

[20] 2050 Regional Growth Forecast. San Diego Association of Governments. February 26, 2010.

Protocol[21] (CO Protocol). According to the CO Protocol, intersections with a LOS E or F require detailed analysis.

The hot-spot analysis was performed on the two worst intersections, based on LOS and delay times, listed in the Traffic Impact Study[22] (TIS). One intersection analyzed is Sunset Cliffs Boulevard at Nimitz Boulevard, which was projected to be an LOS F with 210.3 seconds of average control delay and the other is Sunset Cliffs Boulevard at Interstate 8 (I-8) westbound (WB) off-ramp, which was also projected to remain an LOS F and a 208.8 second average control delay. CALINE4 was used to predict the potential CO concentrations at these two intersections. CALINE4 is a dispersion model produced by Caltrans that predicts CO impacts near roadways. CO modeling results are available in Appendix B.

There are several inputs to the CALINE4 model. One input is the traffic volumes, which is from the TIS, and another input is roadway widths. Although the TIS assumes specific roadway and intersection improvements, existing roadway widths were used in this analysis to provide a conservative scenario. Table 11 shows estimated CO concentrations at the worst-case receptor location for the two intersections. The CALINE4 output is added to the 1-hour and 8-hour backgrounds to produce the concentrations. Backgrounds were established by averaging the last 5 years of 8-hour CO monitoring data and dividing the 8-hour by a persistence factor of 0.7 to generate the 1-hour background. Significance impact shows the comparison of the 1-hour concentration to the State standard of 20 ppm and the 8-hour concentration to the State/national standard of 9 ppm.

**Table 11 – CO Concentrations Summary**

| Intersection | Estimated CO Concentration (ppm) | | Significant Impact? |
|---|---|---|---|
| | 1-hour | 8-hour | |
| Sunset Cliffs Blvd @ Nimitz Blvd | 0.40 | 0.28 | N |
| Sunset Cliffs Blvd @ I-8 WB off-ramp | 0.60 | 0.42 | N |

### 5.2.5 <u>Could implementation of the OBCPU create objectionable odors affecting a substantial number of people?</u>

#### 5.2.5.1 Impact Analysis

Projects that involve offensive odors may be a nuisance to neighboring uses, including businesses, residences, sensitive receptors, and public areas. While offensive odors rarely cause any physical harm, they still can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the District. Any project with the potential to frequently expose members of the public to objectionable odors would be deemed to have a significant impact. Analysis of potential odor impacts should be conducted for sources of odorous emissions, and receptors located near odorous sources.

Land uses included in the proposed Project are residential and commercial. While some relatively

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[21] Transportation Project-Level Carbon Monoxide Protocol. Garza, V.J., Graney, P., Sperling, D. University of California Davis, Institute of Transportation Studies. 1997.

[22] Ocean Beach Buildout Conditions, Traffic Impact Study - Final Report. Wilson & Company. July 2012.

minor odor generators may occur, the location of a major odor source is considered unlikely. There were no odors detected during site reconnaissance. The potential exists that future development of land slated for commercial use could result in odor problems depending on how close the odor source is to residences. However, the SDAPCD has a public nuisance rule (Rule 51) designed to prevent odor sources from becoming a problem. Any actions related to odors are based on citizen complaints to local governments and the local air districts. Rule 51 reads:

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

In addition the San Diego Municipal Code also addresses odor impacts at Chapter 14, Article 2, Division 7 paragraph 142.0710, —Air Contaminant Regulations which states:

> "Air contaminants including smoke, charred paper, dust, soot, grime, carbon, noxious acids, toxic fumes, gases, odors, and particulate matter, or any emissions that endanger human health, cause damage to vegetation or property, or cause soiling shall not be permitted to emanate beyond the boundaries of the premises upon which the use emitting the contaminants is located."

# Background Air Quality Technical Report

## Ocean Beach Community Plan Update PEIR

OB-1 AIR ANALYSES

***APPENDIX A** – Air Quality Calculations*

# OB - Emissions Summary

## First Phase (2013 through 2018)

| Category | Maximum Daily Emissions (lb/day) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | | | $PM_{2.5}$ | | |
| | | | | | Fugitive | Exhaust | Total | Fugitive | Exhaust | Total |
| Construction | 33.64 | 187.37 | 173.72 | 0.30 | 35.80 | 10.20 | 46.01 | 12.19 | 10.20 | 22.39 |
| Operational | 38.75 | 48.57 | 251.00 | 0.38 | 40.03 | 2.07 | 42.58 | 1.36 | 2.07 | 3.91 |
| **Total** | **72.4** | **235.9** | **424.7** | **0.7** | **75.8** | **12.3** | **88.6** | **13.6** | **12.3** | **26.3** |
| *SLT's* | *75* | *250* | *550* | *250* | *N/A* | | *100* | | | *55* |
| **Excceed?** | N | N | N | N | | | N | | | N |

## Second Phase (2013 through 2024)

| Category | Maximum Daily Emissions (lb/day) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | | | $PM_{2.5}$ | | |
| | | | | | Fugitive | Exhaust | Total | Fugitive | Exhaust | Total |
| Construction | 24.26 | 118.21 | 129.31 | 0.30 | 35.80 | 5.91 | 41.71 | 11.80 | 5.83 | 17.63 |
| Operational | 64.74 | 65.65 | 348.53 | 0.76 | 80.05 | 3.67 | 84.58 | 1.12 | 3.57 | 5.54 |
| **Total** | **89.0** | **183.9** | **477.8** | **1.1** | **115.9** | **9.6** | **126.3** | **12.9** | **9.4** | **23.2** |
| *SLT's* | *75* | *250* | *550* | *250* | *N/A* | | *100* | | | *55* |
| **Excceed?** | **Y** | N | N | N | | | **Y** | | | N |

## Final Phase (2025 through 2030)

| Category | Maximum Daily Emissions (lb/day) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | | | $PM_{2.5}$ | | |
| | | | | | Fugitive | Exhaust | Total | Fugitive | Exhaust | Total |
| Construction | 19.07 | 76.32 | 109.26 | 0.30 | 35.80 | 3.43 | 39.23 | 11.80 | 3.35 | 15.15 |
| Operational | 89.73 | 81.78 | 452.83 | 1.15 | 120.07 | 5.35 | 126.85 | 1.67 | 5.15 | 8.25 |
| **Total** | **108.8** | **158.1** | **562.1** | **1.5** | **155.9** | **8.8** | **166.1** | **13.5** | **8.5** | **23.4** |
| *SLT's* | *75* | *250* | *550* | *250* | *N/A* | | *100* | | | *55* |
| **Excceed?** | **Y** | N | **Y** | N | | | **Y** | | | N |

*CalEEMod Version: CalEEMod.2011.1.1* *Date: 12/19/2012*

# OB - Operational in 2030

**San Diego County, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric |
|---|---|---|
| Government Office Building | 1 | 1000sqft |
| Apartments Low Rise | 5 | Dwelling Unit |
| Apartments Mid Rise | 821 | Dwelling Unit |
| Single Family Housing | 488 | Dwelling Unit |
| Strip Mall | 76.8 | 1000sqft |

### 1.2 Other Project Characteristics

**Urbanization** Urban **Wind Speed (m/s)** 2.6 **Utility Company**

**Climate Zone** 13 **Precipitation Freq (Days)** 40 San Diego Gas & Electric

### 1.3 User Entered Comments

Woodstoves - No woodstoves; fireplaces are 15% gas; and days/yr = 100

Area Coating - APCD Rule 67.0 established EF of 100 g/l maximum for general flat coatings effective 2003

## 2.0 Emissions Summary

### 2.2 Overall Operational

| Category | Maximum Daily Emissions (lb/day) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | | | $PM_{2.5}$ | | |
| | | | | | Fugitive | Exhaust | Total | Fugitive | Exhaust | Total |
| Area | 47.83 | 1.26 | 109.40 | 0.01 | | 0.00 | 0.87 | | 0.00 | 0.87 |
| Energy | 0.81 | 6.96 | 2.98 | 0.04 | | 0.00 | 0.56 | | 0.00 | 0.56 |
| Mobile | 41.09 | 73.56 | 340.45 | 1.10 | 120.07 | 5.35 | 125.42 | 1.67 | 5.15 | 6.82 |
| **Total** | **89.73** | **81.78** | **452.83** | **1.15** | **120.07** | **5.35** | **126.85** | **1.67** | **5.15** | **8.25** |

## 4.0 Mobile Detail

### 4.2 Trip Summary Information

| Land Use | Average Daily Trip Rate | | | Annual VMT |
|---|---|---|---|---|
| | Weekday | Saturday | Sunday | |
| Apartments Low Rise | 32.95 | 35.80 | 30.35 | 94,184 |
| Apartments Mid Rise | 5,410.39 | 5,878.36 | 4,983.47 | 15,465,049 |
| Government Office Building | 68.93 | 0.00 | 0.00 | 84,433 |
| Single Family Housing | 4,670.16 | 4,919.04 | 4,279.76 | 13,276,997 |
| Strip Mall | 3,403.78 | 3,228.67 | 1,569.02 | 4,799,750 |
| **Total** | **13,586.21** | **14,061.87** | **10,862.60** | **33,720,414** |

### 4.3 Trip Type Information

| Land Use | Miles | | | Trip % | | |
|---|---|---|---|---|---|---|
| | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW |
| Apartments Low Rise | 10.80 | 7.30 | 7.50 | 41.60 | 18.80 | 39.60 |
| Apartments Mid Rise | 10.80 | 7.30 | 7.50 | 41.60 | 18.80 | 39.60 |
| Government Office Building | 9.50 | 7.30 | 7.30 | 33.00 | 62.00 | 5.00 |
| Single Family Housing | 10.80 | 7.30 | 7.50 | 41.60 | 18.80 | 39.60 |
| Strip Mall | 9.50 | 7.30 | 7.30 | 16.60 | 64.40 | 19.00 |

## 5.0 Energy Detail

### 5.2 Energy by Land Use - NaturalGas

| Land Use | Natural Gas Use (kBTU) | Maximum Daily Emissions (lb/day) | | | | | |
|---|---|---|---|---|---|---|---|
| | | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| Apartments Low Rise | 228.92 | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 |
| Apartments Mid Rise | 23,707.60 | 0.26 | 2.18 | 0.93 | 0.01 | 0.18 | 0.18 |
| Government Office Building | 57.62 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| Single Family Housing | 50,990.50 | 0.55 | 4.70 | 2.00 | 0.03 | 0.38 | 0.38 |
| Strip Mall | 481.84 | 0.01 | 0.05 | 0.04 | 0.00 | 0.00 | 0.00 |
| **Total** | | **0.82** | **6.96** | **2.98** | **0.04** | **0.56** | **0.56** |

## 6.0 Area Detail

### 6.2 Area by SubCategory

| SubCategory | Maximum Daily Emissions (lb/day) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | | | $PM_{2.5}$ | | |
| | | | | | Fugitive | Exhaust | Total | Fugitive | Exhaust | Total |
| Architectural Coating | 6.04 | | | | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Consumer Products | 38.14 | | | | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Hearth | 0.38 | 0.00 | 0.02 | 0.00 | | 0.26 | 0.26 | | 0.26 | 0.26 |
| Landscaping | 3.27 | 1.26 | 109.38 | 0.01 | | 0.61 | 0.61 | | 0.61 | 0.61 |
| **Total** | **47.83** | **1.26** | **109.40** | **0.01** | | **0.87** | **0.87** | | **0.87** | **0.87** |

*CalEEMod Version: CalEEMod.2011.1.1* *Date: 12/19/2012*

# OB - Operational in 2024

**San Diego County, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric |
|---|---|---|
| Government Office Building | 0.67 | 1000sqft |
| Apartments Low Rise | 3.33 | Dwelling Unit |
| Apartments Mid Rise | 547.33 | Dwelling Unit |
| Single Family Housing | 325.33 | Dwelling Unit |
| Strip Mall | 51.2 | 1000sqft |

### 1.2 Other Project Characteristics

**Urbanization** Urban **Wind Speed (m/s)** 2.6 **Utility Company** San Diego Gas & Electric

**Climate Zone** 13 **Precipitation Freq (Days)** 40

### 1.3 User Entered Comments

Woodstoves - No woodstoves; fireplaces are 15% gas; and days/yr = 100

Area Coating - APCD Rule 67.0 established EF of 100 g/l maximum for general flat coatings effective 2003

## 2.0 Emissions Summary

### 2.2 Overall Operational

| Category | Maximum Daily Emissions (lb/day) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | | | $PM_{2.5}$ | | |
| | | | | | Fugitive | Exhaust | Total | Fugitive | Exhaust | Total |
| Area | 31.77 | 0.84 | 73.09 | 0.00 | | 0.00 | 0.49 | | 0.00 | 0.49 |
| Energy | 0.54 | 4.64 | 1.99 | 0.03 | | 0.00 | 0.37 | | 0.00 | 0.37 |
| Mobile | 32.43 | 60.17 | 273.45 | 0.73 | 80.05 | 3.67 | 83.72 | 1.12 | 3.57 | 4.68 |
| **Total** | **64.74** | **65.65** | **348.53** | **0.76** | **80.05** | **3.67** | **84.58** | **1.12** | **3.57** | **5.54** |

## 4.0 Mobile Detail

### 4.2 Trip Summary Information

| Land Use | Average Daily Trip Rate | | | Annual VMT |
|---|---|---|---|---|
| | Weekday | Saturday | Sunday | |
| Apartments Low Rise | 21.94 | 23.84 | 20.21 | 62,727 |
| Apartments Mid Rise | 3,606.90 | 3,918.88 | 3,322.29 | 10,309,970 |
| Government Office Building | 46.18 | 0.00 | 0.00 | 56,570 |
| Single Family Housing | 3,113.41 | 3,279.33 | 2,853.14 | 8,851,241 |
| Strip Mall | 2,269.18 | 2,152.45 | 1,046.02 | 3,199,833 |
| **Total** | **9,057.62** | **9,374.50** | **7,241.67** | **22,480,341** |

### 4.3 Trip Type Information

| Land Use | Miles | | | Trip % | | |
|---|---|---|---|---|---|---|
| | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW |
| Apartments Low Rise | 10.80 | 7.30 | 7.50 | 41.60 | 18.80 | 39.60 |
| Apartments Mid Rise | 10.80 | 7.30 | 7.50 | 41.60 | 18.80 | 39.60 |
| Government Office Building | 9.50 | 7.30 | 7.30 | 33.00 | 62.00 | 5.00 |
| Single Family Housing | 10.80 | 7.30 | 7.50 | 41.60 | 18.80 | 39.60 |
| Strip Mall | 9.50 | 7.30 | 7.30 | 16.60 | 64.40 | 19.00 |

## 5.0 Energy Detail

### 5.2 Energy by Land Use - NaturalGas

| Land Use | Natural Gas Use (kBTU) | Maximum Daily Emissions (lb/day) | | | | | |
|---|---|---|---|---|---|---|---|
| | | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| Apartments Low Rise | 152.46 | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| Apartments Mid Rise | 15,804.90 | 0.17 | 1.46 | 0.62 | 0.01 | 0.12 | 0.12 |
| Government Office Building | 38.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Single Family Housing | 33,993.30 | 0.37 | 3.13 | 1.33 | 0.02 | 0.25 | 0.25 |
| Strip Mall | 321.23 | 0.00 | 0.03 | 0.03 | 0.00 | 0.00 | 0.00 |
| **Total** | | **0.54** | **4.63** | **1.99** | **0.03** | **0.37** | **0.37** |

## 6.0 Area Detail

### 6.2 Area by SubCategory

| SubCategory | Maximum Daily Emissions (lb/day) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | | | $PM_{2.5}$ | | |
| | | | | | Fugitive | Exhaust | Total | Fugitive | Exhaust | Total |
| Architectural Coating | 4.02 | | | | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Consumer Products | 25.43 | | | | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Hearth | 0.13 | 0.00 | 0.01 | 0.00 | | 0.09 | 0.09 | | 0.09 | 0.09 |
| Landscaping | 2.20 | 0.84 | 73.08 | 0.00 | | 0.40 | 0.40 | | 0.40 | 0.40 |
| **Total** | **31.78** | **0.84** | **73.09** | **0.00** | | **0.49** | **0.49** | | **0.49** | **0.49** |

*CalEEMod Version: CalEEMod.2011.1.1* *Date: 12/19/2012*

# OB - Operational in 2018

**San Diego County, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric |
|---|---|---|
| Government Office Building | 0.33 | 1000sqft |
| Apartments Low Rise | 1.67 | Dwelling Unit |
| Apartments Mid Rise | 273.67 | Dwelling Unit |
| Single Family Housing | 162.67 | Dwelling Unit |
| Strip Mall | 25.6 | 1000sqft |

### 1.2 Other Project Characteristics

**Urbanization** Urban **Wind Speed (m/s)** 2.6 **Utility Company** San Diego Gas & Electric

**Climate Zone** 13 **Precipitation Freq (Days)** 40

### 1.3 User Entered Comments

Woodstoves - No woodstoves; fireplaces are 15% gas; and days/yr = 100

Area Coating - APCD Rule 67.0 established EF of 100 g/l maximum for general flat coatings effective 2003

## 2.0 Emissions Summary

### 2.2 Overall Operational

| Category | Maximum Daily Emissions (lb/day) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | | | $PM_{2.5}$ | | |
| | | | | | Fugitive | Exhaust | Total | Fugitive | Exhaust | Total |
| Area | 16.02 | 0.43 | 37.09 | 0.00 | | 0.00 | 0.29 | | 0.00 | 0.29 |
| Energy | 0.27 | 2.32 | 0.99 | 0.01 | | 0.00 | 0.19 | | 0.00 | 0.19 |
| Mobile | 22.46 | 45.82 | 212.92 | 0.37 | 40.03 | 2.07 | 42.10 | 1.36 | 2.07 | 3.43 |
| **Total** | **38.75** | **48.57** | **251.00** | **0.38** | **40.03** | **2.07** | **42.58** | **1.36** | **2.07** | **3.91** |

## 4.0 Mobile Detail

### 4.2 Trip Summary Information

| Land Use | Average Daily Trip Rate | | | Annual VMT |
|---|---|---|---|---|
| | Weekday | Saturday | Sunday | |
| Apartments Low Rise | 11.01 | 11.96 | 10.14 | 31,458 |
| Apartments Mid Rise | 1,803.49 | 1,959.48 | 1,661.18 | 5,155,079 |
| Government Office Building | 22.75 | 0.00 | 0.00 | 27,863 |
| Single Family Housing | 1,556.75 | 1,639.71 | 1,426.62 | 4,425,757 |
| Strip Mall | 1,134.59 | 1,076.22 | 523.01 | 1,599,917 |
| **Total** | **4,528.58** | **4,687.37** | **3,620.94** | **11,240,073** |

### 4.3 Trip Type Information

| Land Use | Miles | | | Trip % | | |
|---|---|---|---|---|---|---|
| | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW |
| Apartments Low Rise | 10.80 | 7.30 | 7.50 | 41.60 | 18.80 | 39.60 |
| Apartments Mid Rise | 10.80 | 7.30 | 7.50 | 41.60 | 18.80 | 39.60 |
| Government Office Building | 9.50 | 7.30 | 7.30 | 33.00 | 62.00 | 5.00 |
| Single Family Housing | 10.80 | 7.30 | 7.50 | 41.60 | 18.80 | 39.60 |
| Strip Mall | 9.50 | 7.30 | 7.30 | 16.60 | 64.40 | 19.00 |

## 5.0 Energy Detail

### 5.2 Energy by Land Use - NaturalGas

| Land Use | Natural Gas Use (kBTU) | Maximum Daily Emissions (lb/day) | | | | | |
|---|---|---|---|---|---|---|---|
| | | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | $PM_{2.5}$ |
| Apartments Low Rise | 76.46 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| Apartments Mid Rise | 7,902.61 | 0.09 | 0.73 | 0.31 | 0.00 | 0.06 | 0.06 |
| Government Office Building | 19.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Single Family Housing | 16,997.20 | 0.18 | 1.57 | 0.67 | 0.01 | 0.13 | 0.13 |
| Strip Mall | 160.61 | 0.00 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 |
| **Total** | | **0.27** | **2.33** | **0.99** | **0.01** | **0.19** | **0.19** |

## 6.0 Area Detail

### 6.2 Area by SubCategory

| SubCategory | Maximum Daily Emissions (lb/day) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | | | $PM_{2.5}$ | | |
| | | | | | Fugitive | Exhaust | Total | Fugitive | Exhaust | Total |
| Architectural Coating | 2.01 | | | | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Consumer Products | 12.71 | | | | | 0.00 | 0.00 | | 0.00 | 0.00 |
| Hearth | 0.13 | 0.00 | 0.01 | 0.00 | | 0.09 | 0.09 | | 0.09 | 0.09 |
| Landscaping | 1.17 | 0.43 | 37.08 | 0.00 | | 0.20 | 0.20 | | 0.20 | 0.20 |
| **Total** | **16.02** | **0.43** | **37.09** | **0.00** | | **0.29** | **0.29** | | **0.29** | **0.29** |

*CalEEMod Version: CalEEMod.2011.1.1* — *Date: 12/19/2012*

# OB - Construction 2030

**San Diego County, Summer**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric |
|---|---|---|
| Government Office Building | 1 | 1000sqft |
| Apartments Low Rise | 5 | Dwelling Unit |
| Apartments Mid Rise | 821 | Dwelling Unit |
| Single Family Housing | 488 | Dwelling Unit |
| Strip Mall | 76.8 | 1000sqft |

### 1.2 Other Project Characteristics

**Urbanization** Urban — **Wind Speed (m/s)** 2.6 — **Utility Company** San Diego Gas & Electric

**Climate Zone** 13 — **Precipitation Freq (Days)** 40

### 1.3 User Entered Comments

Construction Phase - Modifications to adjust for completion by 2030
Off-road Equipment - Load factors from 2011 Carl Moyer Guidelines.

## 2.0 Emissions Summary

### 2.1 Overall Construction

| Year | Maximum Daily Emissions (lb/day) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ROG | $NO_X$ | CO | $SO_2$ | $PM_{10}$ | | | $PM_{2.5}$ | | |
| | | | | | Fugitive | Exhaust | Total | Fugitive | Exhaust | Total |
| 2013 | 33.64 | 187.37 | 173.72 | 0.30 | 35.80 | 10.20 | 46.01 | 12.19 | 10.20 | 22.39 |
| 2014 | 31.80 | 174.77 | 164.08 | 0.30 | 35.80 | 9.37 | 45.18 | 12.19 | 9.37 | 21.56 |
| 2015 | 30.06 | 161.63 | 155.47 | 0.30 | 35.80 | 8.59 | 44.40 | 12.19 | 8.59 | 20.78 |
| 2016 | 28.46 | 149.50 | 147.82 | 0.30 | 35.80 | 7.85 | 43.65 | 12.19 | 7.85 | 20.04 |
| 2017 | 26.94 | 138.25 | 140.84 | 0.30 | 35.80 | 7.16 | 42.96 | 12.19 | 7.16 | 19.34 |
| 2018 | 25.53 | 127.78 | 134.60 | 0.30 | 35.80 | 6.50 | 42.30 | 11.80 | 6.42 | 18.22 |
| 2019 | 24.26 | 118.21 | 129.31 | 0.30 | 35.80 | 5.91 | 41.71 | 11.80 | 5.83 | 17.63 |
| 2020 | 23.14 | 109.46 | 124.80 | 0.30 | 35.80 | 5.37 | 41.17 | 11.80 | 5.29 | 17.09 |
| 2021 | 22.14 | 101.41 | 121.36 | 0.30 | 35.80 | 4.88 | 40.69 | 11.80 | 4.81 | 16.61 |
| 2022 | 21.26 | 94.18 | 117.79 | 0.30 | 35.80 | 4.46 | 40.26 | 11.80 | 4.38 | 16.18 |
| 2023 | 20.45 | 87.58 | 114.53 | 0.30 | 35.80 | 4.06 | 39.87 | 11.80 | 3.99 | 15.79 |
| 2024 | 19.73 | 81.66 | 111.67 | 0.30 | 35.80 | 3.73 | 39.53 | 11.80 | 3.65 | 15.45 |
| 2025 | 19.07 | 76.32 | 109.26 | 0.30 | 35.80 | 3.43 | 39.23 | 11.80 | 3.35 | 15.15 |
| 2026 | 19.07 | 76.32 | 109.26 | 0.30 | 35.80 | 3.43 | 39.23 | 11.80 | 3.35 | 15.15 |
| 2027 | 19.07 | 76.32 | 109.26 | 0.30 | 35.80 | 3.43 | 39.23 | 11.80 | 3.35 | 15.15 |
| 2028 | 19.07 | 76.32 | 109.26 | 0.30 | 35.80 | 3.43 | 39.23 | 11.80 | 3.35 | 15.15 |
| 2029 | 19.07 | 76.32 | 109.26 | 0.30 | 35.80 | 3.43 | 39.23 | 11.80 | 3.35 | 15.15 |
| 2030 | 16.70 | 56.81 | 100.82 | 0.30 | 35.80 | 2.36 | 38.16 | 11.80 | 2.29 | 14.09 |
| **Max Daily 2013-18** | **33.64** | **187.37** | **173.72** | **0.30** | **35.80** | **10.20** | **46.01** | **12.19** | **10.20** | **22.39** |
| **Max Daily 2019-24** | **24.26** | **118.21** | **129.31** | **0.30** | **35.80** | **5.91** | **41.71** | **11.80** | **5.83** | **17.63** |
| **Max Daily 2025-30** | **19.07** | **76.32** | **109.26** | **0.30** | **35.80** | **3.43** | **39.23** | **11.80** | **3.35** | **15.15** |

# Background Air Quality Technical Report

**Ocean Beach Community Plan Update PEIR**

OB-1 AIR ANALYSES

***APPENDIX B** – CO Modeling Results*

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

              JOB: Sunset Cliffs Blvd @ Nimitz Blvd
              RUN: Hour 1           (WORST CASE ANGLE)
        POLLUTANT: Carbon Monoxide
```

I. SITE VARIABLES

```
        U=   1.0 M/S            Z0= 100. CM            ALT=     1. (M)
      BRG= WORST CASE           VD=  0.0 CM/S
     CLAS=     7 (G)            VS=  0.0 CM/S
     MIXH= 1000. M             AMB=  0.0 PPM
    SIGTH=    5. DEGREES      TEMP= 10.0 DEGREE (C)
```

II. LINK VARIABLES

| LINK DESCRIPTION | X1 | Y1 | X2 | Y2 | TYPE | VPH | EF (G/MI) | H (M) | W (M) |
|---|---|---|---|---|---|---|---|---|---|
| A. NB External | 5 | 0 | 5 | 600 | AG | 0 | 1.1 | 0.0 | 10.0 |
| B. NB Approach | 5 | 600 | 5 | 753 | AG | 0 | 1.5 | 0.0 | 10.0 |
| C. NB Depart | 5 | 753 | 5 | 905 | AG | 0 | 1.5 | 0.0 | 10.0 |
| D. NB External | 5 | 905 | 5 | 1505 | AG | 0 | 1.1 | 0.0 | 10.0 |
| E. NB Left | 5 | 600 | 3 | 753 | AG | 0 | 1.5 | 0.0 | 10.0 |
| F. SB Left | 0 | 905 | 3 | 753 | AG | 0 | 1.5 | 0.0 | 10.0 |
| G. SB External | 0 | 1505 | 0 | 905 | AG | 2215 | 1.1 | 0.0 | 10.0 |
| H. SB Approach | 0 | 905 | 0 | 753 | AG | 2215 | 1.5 | 0.0 | 10.0 |
| I. SB Depart | 0 | 753 | 0 | 600 | AG | 2255 | 1.5 | 0.0 | 10.0 |
| J. SB External | 0 | 600 | 0 | 0 | AG | 2255 | 1.1 | 0.0 | 10.0 |
| K. EB External | -750 | 750 | -150 | 750 | AG | 1310 | 1.1 | 0.0 | 10.0 |
| L. EB Approach | -150 | 750 | 3 | 750 | AG | 1310 | 1.5 | 0.0 | 10.0 |
| M. EB Depart | 3 | 750 | 155 | 750 | AG | 1270 | 1.5 | 0.0 | 10.0 |
| N. EB External | 155 | 750 | 755 | 750 | AG | 1270 | 1.1 | 0.0 | 10.0 |
| O. WB External | 755 | 755 | 155 | 755 | AG | 0 | 1.1 | 0.0 | 10.0 |
| P. WB Approach | 155 | 755 | 3 | 755 | AG | 0 | 1.5 | 0.0 | 10.0 |
| Q. WB Depart | 3 | 755 | -150 | 755 | AG | 0 | 1.5 | 0.0 | 10.0 |
| R. WB External | -150 | 755 | -750 | 755 | AG | 0 | 1.1 | 0.0 | 10.0 |
| S. EB Left | -150 | 750 | 3 | 753 | AG | 0 | 1.5 | 0.0 | 10.0 |
| T. WB Left | 155 | 755 | 3 | 753 | AG | 0 | 1.5 | 0.0 | 10.0 |

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

JOB: Sunset Cliffs Blvd @ Nimitz Blvd
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

| RECEPTOR | COORDINATES (M) X | Y | Z |
|---|---|---|---|
| 1. Receptor | -6 | 744 | 2.0 |
| 2. Receptor | 11 | 744 | 2.0 |
| 3. Receptor | 11 | 761 | 2.0 |
| 4. Receptor | -6 | 761 | 2.0 |

IV. MODEL RESULTS (WORST CASE WIND ANGLE )

| RECEPTOR | BRG (DEG) | PRED CONC (PPM) | CONC/LINK (PPM) A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Receptor | 5. | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 |
| 2. Receptor | 275. | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3. Receptor | 188. | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4. Receptor | 175. | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| RECEPTOR | CONC/LINK (PPM) I | J | K | L | M | N | O | P | Q | R | S | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Receptor | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2. Receptor | 0.1 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3. Receptor | 0.2 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4. Receptor | 0.3 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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

            JOB: Sunset Cliffs Blvd @ I-8 WB off-ramp
            RUN: Hour 1           (WORST CASE ANGLE)
      POLLUTANT: Carbon Monoxide


I.  SITE VARIABLES

    U=   1.0 M/S             Z0= 100. CM            ALT=     1. (M)
  BRG= WORST CASE            VD=  0.0 CM/S
 CLAS=     7 (G)             VS=  0.0 CM/S
 MIXH= 1000. M              AMB=  0.0 PPM
SIGTH=    5. DEGREES       TEMP= 10.0 DEGREE (C)


II.  LINK VARIABLES

    LINK       *  LINK COORDINATES (M)    *                EF     H      W
 DESCRIPTION   *   X1     Y1     X2     Y2  * TYPE  VPH   (G/MI)  (M)   (M)
----------------*-------------------------*------------------------------
A. NB External  *     5      0      5    600 *  AG   1220    1.1    0.0  10.0
B. NB Approach  *     5    600      5    754 *  AG   1220    1.5    0.0  10.0
C. NB Depart    *     5    754      5    908 *  AG   1245    1.5    0.0  10.0
D. NB External  *     5    908      5   1508 *  AG   1245    1.1    0.0  10.0
E. NB Left      *     5    600      3    754 *  AG      0    1.5    0.0  10.0
F. SB Left      *     0    908      3    754 *  AG      0    1.5    0.0  10.0
G. SB External  *     0   1508      0    908 *  AG   1455    1.1    0.0  10.0
H. SB Approach  *     0    908      0    754 *  AG   1455    1.5    0.0  10.0
I. SB Depart    *     0    754      0    600 *  AG   4050    1.5    0.0  10.0
J. SB External  *     0    600      0      0 *  AG   4050    1.1    0.0  10.0
K. EB External  *  -750    750   -150    750 *  AG      0    1.1    0.0  11.4
L. EB Approach  *  -150    750      3    750 *  AG      0    1.5    0.0  11.4
M. EB Depart    *     3    750    155    750 *  AG      0    1.5    0.0  11.4
N. EB External  *   155    750    755    750 *  AG      0    1.1    0.0  11.4
O. WB External  *   755    758    155    758 *  AG   2620    1.1    0.0  11.4
P. WB Approach  *   155    758      3    758 *  AG     25    1.5    0.0  11.4
Q. WB Depart    *     3    758   -150    758 *  AG      0    1.5    0.0  11.4
R. WB External  *  -150    758   -750    758 *  AG      0    1.1    0.0  11.4
S. EB Left      *  -150    750      3    754 *  AG      0    1.5    0.0  11.4
T. WB Left      *   155    758      3    754 *  AG   2595    1.5    0.0  11.4
```

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

                JOB: Sunset Cliffs Blvd @ I-8 WB off-ramp
                RUN: Hour 1           (WORST CASE ANGLE)
          POLLUTANT: Carbon Monoxide
```

III. RECEPTOR LOCATIONS

| RECEPTOR | COORDINATES (M) X | Y | Z |
|---|---|---|---|
| 1. Receptor | -6 | 743 | 2.0 |
| 2. Receptor | 11 | 743 | 2.0 |
| 3. Receptor | 11 | 766 | 2.0 |
| 4. Receptor | -6 | 766 | 2.0 |

IV. MODEL RESULTS (WORST CASE WIND ANGLE )

| RECEPTOR | BRG (DEG) | PRED CONC (PPM) | CONC/LINK (PPM) A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Receptor | 174. | 0.7 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2. Receptor | 187. | 0.5 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3. Receptor | 186. | 0.6 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 4. Receptor | 175. | 0.7 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| RECEPTOR | CONC/LINK (PPM) I | J | K | L | M | N | O | P | Q | R | S | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Receptor | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2. Receptor | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3. Receptor | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| 4. Receptor | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |